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Have India's Financial Market Reforms Changed Firms' Corporate Financing Patterns?

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Have India's Financial Market Reforms Changed Firms' Corporate Financing Patterns?

Sayuri Shirai

June 2002

Since India embarked on a period of reform, the corporate financial structures have depended on the firms' characteristics. For example, new, small, unprofitable, high-risk firms tend to depend more heavily on domestic loans than old, large, profitable, low-risk firms, as the latter can generate large internal resources. Moreover, the latter have greater access to commercial paper and foreign credit markets compared with the former, suggesting that they can be characterized as high-quality firms. Nevertheless, there are no distinct differences in terms of access to the capital markets among firms. Most bonds are privately placed, which enables even low-quality issuers to raise funds, thanks to loose accounting and disclosure requirements. Moreover, the public equity market has been accessible for a wide range of firms, while it has failed to provide stable sources of finance to firms. This indicates that the informational, legal and judicial infrastructure for an equity market is underdeveloped. Similar conclusions are derived based on the analysis of the characteristics of firms that have more recourse to loans.



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Changed Firms' Corporate Financing
Patterns?**



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PREFACE

The ADB Institute aims to explore the most appropriate development paradigms for Asia composed of well-balanced combinations of the roles of markets, institutions, and governments in the post-crisis period.

Under this broad research project on development paradigms, the ADB Institute Research Paper Series will contribute to disseminating works-in-progress as a building block of the project and will invite comments and questions.

I trust that this series will provoke constructive discussions among policymakers as well as researchers about where Asian economies should go from the last crisis and recovery.

Masaru Yoshitomi
Dean
ADB Institute

ABSTRACT

This paper assesses the changes in corporate financing patterns of India's domestic manufacturing firms during the reform period. The results are summarized into the following five findings. First, observations with respect to firms' corporate financial choices have revealed that the capital structure of domestic manufacturing firms depends on their characteristics. For example, new, small, unprofitable, high-risk firms tend to depend more heavily on loans from domestic banks and financial institutions than old, large, profitable, low-risk firms, as the latter can generate greater internal resources. Moreover, the latter have greater access to the commercial paper (CP) and foreign credit markets as compared with the former, suggesting that the latter can be characterized as high-quality firms.

Second, on the other hand, there are no distinct differences in terms of access to the corporate bond market, although large and low-risk firms issue corporate bonds somewhat more than small and high-risk ones. This could be closely associated with the fact that most bonds are privately placed, so issuers are not subject to stringent accounting and disclosure requirement set by the Securities and Exchange Board of India (SEBI). These observations on India are consistent with the empirical estimation results, which show that there has been no clear shift from bank loans to bond finance for high-quality firms (characterized as old, profitable, low-risk, export-oriented, CP-issuing, and publicly listed). However, a relatively stronger inverse relationship is observed between loans from financial institutions and bond finance (for large, low-risk, and publicly listed firms). This may reflect that financial institutions tend to provide long-term loans to manufacturing firms so that their loans are direct substitutes for bonds (of five to seven years), whereas banks tend to provide short-term loans so that their loans are not substitutes for bonds.

Third, the equity market has provided important financing sources for India's domestic manufacturing firms. Large firms are major issuers of new equity, but even new, high-risk firms have also increased equity finance during the reform period, enabling them to diversify their corporate financing sources. While equity finance has become one of the most important financing sources, the equity market has failed to provide stable sources of finance to firms. Firms appear to have taken advantage of the two stock market booms in order to raise funds cheaply, but have shifted away from the market once the boom collapsed. Therefore, there is no marked decline in the importance of loans from domestic banks and financial institutions relative to equity for any types of firms. This reflects that the informational, legal and judicial infrastructures needed for a sound capital market have remained inadequate, despite SEBI's efforts, so investor confidence in the equity market has not increased. This is evidenced by the frequent cases of malpractices and price riggings. Moreover, the inadequate protection of minority shareholders as well as poor corporate governance have also

discouraged investors from entering the equity market. In addition, tighter regulations in the public capital market have encouraged firms to shift to the privately placed bond market. Such a regulatory arbitrage merits greater attention.

Fourth, this paper tested whether banks have engaged in “relationship lending,” which is necessary when extending credit to firms such as small and medium enterprises (SMEs), on whom information is largely idiosyncratic. The results indicated that banks have extended credit heavily to unprofitable firms during 1992-2001. Moreover, bank credits to high-quality firms (those that are export-oriented, publicly listed, and CP-issuing) were greater in 1992-1996. But such differences between export-oriented and less export-oriented, between publicly listed and unlisted firms, and between CP-issuing and those not issuing have been insignificant during 1997-2001. These are indications that banks have engaged in relationship lending to a wide range of firms including low-quality firms in more recent years. Further, bank credits to firms that were less profitable in the previous two years have been significantly higher, indicating that they allow credit to financially distressed firms—further evidence of relationship lending. Nevertheless, banks continue to extend more credit to old firms during 1992-2001 and to low-risk firms in 1997-2001, suggesting that banks have not engaged in relationship lending to a full extent.

In addition, this paper has found that compared to banks, financial institutions have a greater incentive to extend credit to low-quality firms. Financial institutions not only provide loans intensively to unprofitable firms, but also finance heavily new firms and those not issuing CP. This reflects financial institutions’ greater incentive to engage in relationship lending. Such a difference reflects that financial institutions are long-term financiers to firms and, thus, the potential problems of adverse selection and moral hazard are likely to be more severe for them than those faced by banks. This is because banks as short-term financiers can impose discipline on borrowers through frequent refinancing, while financial institutions cannot do so.

Fifth, this paper has found that banks tend to increase their investment in government bonds by lowering advances to firms, in spite of a decline in the statutory liquidity ratio (requiring banks to hold a certain portion of deposits in the form of government and approved bonds). Banks’ preference toward government bonds over lending raises concerns that they have not sufficiently improved the risk management skills needed for extending credit to SMEs, whose information is more idiosyncratic and which are subject to severe moral hazard problems. Another concern is that the increased holdings of government bonds may eventually crowd out the private sector, once the economy starts expanding, by squeezing credit available to SMEs or other relatively low-quality firms. While the tightening of the capital adequacy requirement has contributed to this phenomenon, some incentive-enhancing measures may be necessary.

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Executive Summary

Observations

- Indian manufacturing firms generally depend more heavily on external sources of finance than internal resources during 1990-2001. Among the former, loans from banks and financial institutions have been important sources of finance. While equity finance is equally important, it is a more volatile source than loans from banks and financial institutions. Bonds are the next most important financing source, followed by foreign borrowings and then commercial paper. This observation is consistent with patterns observed in other developing countries.
- Old, large, profitable, low-risk firms (so-called “high-quality” firms) tend to be more internally financed than firms that are new, small, unprofitable, and of high-risk (so-called “low-quality” firms). Further, the dependence of the former on CP and foreign borrowings is greater than that of the latter. On the other hand, the latter tend to borrow more heavily from domestic banks and financial institutions. And, in the absence of a reputation (and track record) and highly idiosyncratic return streams, the latter face more severe information asymmetry or agency problems. This makes it difficult for them to gain access to the CP and foreign credit markets, leaving no other choice but to depend on domestic loans from banks and financial institutions.
- There is a greater percentage of total liabilities of outstanding bonds issued by large and low-risk firms than by small and high-risk ones. However, the respective bond issuance levels did not differ greatly. Also, the degree of dependence of old and new firms (and profitable and unprofitable ones) on bond finance was comparable. This suggests that since nearly all bond issues are privately placed, firms that are relatively low-quality firms—those facing greater information asymmetry and agency problems—can also issue bonds.
- Compared with small firms, large ones not only have greater outstanding share capital as a percentage of total liabilities but also have greater new equity finance as a percentage of total new sources of finance. On the other hand, new, high-risk firms have also increased new equity financing during 1990-2001, although their share capital in terms of total liabilities has remained smaller than old, low-risk firms. This suggests that during the reform period, these low-quality firms have gained access to the equity market, helping them to diversify their financing sources.
- Over all, equity finance has become one of the most important external financing sources during 1990-2001. However, it has not provided stable sources of finance; firms issued new equity mainly during the stock market booms in order to take advantage of the lower cost of capital. Thus, there has been no marked decline in the importance of loans from banks and financial institutions compared to equity for any types of firms.

- The above observations appear to be consistent with the pecking order theory of capital structure applied to the case of information asymmetries between firms' insiders and outsiders. First, low-quality firms that are not able to obtain sufficient funds from internal sources tend to rely heavily on borrowings from domestic banks and financial institutions. Second, bond finance has provided a more stable financing source for firms than equity finance. Third, high-quality firms tend to have greater access to CP and foreign credit markets than low-quality firms. Since the former are likely to have low degrees of information asymmetry and agency problems, their financing sources can be more diversified.
- Software firms depend more heavily on internal sources than other firms. While equity finance is volatile, firms tend to have more recourse to it when internal sources decline. Moreover, outstanding share capital as a percentage of total liabilities is far greater than that of other firms. Since they are relatively high-risk enterprises with a large amount of intangible assets, it is likely that these firms cannot borrow easily from banks and financial institutions.
- Publicly listed software firms depend more heavily on equity finance than unlisted software firms. This trend was particularly pronounced during the stock market boom of 1993-1995 and the information technology (IT) stocks boom of 1999-2000. On the other hand, unlisted software firms tend to gain finance mostly from internal sources, followed by (largely privately-placed) bonds.

Testing Hypotheses

- This paper examines two categories of questions. The first is related to an assessment of the impact of the financial market reforms by analyzing how banks have changed their lending behavior during the reform period (Hypotheses 1-4). A similar question is applied to the case of financial institutions such as development banks. Another related question is whether banks regard government bonds as a preferable asset to lending activities. The second category of questions is based on whether the recent improvement in the informational, legal, and judicial infrastructures needed for a sound capital market has affected firms' capital structure (Hypotheses 5-6). In the past, a large number of firms gained access to equity markets thanks to loose initial public offering (IPO) listing and disclosure requirements. The important question is, therefore, whether the recent improvement in the infrastructures has helped in the differentiation between high- and low-quality firms and, thus, whether the former have maintained or increased access to capital markets while the latter have not.
- The first hypothesis is that banking sector reforms since 1991 have forced banks to become more sensitive to credit risks and returns and thus, have provided them with an incentive to process information about borrowers and monitor their performance (so-called "relationship lending"). Since adverse selection is more severe among firms with a high degree of informational asymmetry, the signaling effect of domestic bank loans becomes more important for these firms. Also, the role of banks as an effective monitor becomes important, because such firms tend

to be small and medium enterprises (SMEs) with a heavy dependence on bank loans and only limited access to the capital market. This paper assumes that firms facing severe problems of adverse selection and moral hazard are those that are relatively new, small, unprofitable, and of high-risk. Moreover, those that are publicly unlisted firms, not issuing CP, and less export-oriented are likely to face the above problems.

- The estimation results indicate that banks have paid some attention to the type of firms and extend more credit to unprofitable firms over the period. They extended more credit to high-quality firms (such as export-oriented, publicly listed, and CP-issuing firms) in 1992-1996. But no differences are observed in banks' lending to firms based on export-orientation, access to stock exchanges, or ability to issue CP during 1997-2001, implying that they have been willing to extend credit to both high- and low-quality firms. Thus, banks have been expanding their customer base to embrace a wide range of firms by engaging in relationship lending, particularly after the tightening of capital market regulation in 1996 discouraged low-quality firms from raising funds from the capital market. Nevertheless, banks continue to extend more credit to old firms during 1992-2001 and to low-risk firms in 1997-2001, suggesting that banks have not engaged in relationship lending to a full extent.
- The second hypothesis is that one of the advantages of banks is that they can resolve problems arising from informational asymmetries and conflicts of interest, which results in fewer liquidity constraints for firms, particularly at times of distress. If banks engaged in relationship lending, they would continue to provide stable credit to low-quality firms even though firms' profitability had been previously low (as long as they are viable).
- The estimation results show that in the previous two years, bank loans were higher for firms with a lower level of profitability. This may suggest that banks have extended credit even though a firm's profitability may have temporarily dipped in the previous two years (as long as they are viable.) In addition, the inclusion of the lagged variable of profitability improved the estimation results of the model, suggesting that its impact should not be dismissed.
- The third hypothesis is that financial institutions, like banks, have been sensitive to firms' characteristics in their credit allocation and at the same time have engaged in relationship lending over the reform period.
- The estimation results indicate that financial institutions have been responsive to firms' characteristics in the reform period—in a similar manner to banks. While banks and financial institutions both extend credit to unprofitable firms, financial institutions tend to allot loans increasingly to new firms and those not issuing CP. This suggests that financial institutions engage in relationship lending more extensively than banks. This may be related to the fact that financial institutions remain long-term financiers to manufacturing firms compared with banks. Thus, financial institutions face greater potential problems of adverse selection and

moral hazard than banks, as the latter can impose discipline on borrowers through frequent refinancing while the former cannot do so. As a result, financial institutions have greater incentives than banks to process information about their borrowers and monitor their performance.

- Traditionally, banks' holdings of government securities have been heavily affected by the statutory liquidity ratio (SLR), which requires banks to hold a certain portion of deposits in the form of government and approved bonds. Thus, one would expect that a gradual and steady decline in SLR from 38.5% in 1993 to 25% in 1997 onwards would have lowered banks' investment in government securities as a percentage of assets, in line with the declining SLR. However, Shirai (2002) reported that banks actually increased investment in government securities in 1997-2000, holding more than the amount required by the SLR. In the face of this preference for government bonds, there is the concern that banks will not improve the risk management skills they need to extend credit to SMEs. The fourth hypothesis is, therefore, that banks tend to reduce lending activities as they increase holdings of government bonds. If this hypothesis is supported, this could be one of reasons why banks have lower incentives to engage in relationship lending compared with financial institutions.
- The estimation result supports the hypothesis and indicates that banks have increased their investments in government bonds or low-risk assets rather than extending credit to firms. This may suggest that banks have indeed not substantially improved the risk management skills they need in order to extend credit to the private sector, especially to SMEs. Another concern is that the increased holdings of government bonds may eventually crowd out the private sector, especially in the expansionary stage of the economy, by squeezing the credit available to SMEs, on whom information is highly idiosyncratic and subject to severe moral hazard problems.
- The fifth hypothesis is that old, large, profitable, low-risk, CP-issuing, export-oriented, and publicly listed firms tend to have greater access to the bond market, because of the higher degree of standardization about their information and reputations as diligent payers of debt services. These firms, therefore, tend to switch from bank loans to cheaper bond issuance, thereby establishing a negative relationship between bank loans and bond issuance. The same hypothesis was tested for the relationship between firms' borrowings from financial institutions and bond finance.
- The estimation results show that the relationship between bank loans and bond finance turns out to be complementary for profitable and export-oriented firms. And, the relationship is negative for large firms. However, the relationship between bank loans and bond finance turns out to be statistically insignificant for low-risk, old, CP-issuing, and publicly listed firms. The overall weak relationship between bank loans and bond finance may reflect that banks tend to provide short-term working capital to firms. So, they are unable to act as a substitute for relatively longer-term bond finance (on average, of five to seven years). For large,

low-risk and publicly listed firms, loans from financial institutions and bond finance tend to be substitutes for each other. A relatively stronger inverse relationship (compared with the case of bank loans) may reflect that financial institutions usually provide long-term development finance to firms so that their loans are direct substitutes for bonds.

- However, the overall weak relationship between loans (from banks and financial institutions) and bond finance may reflect that the bond market cannot yet distinguish between relatively high- and low-quality firms, because of the inadequate informational, legal, and judicial infrastructure. This may also be closely associated with the fact that most bonds are privately placed so that even relatively low-quality firms have access to the bond market. Since privately placed bonds come somewhere between loans and publicly issued bonds, the differences between bank loans and privately placed bond finance are subtle. This also suggests that few high-quality firms are bond issuers.
- A similar hypothesis was tested between bank loans and equity finance (Hypothesis 6). Equity finance generally requires more stringent disclosure requirements than debt finance, because of greater potential conflicts of interest between shareholders and issuers. Provided that adequate informational, legal, and judicial infrastructures are installed in the equity market, therefore, the sixth hypothesis is that firms with low degrees of information asymmetry and agency problems tend to have greater recourse to equity finance over bank loans. Moreover, firms with a large amount of intangible assets are more likely to depend on equity finance than loans, since banks and financial institutions are reluctant to extend credit to such firms.
- The estimation results indicate that for large, profitable, low-risk and export-oriented firms, bank loans and equity finance are substitutes for each other. However, this relationship may reflect simply the stock market boom of 1993-1995, which was driven by the liberalization of stock prices, and the IT stocks boom of 1999-2000. This view is supported by the observation that there has been no steady shift from bank loans to equity finance during 1990-2001. Moreover, the relationship between bank loans and equity finance for firms with large intangible assets was mixed. These results may be closely associated with the underdeveloped stage of the informational, legal, and judicial infrastructure needed for a sound equity market, which failed to differentiate potential issuers by their characteristics. Moreover, the more tightly restricted public equity market has shifted some firms toward the private debt market, requiring greater attention to such a regulatory arbitrage.
- As for the relationship between loans from financial institutions and equity finance, the two tend to be substitutes for each other for low-risk, and publicly listed firms and those with a large amount of intangible assets. However, loans from financial institutions and equity finance are complementary for large, old, CP-issuing, and export-oriented firms. The greater complementarity compared to the case of bank loans reflects that financial institutions have historically provided long-term credit to firms as well as investing in their equity.

Have India's Financial Market Reforms Changed Firms' Corporate Financing Patterns?

Sayuri Shirai¹

1. Background

After Independence in 1947, the Government of India took the view that loans extended by the then colonial banks were biased toward working capital for trade and large firms (Joshi and Little, 1996). Moreover, it was perceived that banks should be utilized to assist India's planned development strategy by mobilizing financial resources for strategically important sectors. Reflecting these views, the State Bank of India (SBI) came into existence following the nationalization of the Imperial Bank of India in 1955, with the primary objective of promoting rural development. Subsequently, the SBI took over seven former state-associated banks as its subsidiaries. Since then, the SBI has remained an agent of the Reserve Bank of India (RBI) in various operations. In 1969, the 14 largest private banks with deposits amounting to more than Rs140 million were nationalized and, in 1980, six banks whose demand and time liabilities exceeded Rs2 billion were nationalized. In 1993, Punjab National Bank merged with another nationalized bank, New Bank of India, reducing the number of nationalized banks from 20 to 19. SBI and its associates and nationalized banks are called "public sector banks." Subsequently, quantitative loan targets were imposed on these banks to expand their networks in rural areas and extend credit to priority sectors (such as agriculture, small-scale industries, exports, weaker sectors, etc.). In addition, banks were subject to complicated interest rate regulations, reserve and liquidity requirements, entry restrictions, branching regulations, etc. Public sector banks were also increasingly used to finance fiscal deficits. Although non-public sector and foreign banks coexisted with public sector banks, their activities were highly restricted and, thus, remained negligible.

Owing to the Government's heavy involvement in credit allocation and its full ownership, public sector banks in India—accounting for about 90% of total deposits before the 1991 reforms began—did not have sufficient incentives to engage in "relationship lending." This is where banks attempt to obtain information about their borrowers and monitor their performance. According to the finance literature, one of the essential roles of banks is to mitigate problems—arising from the lack of information about borrowers (e.g., risk preferences, return streams, investment opportunities) as well as the inability to control and/or observe actions of borrowers (e.g., diligence, creditworthiness)—on behalf of ultimate creditors (i.e., depositors). Prior to the reforms, Indian banks, particularly public sector banks, were insensitive to various risks (particularly, credit risk) and were short of incentives to develop skills to collect, analyze,

¹ This paper was presented at the Fourth Brainstorming Workshop on "Sequencing Domestic and External Financial Liberalization," 29 March 2002, ADB Institute; the Internal Staff Seminar, 13 May 2002; and the 2nd Corporate Governance Conference, 16-17 May 2002, Korea. This paper benefited from many insightful comments received at these seminars. This paper acknowledges the excellent research assistance of Mr. Prithipal Rajasekaran.

and process private information about their borrowers and monitor their performance. Even though the extent of information asymmetry between banks and borrowers was high and agency problems were severe, banks did not pay much attention to the consequences of their lending, since they did not have to bear the risks arising from their lending. This naturally led to an accumulation of nonperforming assets (NPAs), low profitability, and bank insolvencies. In the second half of the 1980s, Joshi and Little (1996) have reported the average return on assets was only about 0.15%, while capital and reserves (equity) averaged only about 1.5% of assets. Given that global accounting standards were not applied, even these indicators are likely to have exaggerated banks' true performance. Further, in 1992/93, NPAs of 27 public sector banks amounted to 24% of their total credit, only 15 achieved a net profit, and half faced negative net worth.

Against this background, the Government launched a comprehensive set of banking sector reforms in 1991. The reforms included interest rate decontrols, cuts in reserve and liquidity requirements, an overhaul of priority sector lending, deregulation of entry barriers, strengthening of prudential regulations and supervision, restructuring, and partial privatization of public sector banks through stock exchanges. In particular, reforms in priority sector lending were undertaken mainly through rapidly expanding the coverage and liberalizing of lending rates for advances bigger than Rs200,000, thereby lowering the negative impact of such policy loans on banks' performance. These reform programs have encouraged existing public sector banks to become more concerned with various risks, firms' characteristics, and their performance than in the past. The entry of new private and foreign banks, which are better capitalized and more technologically advanced, has also put competitive pressure, to some extent, on the whole banking sector (Shirai, 2002).

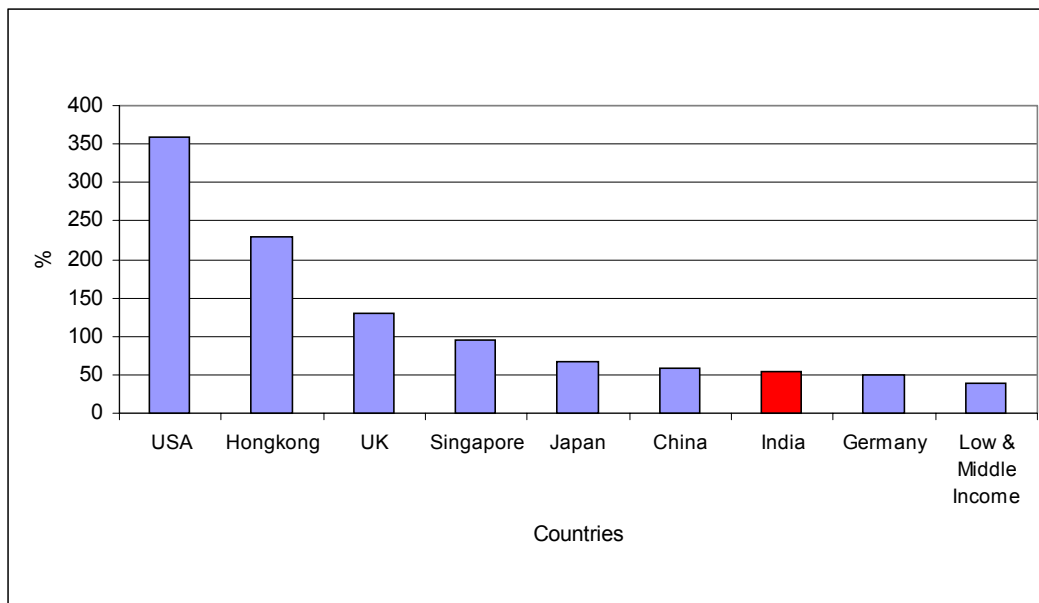
Indian firms are mainly small and medium enterprises (SMEs) on which information is highly idiosyncratic and non-transferable to the public. Thus, banking sector reforms need to focus on how to improve the skills and expertise of banks so that they could engage in relationship lending in order to extend credit to these firms, while building resiliency to external disturbances. The issue of credit availability to SMEs is expected to grow in importance in India, since weaker sectors of the economy and very small-scale industries remain protected under the continued subtarget requirement of priority sector lending, while large, reputable firms have easier access to capital and foreign credit markets. Unless banks develop the expertise and skills that are necessary to practice relationship lending to SMEs, banks will remain reluctant to allocate credit to these firms, concentrating instead on high-quality firms and/or investing in safer, more liquid government bonds. As a result, such firms will find it difficult to raise external funds, which will ultimately cause underinvestment and slow down economic growth.

This concern should not be dismissed since Indian banks have increasingly been investing in government bonds in recent years. This is despite the fact that the statutory liquidity ratio (SLR) (requiring each bank to hold a certain portion of deposits in the form of government and approved securities) declined from 38.5% in 1991 to 25% in 1997 and has remained at this level until now. The strengthening of prudential regulations, particularly the capital requirement, appears to have contributed to banks' preference toward government bonds, since holdings of such low-risk assets improve the risk-

weighted capital adequacy ratio. In addition, the mild recession has left few high-quality borrowers with high demand for credit as banks' customers. In addition, banks' preference for government bonds over lending discourages banks from improving risk management skills or engaging in relationship lending.

While banking sector reform has been taking place since 1991, the Government has also launched reform programs for the capital market, which have enabled firms to raise funds cheaply and contributed to the diversification of corporate finance. As of 2001, India's market capitalization accounts for 55% of gross domestic product (GDP)—comparable to that of the People's Republic of China, Germany, and Japan, and greater than the average for low- and middle-income countries (Chart 1). Moreover, there are 9,922 listed firms—the largest number in the world (Chart 2). Among various external financial sources, the equity market constitutes an important source of financing for Indian firms, followed by bank loans and loans from financial institutions (Chart 3).

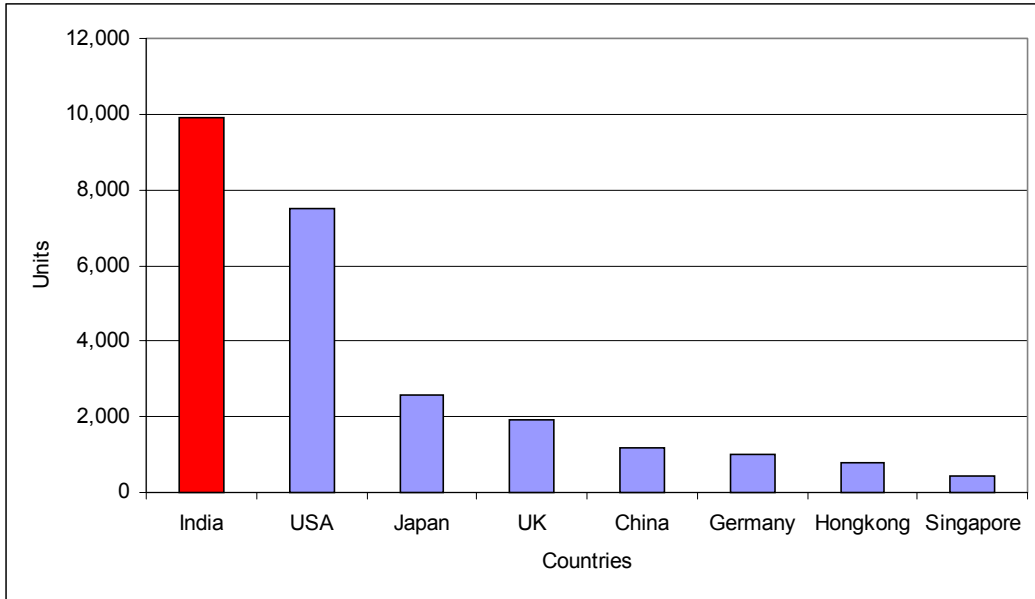
Chart 1. Market Capitalization of Selected Countries in 2000
(Percent of GDP)



Note: For China, Market capitalization in 2001 has been used.

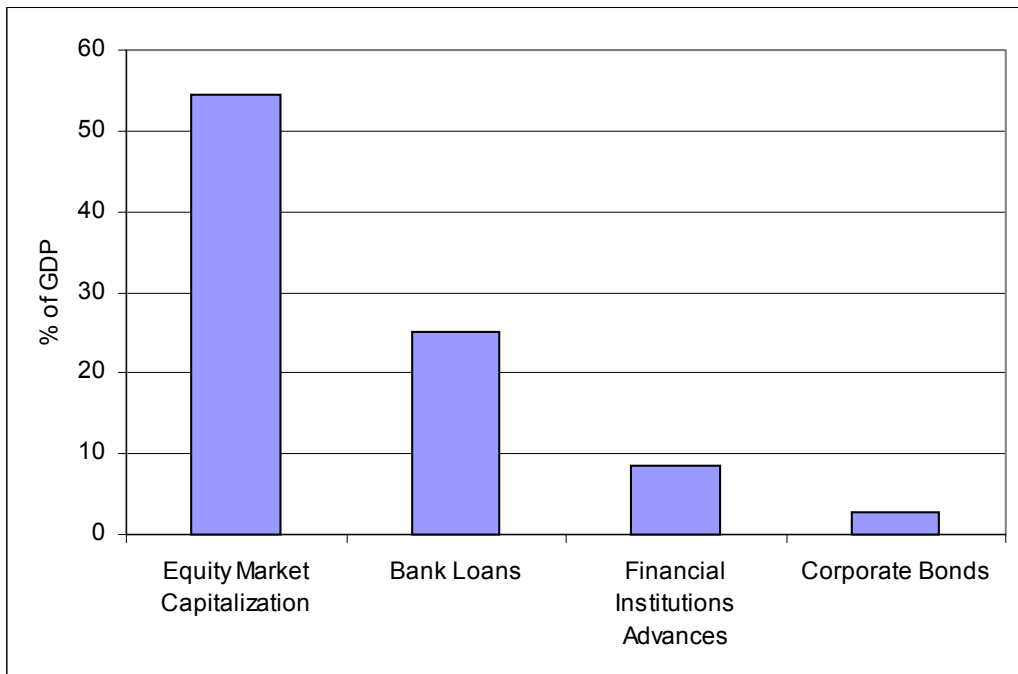
Source: Indian Securities Market – A Review, National Stock Exchange of India Limited, 2001.

Chart 2. Number of Listed Companies of Selected Countries in 2000



Note: For China, the Number of Listed companies in 2001 has been used.
 Source: Indian Securities Market – A Review, National Stock Exchange of India Limited, 2001.

**Chart 3. Equity Market Capitalization, Loans and Corporate Bonds in 2001
 (Percent of GDP)**



Note: Bank Loans include loans and advances of all Scheduled Commercial Banks; Financial Institutions Advances includes advances from major financial institutions i.e. IDBI, ICICI, TFCI, EXIM Bank, NABARD, SIDBI, ADFC, IFCI, NHB and IIB.

India's equity market has a long history. The Bombay Stock Exchange, the country's first, was established in 1875. However, the pricing and issue volume of corporate financial instruments used to be controlled by the Controller of Capital Issues (CCI) until 1992. Also, the initial public offering (IPO) requirement used to be loose in the absence of the adequate informational, legal and judicial infrastructure. Before 1992, even though various securities traded in the stock exchange were different in nature, they were all subject to the same listing requirement and treated at par regardless of size, liquidity, floating stock, volume of trade, firms' performance, etc. (Desai, 2001). Thus, the price of new issues was often well below prevailing quoted market prices of listed shares (Glen and Pinto, 1994).

Moreover, a large amount of equity issues has been held by inside shareholders (promoters, families, and relatives) or through interfirm cross-shareholdings in India. In addition, government-controlled financial institutions (mutual funds, development banks, insurance firms, etc.) constitute stable and large shareholders with little incentive to impose discipline on their invested firms. Also, rights issues account for 20% to 30% of total primary market issues by existing listed companies. Therefore, equity market development measured by an increase in capitalization and the number of publicly listed firms does not necessarily imply that it is mature and sound or would help improve transparency of information about issuers and corporate governance. Also, the growth in equity market capitalization is closely associated with government policies aimed at establishing stable and reliable conditions for private transactions and privatization programs.

In order to improve the informational, legal and judicial infrastructure needed for a sound capital market, various efforts have been made in India. In 1992, CCI was abolished and the SEBI Act empowered Securities and Exchange Board of India (SEBI) to become a regulatory body with an explicit mandate of protecting investors, developing the capital market and regulating the market.² In the same year, SEBI published guidelines on equity issues that enabled issuers to price their primary issues freely in accordance with the market sentiment. Moreover, the National Stock Exchange (NSE), the first nation-wide screen-based stock exchange, was established in 1994 by government-owned financial institutions. The establishment of NSE has intensified competition not only among the existing 22 stock exchanges but also among brokers through encouraging new entry, thereby lowering transaction costs to a substantial degree. In 1995, NSE formed the National Securities Clearing Corporation Ltd. in order to eliminate counterparty and payment risks. The National Securities Depository Ltd., set up in 1996, has enabled the keeping of computer records of ownership of securities without physical share certificates, which has lowered the cost of storing physical shares and created a depository for dematerialized shares. SEBI allowed the entry of foreign institutional investors to the capital market in 1992 and introduced the Takeover Code in 1994. This reduced the entry regulation on foreign institutional investors up to 5% of voting rights per individual foreign institutional investor (total of up to 24% for all foreign institutional investors). SEBI further relaxed the takeover regulation stipulating that shareholders acquiring 10% of shares should trigger a minimum public offer of 20%.

² SEBI was established in 1988.

Since 1992, India has experienced two major stock market booms: one in 1993-1995 and the other in 1999-2000. The first boom reflected the price deregulation and was driven by the liberalization wave. During this period, many firms found it cheaper to raise funds from the equity market, causing a rapid increase in the number of publicly listed firms from 6,925 in 1992 to 9,077 in 1995. Also, the share of market capitalization in GDP rose from 32% in 1992 to 46% in 1995. Equity finance, however, declined afterwards until 1999. The main causes for the decline in stock prices up to 1999-2000 were (i) investors' realization that stock prices were overvalued in the primary market after the reform period fueled investors' expectations (most of the issues newly raised during 1993-1995 began to be sold at a discount, exerting a negative impact on investor sentiment); (ii) a decline in public confidence in the equity market as a result of excessive speculation and a series of scams and malpractices during 1993-1995; and (iii) reduced inflows of foreign investment after the Mexican and Asian financial crises (ADB, 1999). Consequently, stock prices declined and a large number of investors got out of the stock market.

Since the first stock market boom, issuers have lost interest in raising funds from the equity market owing to the increased cost of capital, causing a steep decline in the activities of the primary market. In addition to the rising cost of capital, stricter entry and disclosure norms enforced by SEBI in 1996 have made it difficult for SMEs to maintain access to the primary equity market. In 1996, SEBI imposed a set of entry barriers on new issues, specifying the minimum issue size requirement for companies seeking public listings and new requirements for finance companies seeking public funds.³ Also, it became difficult for many firms lacking a track record to gain access to the equity market. The equity market experienced another stock market boom in 1999-2000 in the wake of the IT boom, the relaxation of the IPO requirement for IT firms,⁴ and a reduction in the long-term capital gains tax from 20% to 10%. However, the number of listed companies has barely changed from 9,800 during this period, while the percentage of market capitalization in GDP has risen from 34% in 1999 to 85% in 2000.

India's bond market also has a long history. As early as 1988, the Credit Rating and Information Services India Ltd. began rating corporate bonds, making it a pioneer among developing countries (Glen and Pinto, 1994). However, pricing was subject to interest rate ceilings until 1991. Like equity issues, CCI determined the issue volumes. In 1991, the pricing of corporate bonds was deregulated. However, compared to the equity market, the corporate bond market remains small with the percentage of outstanding corporate bonds issued accounting for only about 3% of GDP. Further, private placement accounts for 90% of public debt issues in India. Moreover, it has been pointed out that a recent increase in privately placed debt reflects a shift from public equity markets to the privately placed debt market. This may be the result of more stringent eligibility criteria

³ In the case of National Stock Exchange, for example, firms qualified for listing IPOs must have the paid-up equity capital (the existing paid-up equity capital and the proposed issue) of not less than Rs100 million and the capitalization of equity (the product of the issue price and the post issue number of shares) of not less than Rs250 million. In addition, either these firms or their promoting firms incorporated in or outside India must submit a track record of at least three years of audited balance sheets.

⁴ Knowledge-based firms qualified for listing IPOs must meet the paid-up capital of not less than Rs50 million and capitalization of not less than Rs500 million.

imposed on public issuers by SEBI to restore investors' confidence. In the privately placed debt market, on the other hand, compliance requirements are less stringent than public and rights issues and floating costs are lower; thus, it is a cost- and time-effective way of raising external funds. Private placement also enables debt to be tailored to meet the needs of individual issuers. Reflecting SEBI's concern that such a trend may depress the equity market, it plans to introduce regulations on the private placement market.

Given that India has experienced substantial changes in its financial and capital markets, this paper examines the following two categories of questions. First, have the reforms given banks an incentive to engage in relationship lending? If so, have banks increased lending to firms with high degrees of information asymmetry and agency problems (notably, those that are relatively new, small, unprofitable, high-risk, CP-issuing, publicly listed, and export-oriented)? Do banks regard government bonds as preferable assets to lending activities? In other words, in response to the increase in the holdings of government bonds, have banks cut back on lending? Second, has the recent improvement in the informational, legal, and judicial infrastructures needed for a sound capital market affected firms' capital structure? In the past, a large number of firms gained access to equity markets owing to loose IPO listing and disclosure requirements. The important question is, therefore, whether the recent improvement in the infrastructures has contributed to a differentiation between high-quality and low-quality firms and, thus, whether the former have maintained and/or increased access to the capital markets while the latter's access has declined. Specifically, have high-quality firms increasingly relied on capital markets as alternative financing sources? Have bond (and/or equity) finance and bank loans become a substitute for each other for these firms?

This paper is divided into five main sections. Section 2 examines firms' financing patterns based on a firm-level database during 1990-2001. Sections 3-4 conduct regression analysis to test the two categories of questions raised above. Section 5 contains concluding remarks.

2. Stylized Facts on Firms' Financial Patterns in India

This section attempts to investigate stylized facts on private manufacturing firms' financial patterns in the reform period. Data are from the Prowess database for 1990-2001 covering about 5,000 domestic manufacturing private firms, compiled by the Center for Monitoring Indian Economy Pvt. Ltd. (CMIE). These data include about 1,100 unlisted firms. Foreign firms operating in India are excluded from the sample since they tend to have different capital structures due to their reputation and affiliation with their headquarters. Prowess database covers almost all leading firms publicly listed in major stock exchanges in India. This paper uses two sources of financing data: one from flows of funds (flow) data and the other from liabilities of the balance sheets (stock data). Financing sources for the former are classified into the following: (i) internal sources, (ii) fresh capital and equity premium, (iii) bonds, and (iv) borrowings (from banks and financial institutions including development financial institutions). In the case of the latter, total liabilities are divided into the following: (a) borrowings (from banks and

financial institutions), (b) commercial paper (CP), (c) bonds, (d) foreign borrowing, and (e) share capital.⁵

One caution with respect to the use of equity finance is that Prowess database does not distinguish between equity shares held by promoters (families and/or relatives and affiliated firms) and those held by public investors (individuals, unaffiliated firms). Prowess database provides most recent information on the classification of shareholders. Shareholders are divided into (1) directors and their relatives, (2) financial institutions (banks, development financial institutions, insurance firms, mutual funds, etc.), (3) state-owned firms, (4) corporate bodies not covered above, (5) other top 50 shareholders, and (6) others including the public. However, this classification does not allow the assessment of the true status of promoters and their control rights, since cross-shareholdings among affiliated firms cannot be assessed based on the classification of (4) and (5). Also, it is impossible to differentiate the amount of shares held by inside and outside board directors, respectively, based on the classification of (1). Prowess database provides names of board directors but does not provide data regarding the amount of shareholdings by them. Thus, even though listed firms have increasingly issued shares publicly in recent years, their majority shareholders may remain promoters or inside investors. Moreover, the database cannot distinguish publicly issued bonds from privately issued ones. Thus, the analysis below should take into account these limitations.

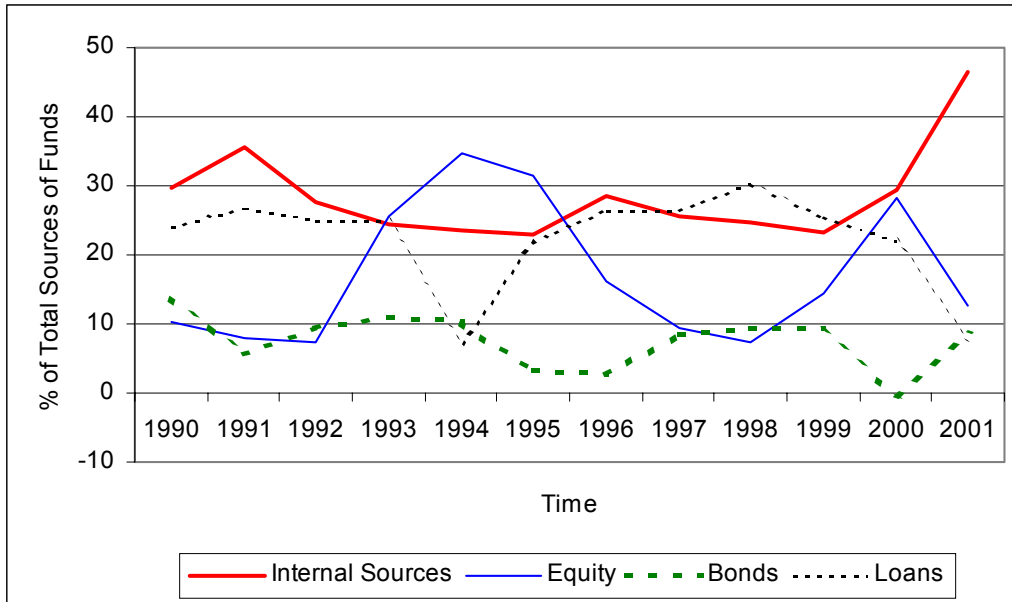
2.1. Stylized Facts

Overall Patterns

- Based on data on flow of funds for all firms in the sample, external sources have constantly exceeded internal sources during 1990-2001, accounting for about 70% of total sources of funds (Chart 4a). This may be due to the fact that many firms are relatively small and unprofitable, so their retained earnings are insufficient. However, the share of internal sources in total sources of funds increased in 2001.
- Among external sources, borrowings from banks and financial institutions were major financing sources, accounting for about 20% of total new sources, with the exception of 1994 and 2001. Equity finance was the second most important external financing source. This increased initially in 1993-1995, reflecting the first stock market boom and then in 1999-2000, in the wake of the IT stocks boom. Compared with equity finance, bonds have been relatively more stable financing sources, but contributed only about 10% of total new sources.

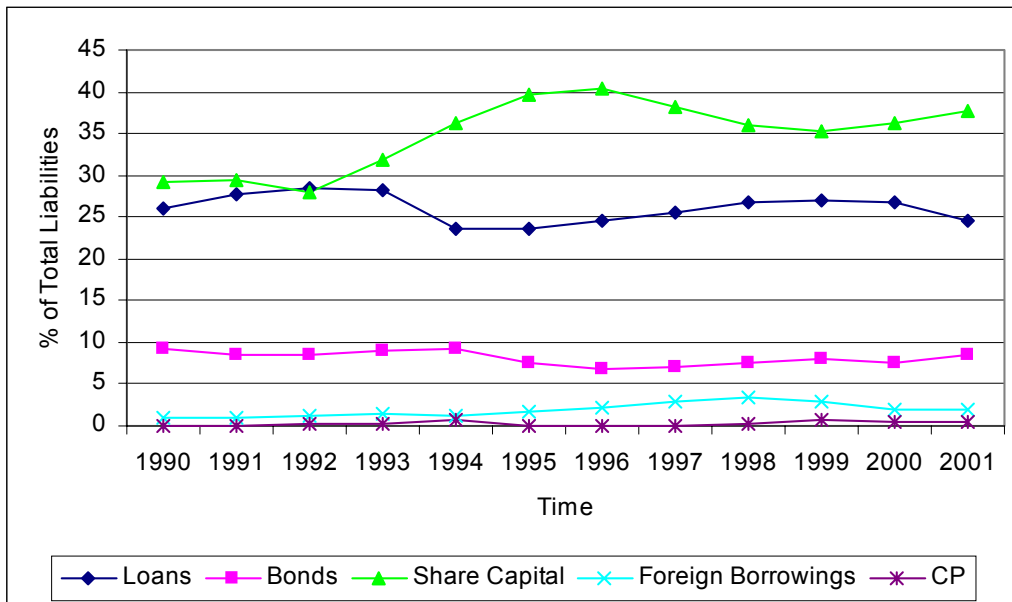
⁵ Data covers loans from group and associated companies. However, this paper omitted these because the number is small.

Chart 4a. New Sources of Funds for All Firms: 1990-2001



Note: Equity includes Fresh Capital and Equity Premium

Chart 4b. Total Liabilities for All Firms: 1990-2001



- Based on liability (stock) data, the share of outstanding loans from banks and financial institutions in total liabilities was stable and constantly larger than other financing sources, except share capital, in line with the new sources data (Chart 4b). Although the amount is small, outstanding foreign borrowings increased from about 1% of total liabilities in 1990 to 4% in recent years. Outstanding CP issued as a percentage of total liabilities increased from nearly 0% in 1990 to 0.6% in 2001, although the share is still smaller than the peak of 0.8% in 1994. Outstanding bonds issued have fluctuated at around 7-9% of total liabilities.

Incorporation Years of Firms

- Based on flow data, firms that were incorporated before 1993 (called “old firms”) tend to depend relatively heavily on internal sources, increasing from 30% of total new sources in 1990 to 48% in 2001. By contrast, firms that were incorporated from 1993 onwards (called “new firms”) tend to depend heavily on external sources, accounting for about 90% of total new sources during 1993-2000 (Chart 5a). This is consistent with the view that old firms tend to be larger and more profitable, and thus, can generate larger retained earnings.
- While new firms depend more heavily on equity finance than old firms, equity finance has been highly volatile for both categories of firms. Old firms appear to have issued new equity rapidly during the 1993-1995 stock market boom period, while new firms increased their dependence on equity finance during the 1999-2000 IT boom and, to a lesser extent, during the 1993-1995 stock market boom. This suggests that most new firms tend to be IT-related. Further, loans appear to have an inverse relationship with equity finance.
- Based on liability data, the outstanding CP issued as a share of total liabilities is greater for old firms (about 0.7% of total liabilities) than for new firms (nearly 0%), although it is all on a small scale. This difference indicates that most high-quality firms are old firms (Chart 5b). Similarly, old firms depend more heavily on foreign borrowings (about 2-3% of total liabilities) than new ones (about 0.5-2%).

Chart 5a. (i) New Sources of Funds for Old^{1/} Firms: 1990-2001

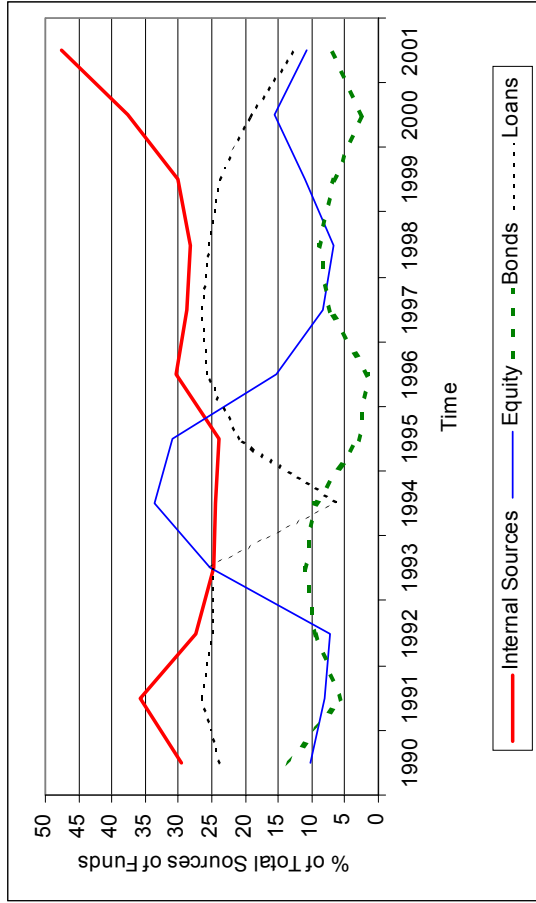


Chart 5a. (ii) New Sources of Funds for New^{2/} Firms: 1990-2001

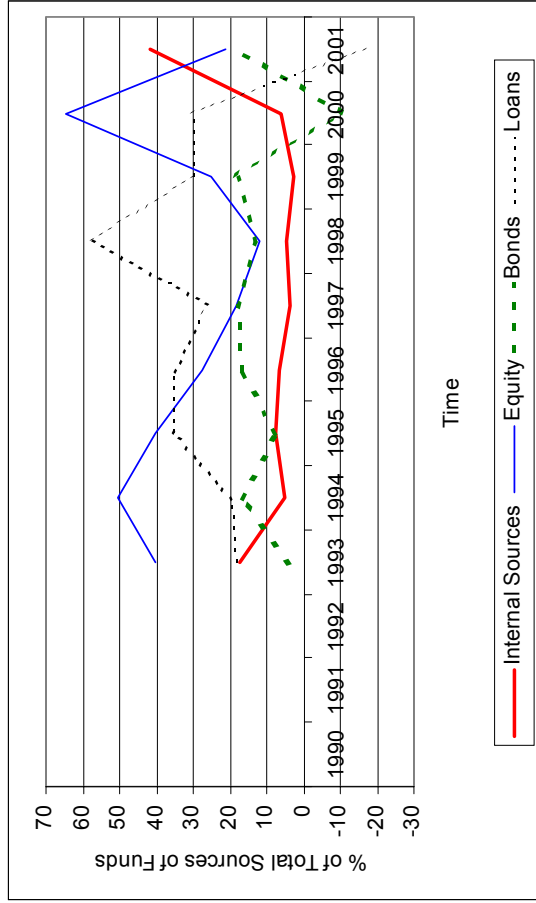


Chart 5b. (i) Total Liabilities for Old^{1/} Firms: 1990-2001

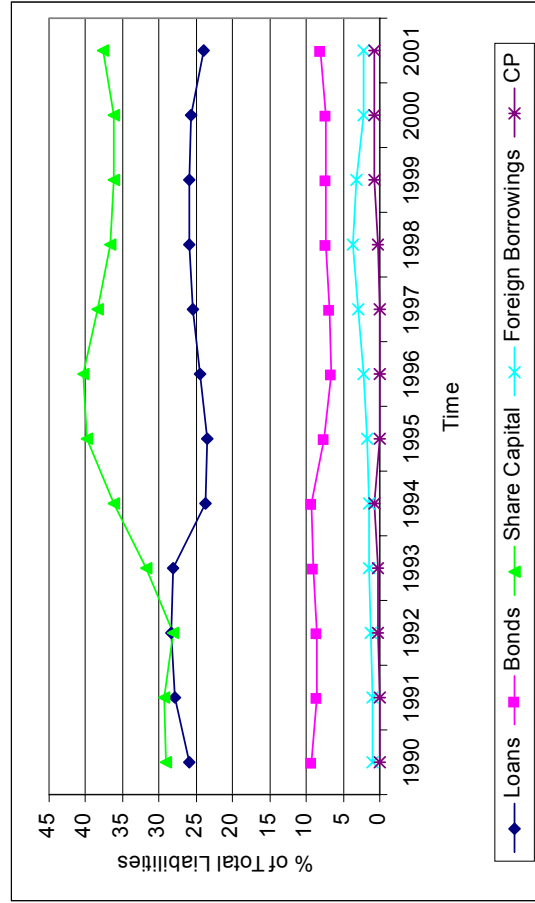
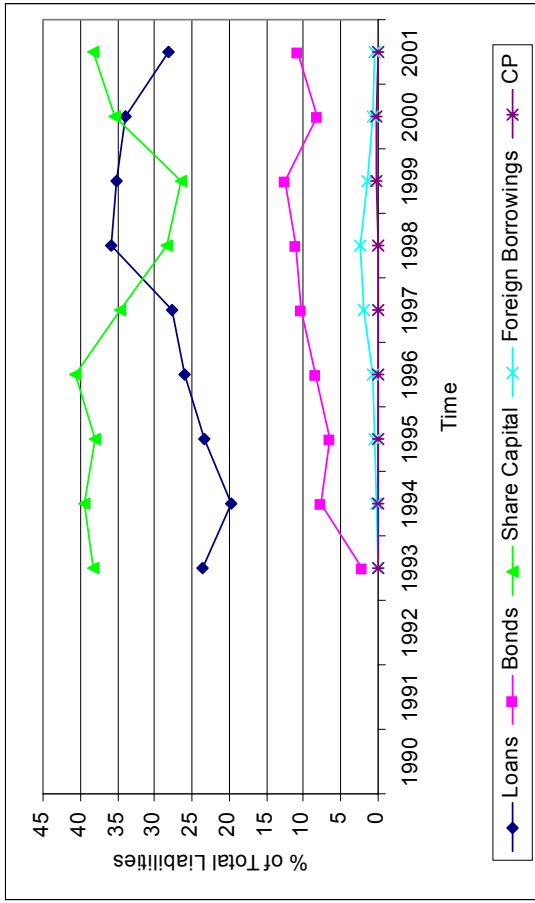


Chart 5b. (ii) Total Liabilities for New^{2/} Firms: 1990-2001



Notes: 1/ Incorporated before 1993
2/ Incorporated from 1993 onwards

Size of Firms Based on Market Capitalization⁶

- Based on Pal (2001), this paper defines large firms as those with a market capitalization of more than Rs15 billion (average at the end of accounting years for 1999-2001), medium firms as those with a market capitalization of between Rs1.5 billion and Rs15 billion, and small firms as those with a market capitalization of less than Rs1.5 billion. Since listed firms in India include a large number of SMEs, this classification is able to capture a wide range of firms (although not very small ones). Large and medium firms account for only 1.5% and 5% of total firms in the sample, respectively, of the total.
- Small firms tend to depend more heavily on loans from banks and financial institutions, while large firms depend more intensively on internal sources (Chart 6a). Despite substantial volatility, equity finance appears to be a more important external financing source for large firms than loans, as compared with medium and small firms. Further, large firms issued a substantial amount of equity during the two stock market booms (1993-1995 and 1999-2000). Medium and small firms issued a large amount of equity mainly during the first boom.
- Based on the liability data, the share of outstanding loans from banks and financial institutions has been greatest for small firms, followed by medium firms and then by large firms. By contrast, the shares of outstanding bonds and equity issued are greatest for large firms, followed by medium firms, and then small firms. Between bonds and share capital, the share of outstanding share capital is much greater for all firms. These results suggest that large firms have better access to capital markets (bonds and equity) and are able to obtain cheaper and more diversified financing sources than small firms (Chart 6b).

Profitability (After Tax Profits Divided by Assets [ROA])

- This paper defines profitable firms as those with an above-average return on assets (ROA) and unprofitable firms as those with a below-average ROA during 1999-2001. Based on new source data, profitable firms are more internally financed than unprofitable firms. By contrast, unprofitable firms have greater recourse to loans from banks and financial institutions (Chart 7a).
- Based on the liability data, profitable firms increased the ratio of share capital to total liabilities from 32% in 1990 to 44% in 2001, while unprofitable firms reduced the ratio from 24% in 1990 to 7% in 2000. Instead, unprofitable firms increased their loans from 28% in 1990 to 42% in 2000, suggesting that their poor performance has made it difficult to raise funds from the equity market (Chart 7b).

⁶ Financial patterns based on the size of assets were also examined. The qualitative results were similar to those based on market capitalization.

Chart 6a. (i) New Sources of Funds for Large^{1/} Firms: 1990-2001

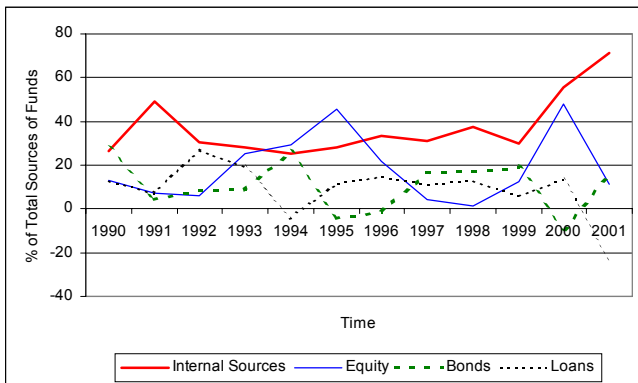


Chart 6b. (i) Total Liabilities for Large^{1/} Firms: 1990-2001

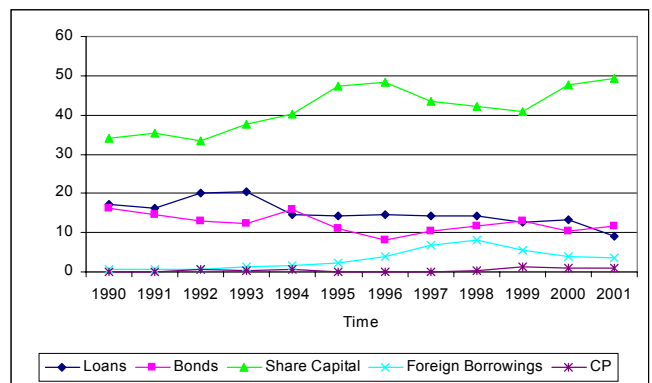


Chart 6a. (ii) New Sources of Funds for Medium^{2/} Firms: 1990-2001

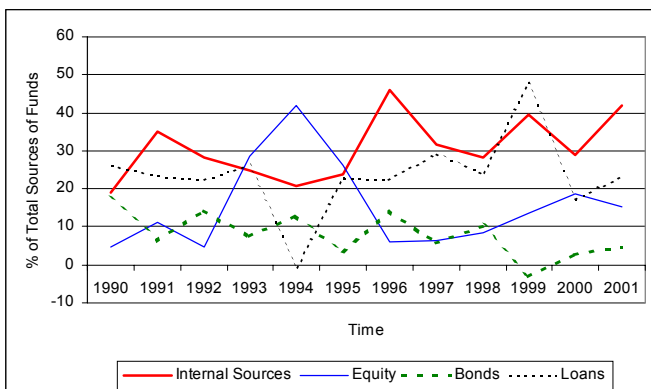


Chart 6b. (ii) Total Liabilities for Medium^{2/} Firms: 1990-2001

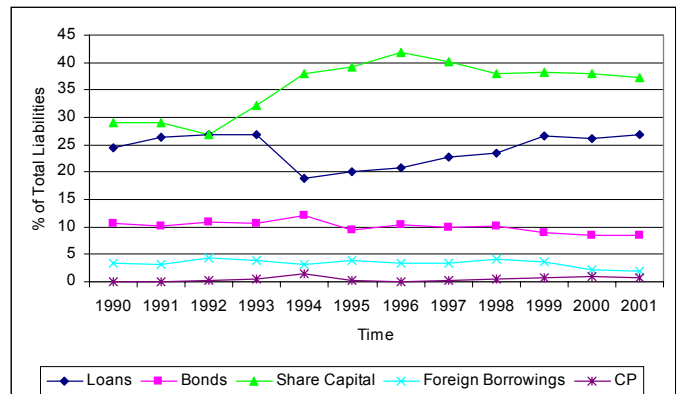


Chart 6a. (iii) New Sources of Funds for Small^{3/} Firms: 1990-2001

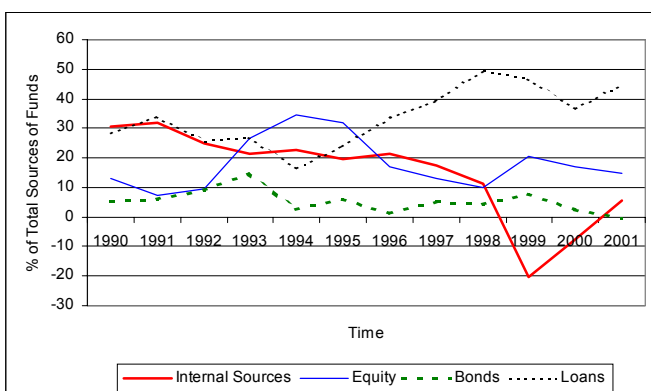
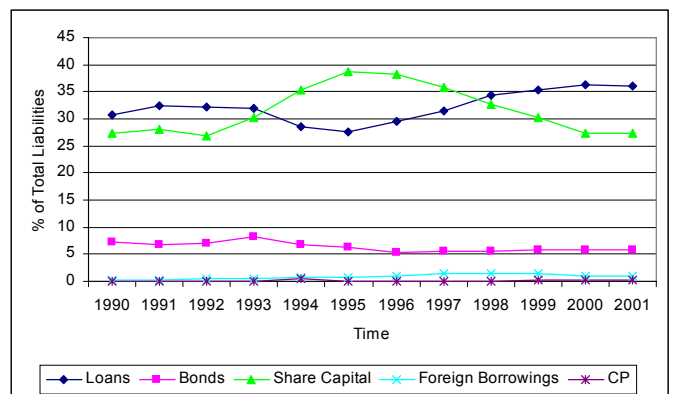


Chart 6b. (iii) Total Liabilities for Small^{3/} Firms: 1990-2001



Notes: 1/ Average Market Capitalization of 1999-2001 greater than Rs15 billion.
 2/ Average Market Capitalization of 1999-2001 between Rs1.5 billion and Rs15 billion.
 3/ Average Market Capitalization of 1999-2001 less than Rs1.5 billion.

Chart 7a. (i) New Sources of Funds for Profitable^{1/} Firms: 1990-2001

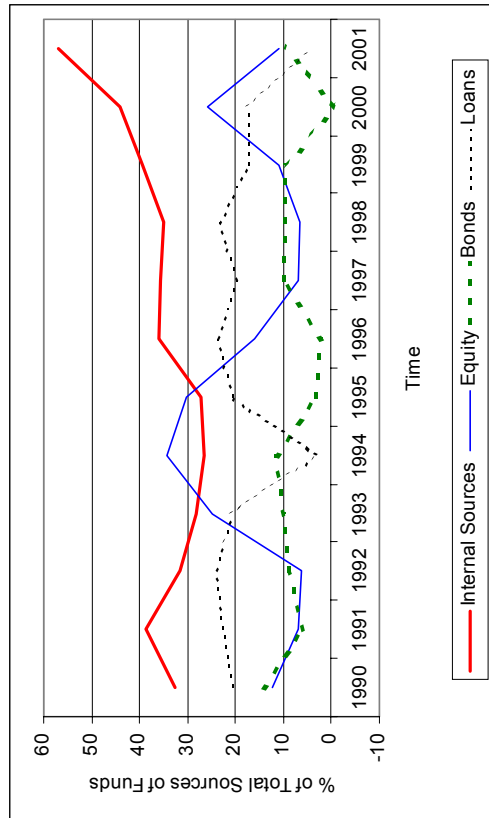


Chart 7a. (ii) New Sources of Funds for Unprofitable^{2/} Firms: 1990-2001

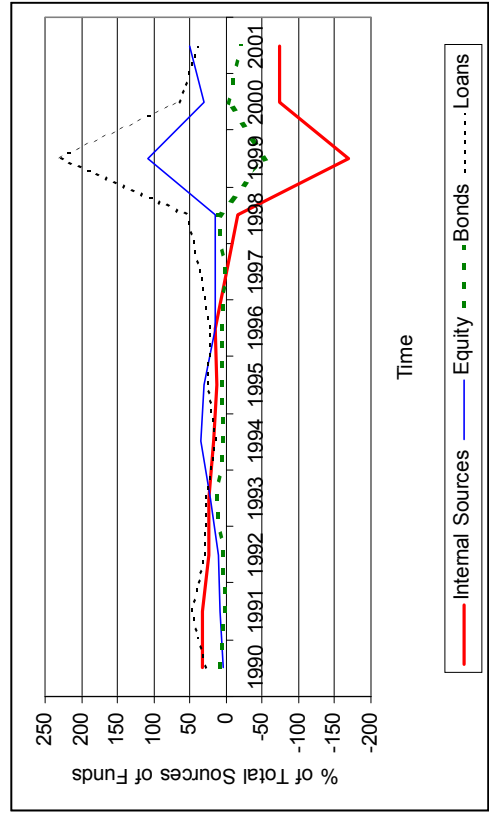


Chart 7b. (i) Total Liabilities for Profitable^{1/} Firms: 1990-2001

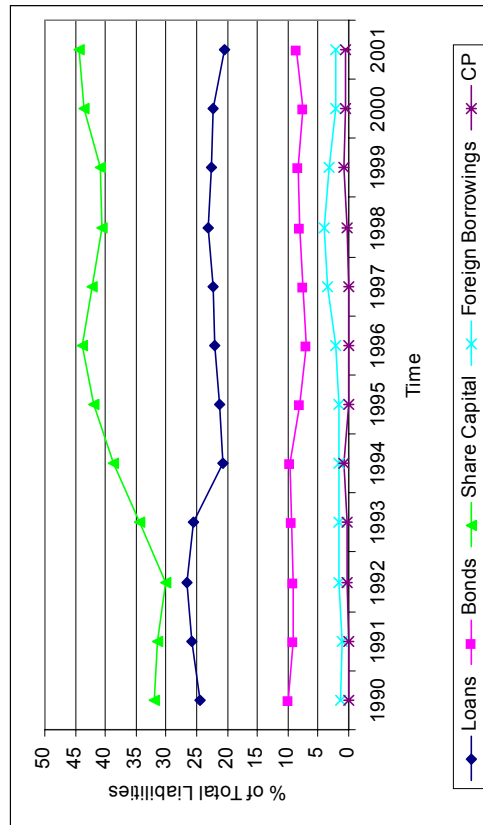
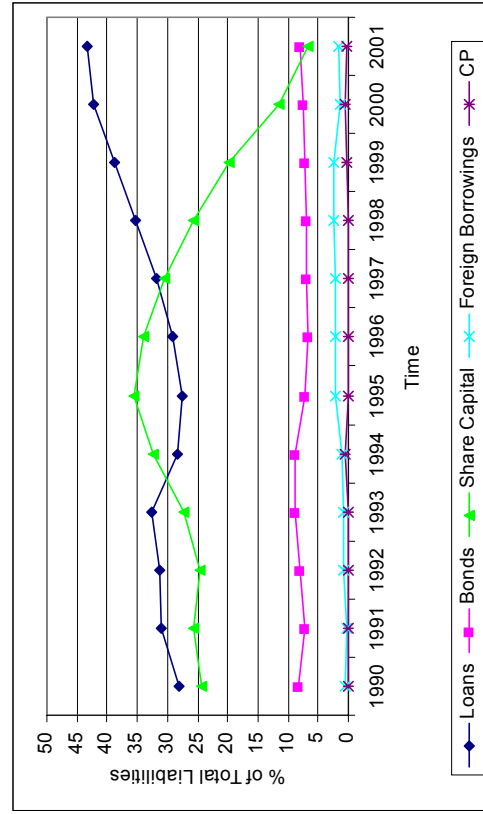


Chart 7b. (ii) Total Liabilities for Unprofitable^{2/} Firms: 1990-2001



Notes: 1/ Profitable Firms refer to those whose Return on Asset (ROA) exceeds the average.

2/ Unprofitable Firms refer to those whose ROA is below the average; Lowest 10% of the data based on average internal sources of funds for 1999-2001 were eliminated in the estimation

Risk (Variance of ROA)

- Based on the new source data, high-risk firms tend to depend heavily on equity finance (albeit high volatility) and loans from banks and financial institutions (Chart 8a). By contrast, low-risk firms depend intensively on internal sources.
- Based on the liability data, high-risk firms have larger outstanding loans from banks and financial institutions as a percentage of total liabilities (Chart 8b). On the other hand, low-risk firms have a greater percentage of liabilities in the form of equity finance, bonds, CP, and foreign borrowings. These results indicate that low-risk firms have greater access to various financial sources.

Software Industry

- Out of the manufacturing firms categorized as being in the software industry (about 160), publicly listed firms account for more than 80%. The number of publicly listed firms has increased rapidly over the past 10 years, from three firms in 1990 to 130 more recently. Based on the new source data, publicly listed firms depended more heavily on equity finance than unlisted firms, especially during the stock market boom of 1993-1995 and the IT shares boom of 1999-2000 (Chart 9a). By contrast, unlisted firms depended more heavily on internal sources, followed by bonds.
- Based on the liability data, listed and unlisted firms both increased their ratio of share capital to total liabilities rapidly in 1990-2001, from 16% to 82% and from 32% to 56%, respectively (Chart 9b).

2.2. Observations

The financing patterns analyzed above as reported in Table 1 can be summarized into the following observations:

Observation 1: *Indian firms generally depend more heavily on external sources than internal sources. Among external sources, loans from banks and financial institutions have been important means of finance. While equity finance is equally important, it is relatively more volatile than loan. Bonds are the next most important financing source, followed by foreign borrowings and CP.*

This observation is consistent with patterns observed in other developing countries. Based on flow of funds data for G7 countries and balance sheet data for nine developing countries during 1980-1988, IFC (1991) found that internal sources are less important in developing countries than in industrial countries; instead, external sources are more important. Also, this study has reported that firms in developing countries tend to depend more heavily on new equity finance for their corporate growth. Based on the top 50 listed manufacturing firms in nine developing countries during 1980-1990, Singh and Hamid (1992) have also pointed out the same patterns. Using data for the top 100 publicly traded companies in nine developing countries during 1980-1992, Glen and Pinto (1994) found that that firms in developing countries had increased recourse to capital markets as a major source of external finance in the 1990s. However, firms' dependence on equity finance, long-term debt, or short-term debt varied across countries, reflecting the diversity of financial markets, tax codes and investor preferences.

Table 1. Corporate Financing Patterns of Indian Manufacturing Firms

	Internal	Loans	CP	Bond	Foreign Loans	Equity
New		×				
Old	×		×		×	
Large	×		×	×	×	×
Small		×				
Profitable	×					×
Unprofitable		×				
High risk		×				
Low risk	×		×	×	×	×
Software listed						×
Software unlisted	×					×

Suppose that firms with low degrees of information asymmetry and agency problems (or high-quality firms) can be defined as those that (i) were incorporated before 1993 (old firms), (ii) are large, (iii) are profitable, and (iv) are of low-risk. Since these firms tend to be reputable, have track records, and their return streams are relatively stable, they face less severe problems of adverse selection and moral hazard. On the other hand, suppose that firms with high degrees of information asymmetry and agency problems (or low-quality firms) are defined as those that (i) were incorporated after 1993 (new firms), (ii) are small, (iii) are unprofitable, and (iv) are of high-risk. Since these firms are more likely to be unknown, have no established track records, and their return streams tend to be highly idiosyncratic, it is likely to be too costly for ultimate public creditors to extend credit to them owing to the greater expected information processing and monitoring costs. Thus, public investors (such as investors of securities) and foreign investors (agency costs are greater for them due to the locational disadvantage) are likely to be reluctant to provide finance to these firms. Therefore, differential financing patterns appear to exist between these types of firms, as shown in the following observation:

Observation 2: *Low-quality firms tend to borrow more heavily from banks and financial institutions than high-quality firms. Further, if firms are high-quality, their dependence on CP and foreign borrowings is greater than that of low-quality firms.*

Chart 8a. (i) New Sources of Funds for High-Risk^{1/} Firms: 1990-2001

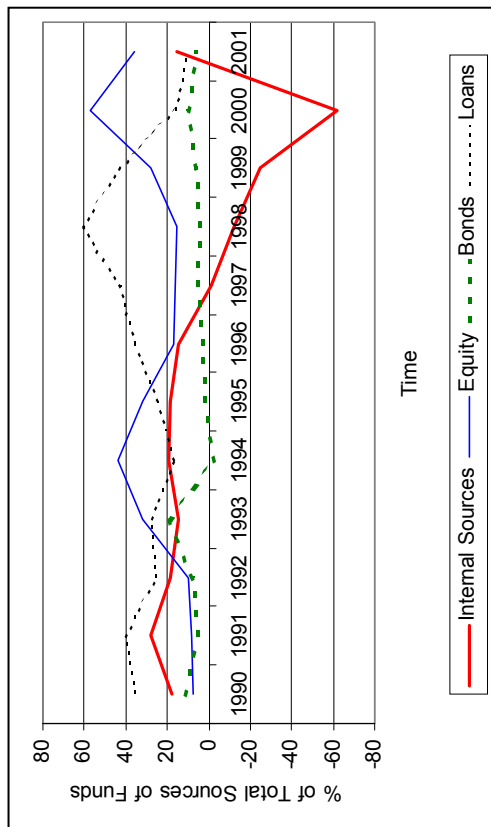


Chart 8a. (ii) New Sources of Funds for Low-Risk^{2/} Firms: 1990-2001

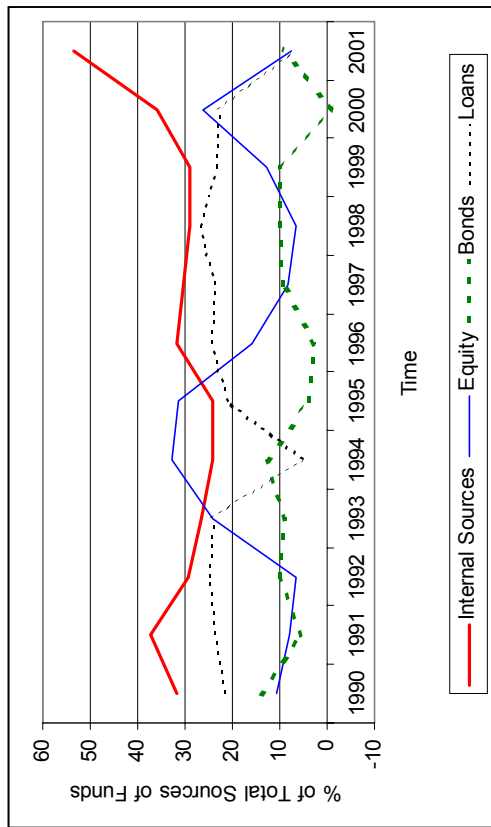


Chart 8b. (i) Total Liabilities for High-Risk^{1/} Firms: 1990-2001

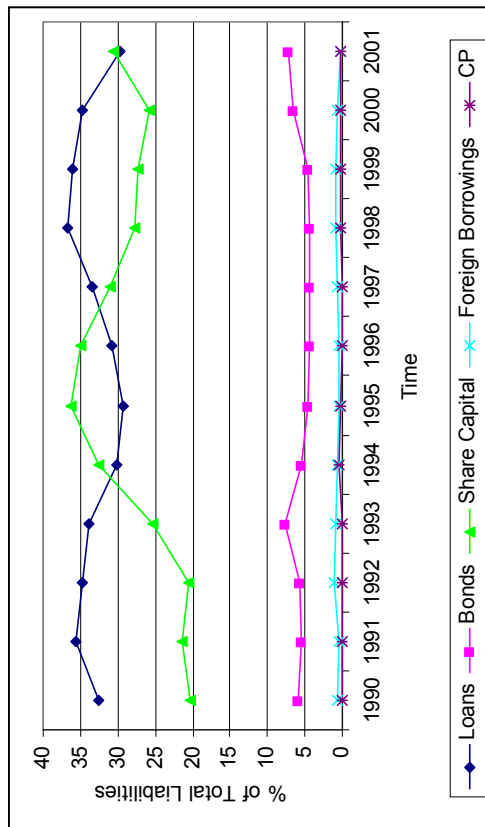
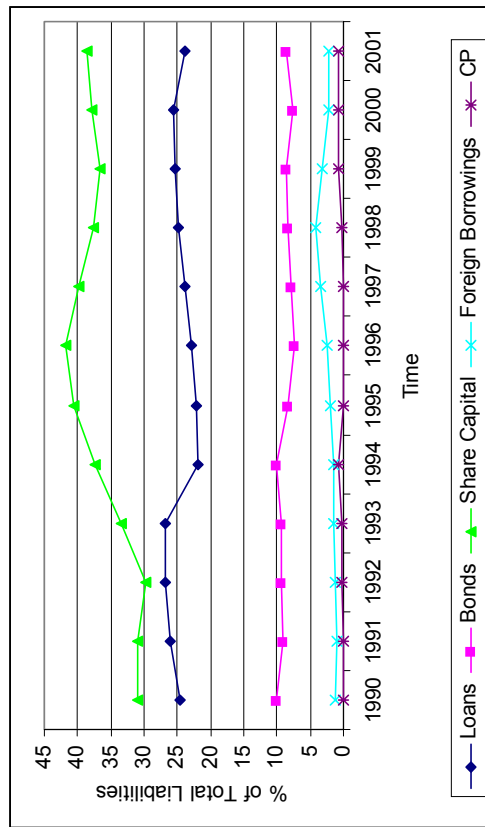


Chart 8b. (ii) Total Liabilities for Low-Risk^{2/} Firms: 1990-2001



Note: 1/ High Risk Firms refer to those whose Variance of ROA exceeds the average.
 2/ Low Risk Firms refer to those whose Variance of ROA is below the average.

Chart 9a. (i) New Sources of Funds for Listed Firms in Software Industry: 1990-2001

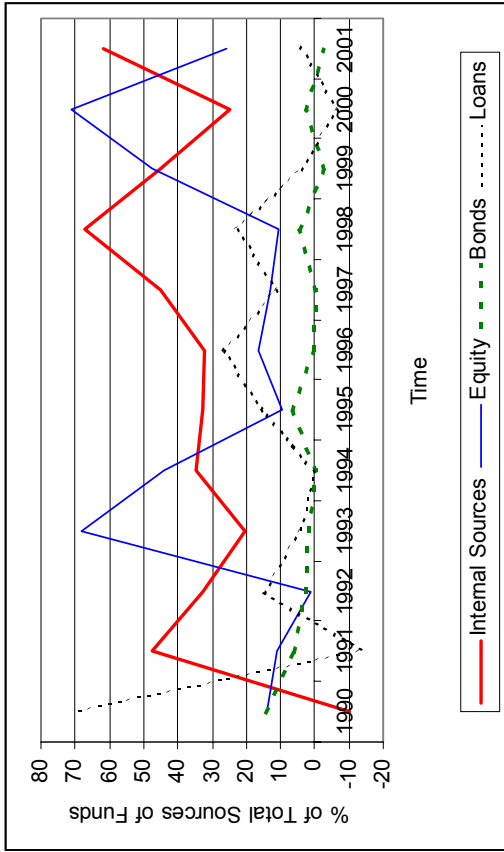


Chart 9a. (ii) New Sources of Funds for Non-Listed Firms in Software Industry: 1990-2001

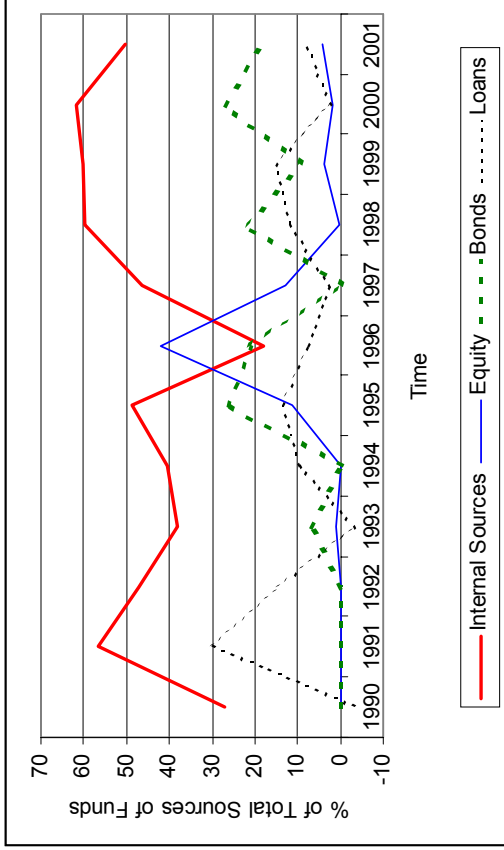


Chart 9b. (i) Total Liabilities for Listed Firms in Software Industry: 1990-2001

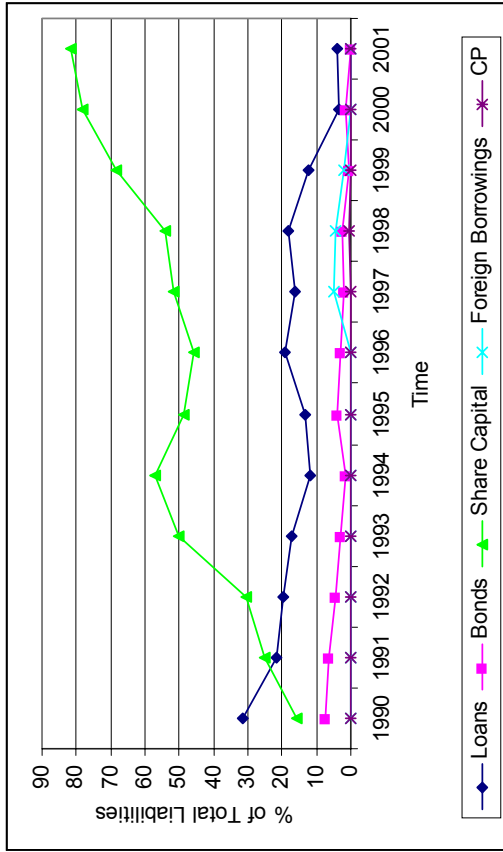
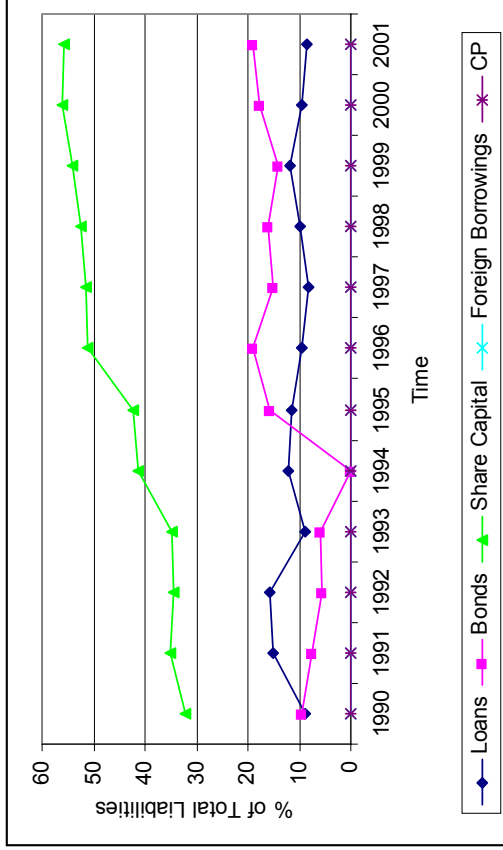


Chart 9b. (ii) Total Liabilities for Non-Listed Firms in Software Industry: 1990-2001



High-quality firms tend to depend not only on internal sources but also have access to CP and foreign credit markets since financing from these sources can be cheaper than borrowings from banks and financial institutions. Since these firms tend to face a low degree of information asymmetry or adverse selection, they do not need to use domestic debt as a signaling device for their true status of profitability, preference toward risk, and creditworthiness. Moreover, these firms have already gained a reputation as credible and high-quality borrowers, thus conflicts of interest between creditors and borrowers are likely to be smaller than for other firms, thereby allowing for increased access to CP and foreign borrowings. On the other hand, low-quality firms are more likely to have no other choice but to resort to loans from banks and financial institutions, since it is too costly for these firms to raise funds from capital, CP and foreign credit markets.

Observation 3: *Outstanding bonds as a percentage of total liabilities are greater for large and low-risk firms than for small and high-risk firms. However, the latter issued bonds at levels not very different from the former during 1990-2001. Moreover, the degree of dependence of new and old firms (and of profitable and unprofitable ones) was comparable. These facts suggest that firms—regardless of their characteristics—are able to gain access to the bond market. This may be due to the fact that nearly all bond issues are privately placed, and less stringent accounting and disclosure requirements are applied in India, enabling relatively low-quality firms to issue bonds.*

According to existing theories (Carey et al., 1993), privately placed bond finance comes somewhere between bank finance and publicly issued bond finance. This is because issuers of privately placed bond finance generally have a greater degree of information asymmetry than issuers of publicly placed bond finance, but a smaller degree of information asymmetry compared with borrowers of bank loans. Also, investors in privately placed bonds are able to impose greater discipline on issuers through more detailed bond covenants and monitor them more closely as compared with investors in publicly placed bonds, but their disciplinary roles are not as extensive as banks. A recent tendency pointed out in India—the shift from a public equity market to a private placement bond market—may indicate that many issuers of shares have not adopted a satisfactory level of accounting and disclosure requirements. There are some concerns that this trend in privately placed issues may eventually crowd out public issues (National Stock Exchange, 2002).⁷

Observation 4: *Large firms are not only major new equity issuers but also those that hold greater share capital than others. On the other hand, new, high-risk firms also*

⁷ Major issuers in India's private debt markets are banks, financial institutions, and government entities, accounting for 82.5% of total resources mobilized by private placement in 2000-2001. Large issuers, such as the Industrial Development Bank of India (IDBI) and Industrial Credit and Investment Corporation of India (ICICI), can mobilize funds on a daily basis. Although most of the privately placed debt issues are rated by credit rating agencies, the issuance is not subject to the disclosure and investor protection guidelines of SEBI that apply to all new issues of capital through prospectus and rights issues. Mutual funds are major subscribers to privately placed issues. Default risks to investors could be potential problems with the private debt market and pose risks of systemic runs, given that the subscribers to the issues are large financial institutions.

increased new equity financing during 1990-2001, even though their share capital in terms of total liabilities remained smaller than old, low-risk firms. Thus, the equity market has been accessible to these low-quality firms during 1990-2001, although it has not provided stable financing sources.

The above results are consistent with the view that firms' expansion requires greater large-scale external financing, and access to the equity market enables them to obtain cheaper financing sources. On the other hand, the observation that low-quality firms also depend on new equity finance merits attention. Generally, a mature equity market refers to one where adequate informational, legal, and judicial infrastructures are installed so that public shareholders are willing to bear risk with respect to investment. These infrastructures include (i) high standards of information disclosure, accounting, and auditing systems; (ii) comprehensive legal and judicial systems to protect minority shareholders and ensure their confidence in investing in the shares; and (iii) the presence of various institutions (investment banks, market analysts, auditors, lawyers, etc.). Such infrastructures are a prerequisite for containing severe problems associated with information asymmetry and conflicts of interest (between insiders and outsiders) and at the same time for strengthening corporate governance. With these infrastructures in place, the equity market imposes tighter discipline on management and mitigates conflicts of interest through the use of voting rights at shareholders' meetings, board of directors systems, incentive-compatible compensation schemes, and takeover threats. Also, constant disclosure of information lowers the degrees of information asymmetry and conflicts of interest.

Nevertheless, these methods of corporate control through the equity market are regarded as costly compared with bank loans, because shareholders must process complex corporate information and demand constant disclosure of information as owners (for example at boards of directors and shareholders' meetings). This suggests that when problems of asymmetric information are severe, so that standardizing information about firms poses great difficulties, it is too costly for these firms to issue equity publicly. In India, there were already about 7,000 listed firms at 22 stock exchanges in 1992 owing to the loose IPO requirement and the absence of an informational, legal and judicial infrastructure. Thus, the fact that low-quality firms depend heavily on new equity finance in India may not necessarily imply that the equity market is mature. It may simply reflect that in the face of deficient informational, legal, and judicial infrastructures, the equity market is accessible to a wide range of firms. This may be closely associated with the fact that Indian equity market has not provided stable financing sources to manufacturing firms and that there has been no steady shift from borrowings from banks and financial institutions to equity finance, as revealed in Section 2.1.

Moreover, the equity market does not eliminate conflicts of interest if there are no active or controlling shareholders who are willing to manage their firms. These problems are even more pronounced when devices—such as shareholders' meetings, boards of directors, incentive-compatible compensations schemes for managers, and takeover threats—are not as effective as the existing theories predict. In practice, coordination problems among shareholders often arise at shareholders' meetings,

weakening their disciplinary roles. Boards of directors systems are often ineffective since the majority consist of controlling families and related directors, giving rise to benefits to inside shareholders at the expense of outsiders. It is often the case that board directors, even though some outsiders are included, are unable to dismiss managers in the face of poor performance. Performance-based payment is also used insufficiently in practice as a device to minimize agency costs, perhaps owing to political and social constraints that limit huge payoffs for exceptional performance (Jensen and Murphy, 1990). Takeover threats, meanwhile, are often nonexistent in India since the Government limits such practices. In addition, the equity market in India is not liquid enough to facilitate takeovers. Given that these problems are widespread, the Indian equity market has not proven an effective tool to improve firms' corporate governance and minimize conflicts of interest.

Further, it should be noted that equity markets often appear to flourish in many developing countries even though the informational, legal, and judicial infrastructures needed for developing a sound capital market are inadequate. This reflects that shareholders can potentially claim unlimited upside returns while downside risks are limited to the value of initial investment by virtue of limited liability (Takagi, 2000). An equity market can flourish in a bank-based system if there are growth opportunities. In these circumstances, an equity market is prone to greater boom-bust cycles and, thus, is not able to provide stable financing sources, as evidenced in India, compared with places with better infrastructures. This leads to problems such as insider transactions, exploitation of minority shareholders, and intransparent transactions, as frequently observed in India.

Observations 1 to 4 appear consistent with the pecking order theory, which gives a sequencing stream based on the theory of information asymmetry and transaction costs. The theory states that firms tend to prefer internal sources first, followed by riskless debt, and then equity, when information asymmetries are present (Myers, 1984). First, Indian low-quality firms that are not able to obtain sufficient funds from internal sources tend to rely heavily on loans from banks and financial institutions to begin with. Second, bond finance has provided more stable financing sources for firms than equity finance. It appears that firms tend to take advantage of equity market booms and thus increase equity finance only during these periods. Third, old, large, low-risk firms tend to depend more intensively on CP and foreign borrowings. Since these firms are likely to be high-quality firms, they are able to diversify their financial sources.

Last, software firms can be regarded as having a large amount of intangible assets. Existing theories predict that firms with intangible assets or those with growth opportunities are more likely to issue equity over debt (Jensen and Meckling, 1976). There appear to be clear differences with respect to financing patterns and structures between these firms and others, as pointed out below.

Observation 5: *Software firms tend to depend more heavily on internal sources than other firms. While equity finance is volatile, it tends to increase when internal sources decline. Moreover, outstanding share capital as a percentage of total liabilities is far*

greater than for other firms. Since software firms have a large amount of intangible assets and the probability of success is highly uncertain, it is likely that they cannot borrow easily from banks and financial institutions.

Observation 6: *Publicly listed software firms depend more heavily on equity finance, a trend that was particularly pronounced in the stock market boom period of 1993-1995 and the global IT boom of 1999-2000. Unlisted software firms tend to find finance largely from internal sources, followed by (largely privately- placed) bonds.*

In general, equity finance does not require tangible assets and, thus, is suitable for financing firms with high growth potential and/or supporting venture capital industries by allowing venture capitalists to exit from the privately placed equity market through an IPO process. Using data from 27 industries in 20 industrial countries during 1970-1995, for example, Carlin and Mayer (1998) found that industries that finance investment largely with equity tended to grow faster and spend more on research and development (R&D) in countries with better accounting standards. Equity-financed industries tended to invest less in fixed capital in these countries. These results suggest that equity-financed industries have tended to have few tangible assets and substantial intangible assets, such as growth opportunities, patents, and intellectual property. By contrast, bank-financed industries grew more slowly in financially developed countries and generally undertook less R&D. Bank-dependent industries in developing countries grow faster as the banking system develops, but are relatively unaffected by improvements in accounting standards in contrast to industrial countries. In economies with underdeveloped financial markets and institutions, collateral is an essential tool in obtaining external finance. As accounting standards and credit markets develop, physical collateral becomes less important, facilitating equity-financed industries to make more R&D investment.

In India, moreover, the venture capital industry is underdeveloped, contributing to the small number of unlisted software firms. In general, privately placed equity finance is used in a situation where problems of adverse selection and moral hazard are severe. In the private placement market, reputation plays a key role in addressing these problems since it consists of a few players that repeatedly interact with each other. For example, partnership managers who fail to establish a favorable track record may subsequently be unable to raise funds or participate in investment syndicates with other partnerships (Prowse, 1998). The private equity market is suitable for firms with high growth potential and innovation, or those with few tangible assets relative to firm value. Banks are generally reluctant to support rapid expansion of firms based on future prospects as opposed to current net worth. They tend instead to favor collateral over intangible assets, especially in poor contractual enforcement regimes. Thus, these firms generally have to finance their projects through their own funds or the privately placed equity market. However, given that such a privately placed equity market is largely underdeveloped in India, unlisted software firms have to rely heavily on internal resources.

3. Testing the Changes in Creditors' Lending Behavior

In 1991, the Narasimham Committee, after reviewing the state of the banking sector, admitted that banks for decades not properly monitored the loans they extended. There are five major reasons to explain this behavior (Khanna and Palepu, 1999). First, dominant banks did not set monitoring of their borrowers as their primary objective. Until 1991, the Government aimed to concentrate bank loans on the strategically important industrial sector in the belief that this would lead to industrial and economic development. Moreover, major banks were often instructed not to interfere in the management of their borrowing firms. Second, banks were never provided with any incentives to monitor their borrowers, since the bank manager's goal was to maximize loans to specific sectors, not to improve profitability. Thus, banks continued to extend credit to borrowers even after earlier loans became nonperforming, in the hope that the distressed firms would find their way out of trouble. Moreover, banks found it difficult to close failing firms under the Sick Industrial Firms Act.⁸ In addition, implicit soft budget constraints led to moral hazard problems.

Third, competition among banks was nonexistent due to complicated administered interest rates, conditions governing equity ownership, and consortium lending practices. Also, all public sector banks were members of the Indian Banks' Association, which functioned as a de facto cartel and played a major role in fixing wages, prices, and service conditions. Fourth, until 1991, entrepreneurs receiving a permit from the Government to engage in economic activity could obtain financial support easily from the State-run financial institutions. Fifth, major banks were never monitored themselves mainly because they were government-owned. In addition, the capital market did not impose disciplines on publicly listed private banks.

Based on the recognition of these banking sector problems, the Government has experimented with various reforms since 1991. These have encouraged banks to become more commercially-oriented and forced them to become more sensitive to various risks. In this environment of reform, the important issues relate to whether banks have increasingly engaged in relationship lending to minimize information asymmetry and agency problems. The issue of relationship banking is closely linked with SMEs for two reasons. First, the extent of information asymmetry for SMEs is likely to be high since their information is highly idiosyncratic, while publicly available information is limited. Second, agency problems are likely to be more severe for SMEs than for large firms owing to the formers' lack of reputation and track records. The finance literature points out that banks are relatively successful at minimizing these problems if they work to improve the management of firms and form long-term relationships—rather than just owning them.

⁸ Sick industrial firms are those that are in an existence for at least five years since the date of incorporation and have an accumulated losses equal to or exceeding its networth at the end of any financial year. The Board for Industrial and Financial Reconstruction determines remedial and other measures with respect to these companies and implement those measures. The Board determines whether it is possible for these companies to make their networth exceed the accumulated losses within a reasonable time.

3.1. Basic Model for Banks and Estimation Results

Based on data of 1,500 firms compiled by RBI for 1981-1990, Cobham and Subramaniam (1995) found that there was no difference in the financing of large and small firms; and bank loans and internal sources are the most important financing sources for firms in India. At the same time, they pointed out that smaller firms, including those that are publicly unlisted, are dependent on equity finance for their investment growth. These results are relevant for the pre-1991 period, when banks and financial institutions were insensitive to various risks and firms' characteristics, and many firms had access to the equity market regardless of their type. Since the early 1990s, however, banking sector and capital markets reforms are likely to have affected firms' corporate financing patterns, as pointed out in Section 2.

Comparing firms in India and the United States, further, Samuel (1996) found that Indian firms depend more heavily on external finance than US firms. Most recently, this trend has still prevailed in India, as noted in Section 2. Samuel (1996) also showed that foreign borrowings, bonds, and loans are important sources of external finance for Indian firms, while short-term debt is the most important one for US firms. As pointed out in Section 2, the CP market remains small for domestic manufacturing firms even today in India; thus, these firms obtain relatively stable external financing sources from banks and financial institutions, followed by the bond market, then through foreign borrowings, and last by CP. Samuel (1996) pointed out that Indian and US firms have a comparable degree of dependence on equity finance, accounting for about 4% of total sources. However, Section 2 showed that the degree of dependence on equity increased dramatically in the 1990s, accounting for about 20% of total new sources and 40% of total liabilities by 2001.

To assess the impact of India's financial reforms on banks' behavior (which affects firms' capital structure) in the reform period, this section first examines the following hypothesis (Hypothesis 1): Reforms in the banking sector and capital markets in the past 10 years have made it cheaper for firms with few information asymmetry and agency problems to obtain financing from capital markets. Particularly, with the gradual improvement of the capital market's informational, legal, and judicial infrastructures, low-quality firms, such as SMEs, have found it more costly to raise funds in the capital market under SEBI guidelines. As a result, SMEs would have increasingly become banks' major customers, while high-quality firms depended increasingly on the capital market or foreign borrowings. In the meantime, banking sector reforms have forced banks to become more sensitive to credit risks and returns, and encouraged them to undertake relationship lending to mitigate problems of information asymmetry and conflicts of interest. Further, since adverse selection is more severe among firms with a high degree of informational asymmetry, signaling effects of bank loans have become more important for these firms. Also, firms on which there is favorable information but are subject to a high degree of informational asymmetry are likely to increase their amount of bank loans (Krishnaswami et al., 1999). By contrast, firms on which there is favorable information and facing a low degree of informational asymmetry are likely to increase their finance by bonds or equity. Also, the effectiveness of banks as monitors is likely to have risen in

importance, given that SME's dependence on bank loans remains heavy and it takes time to develop adequately the informational, legal, and judicial infrastructures needed for a sound capital market.

To examine these changes in firms' capital structure from the perspective of banks' behavior, this paper tests whether banks have increased lending to firms with high degrees of information asymmetry and potential agency problems compared to those with a low degree of information asymmetry and experiencing less agency problems. Few studies have focused on these issues. Sarkar and Sarkar (2000) analyzed trends in the financing of Indian firms and focused on the age effect of firms. The results show that young firms were more deeply affected by the reforms than old ones and the impact was more pronounced in earlier periods than in later. The increase in the proportion of funds mobilized from external sources during the initial years of the reforms was much higher for young companies compared to old companies, and the portion of external sources has declined in later years. In particular, firms relied heavily on the equity market in the initial period, but this now accounts for only half of what it did in the years just prior to the reforms. Instead, borrowings continue to account for more than four-fifths of the external funds raised by Indian firms. The shortcoming of their study, however, is its attempt to examine financing trends without deeply investigating factors responsible for the differences in financing patterns and to focus only on the impact of firms' years of incorporation on those patterns. Thus, this paper differs significantly from their work both in terms of scope and depth.

The dependent variable is each firm's borrowings from banks as a percentage of total liabilities (including share capital, reserves, and others).⁹ This paper assumes that the degrees of information asymmetry and agency problems are reflected in the size of firms, years of incorporation, profitability, variance of profitability (to measure risk), as adopted in Section 2. Thus, low-quality firms are those that are relatively small, new, unprofitable, and high-risk. A natural logarithm of the asset size is used as a proxy for the size of the firm [ASSET]. With respect to years of incorporation, this paper uses a dummy variable [NEW], which is equal to 1 if a firm is incorporated from 1993 onward and 0 otherwise. As for profitability, after-tax return on assets [ROA] is used. Variance of ROA [RISK] is estimated based on the three-year period (the year under examination and two preceding years) for each year. The observation period is for 1990-2001. Firms' data are obtained from the Prowess database.

In addition, this section focuses on whether access to the CP market, publicly listing, and export-orientation could be additional important indicators for explaining banks' behavior. A dummy variable is used for a firm's access to the CP market [CP], which is equal to 1 if a firm issues CP and 0 otherwise. To examine whether the capital structure differs between publicly listed and unlisted firms, this section uses a dummy variable [LISTED], which is equal to 1 if a firm is publicly listed in one of the 23 Indian stock exchanges or 0 otherwise. As for export-orientation, the ratio of exports to sales

⁹ Estimation using the ratio of new (net) borrowings from banks to total (net) sources of funds was also tried. However, many firms have shown volatile patterns undermining estimation results. Thus, it was decided to use stock data.

[EXPORT] is used. Since exporting firms in India have access to export and import credit facilities and various tax benefits, they are likely to achieve better performance and hence gain better financing deals (Kakani, Saha and Reddy, 2001).

Moreover, this section adopts two indicators as proxy for the size of intangible assets. The size of intangible assets can be measured by two indicators, following Krishnaswami et al. (1999); Sarkar and Sarkar (2000); and Kakani, Saha, and Reddy (2001). They are: (i) depreciation expenditure as a percentage of sales [DEPSALE], and (ii) the sum of marketing and advertising expenditures as a percentage of sales [ADVSALE]. Firms with lower depreciation ratios are generally those with a larger amount of intangible assets and, thus, more growth options in their investment opportunities. Firms with high ratios of marketing and advertising expenditure to sales may be good at establishing entry barriers against competition by building up brand image and increasing intangible assets. Marketing expenditure is important in industries whose production technology is mature and, thus, require extensive marketing to form entry barriers (Aaker, 1984).

This paper performs regression analysis using the above variables and time dummies [TIME]. Since RISK uses data of the previous two years in addition to the year under investigation (for example, RISK of the year 1992 uses data of 1990-1992), the observation period for the empirical analysis ranges from 1992 to 2001. The model omits the 1992 time dummy variable and thus coefficients of other time dummy variables accounts for time specific factors in relation to 1992. In addition, industry dummies are adopted. CAT1 indicates firms belonging to food, beverages, and live animals; CAT3 mineral and energies; CAT4 fats and oil; CAT5 chemical and related products; CAT6 leather, textile, rubber, plastic, paper, nonmetallic minerals, and metals; CAT7 machinery, transport equipment and electronics; CAT8 miscellaneous manufacturing goods; and CAT9 firms with diversified products. Since there are no firms in CAT2, this dummy variable is omitted. CAT9 is excluded for intercept.¹⁰

Based on the predictions derived from existing theories, the signs of ASSET, ROA, CP, LISTED, and EXPORT are expected to be negative. The coefficients of NEW and RISK are expected to be positive. The coefficient of ADVSALE (DEPSALE) is expected to be negative (positive) if a larger amount of tangible assets increases banks' incentives to extend more credit and mitigates moral hazard problems. The regression equation was estimated based on panel data for 1992-2001 using the Ordinary Least Squares (OLS) method.

The regression estimation is conducted for the whole sample period (1992-2001) and two separate periods (1992-1996 and 1997-2001). Regression analysis for two separate periods is performed in order to assess whether banks changed their lending behavior after SEBI tightened IPO requirements so that relatively high-quality firms maintained and/or increased their access to the capital market, while low-quality

¹⁰ This paper also used alternative dummies: one for software firms and one for diversified firms. However, the coefficients turned out to be statistically insignificant.

firms lost access. The estimation results as reported in Table 2 are summarized as follows:¹¹

First, the coefficients of ASSET and ROA were statistically significant and negative, suggesting that bank loans to small and less profitable firms were greater during 1992-1996. This indicates that banks undertook relationship lending. However, the coefficient of ASSET turned out to be statistically insignificant in 1997-2001, while that of ROA remained the same. This indicates that smaller firms borrowed more heavily from banks compared with larger firms in 1992-1996, but such differences have disappeared in 1997-2001. Second, although the coefficients of EXPORT, LISTED, and CP are statistically insignificant for the full sample period, they have both shifted from being statistically significant and positive in the first period to being statistically insignificant in the second period. This suggests that during 1992-1996, bank credits to export-oriented, publicly listed, and CP-issuing firms were larger than those to less export-oriented, unlisted firms and those not issuing CP. However, such differences have been insignificant during 1997-2001, implying that both types of firms have access to bank loans. Third, while the coefficient of RISK was statistically insignificant for the full sample period, it turned out to be statistically significant for the separate periods, shifting from positive during 1992-1996 to negative in 1997-2001. Thus, bank credits to high-risk firms were larger during 1992-1996, in line with the hypothesis. However, those to low-risk firms became larger during 1997-2001, contrary to the hypothesis. Fourth, moreover, bank credits to old firms remain larger than those to new firms, as evidenced by the statistically significant and negative coefficient of NEW for all sample periods. Fifth, the coefficient of DEPSALE turned out to be statistically insignificant. On the other hand, the coefficient of ADVSALE shifted from negative in 1992-1996 to positive in 1997-2001. This reflects bank loans to firms with growth opportunities have been greater in recent years, owing to their greater demand for credit.

These results suggest that banks have been responsive to various firms' characteristics and have tended to extend credit to unprofitable firms during the period. Further, banks extended more credit to high-quality firms (such as export-oriented, publicly listed, and CP-issuing firms) in 1992-1996. However, no differences were observed in banks' lending to firms in terms of export-orientation, access to stock exchanges, and ability to issue CP during 1997-2001, implying that they have been willing to extend credit to both high- and low-quality firms. In other words, banks have been expanding their customer base to a wider range of firms by engaging in relationship lending. However, banks continue to extend more credit to old firms during 1992-2001 and to low-risk firms in 1997-2001, suggesting that banks have engaged in relationship lending, but not to a full extent.

¹¹ The regression model was also estimated by including an implicit lending rate (calculated by each firm's ratio of interest payments to total borrowings including bonds). Since the results were similar, Table 2 has omitted this variable. The similar results were obtained for all models adopted throughout the paper. Moreover, a regression estimation with a fixed effect was performed. The results were not very different from those reported in Table 2.

Table 2. Estimation Results for Firm's Choices over Bank Loans: 1992-2001

Dependent Variable: Bank Loans						
	Period: 1992-2001		Period: 1992-1996		Period: 1997-2001	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
C	22.87***	14.34	29.82***	14.73	16.55***	7.86
TIME93	-0.22	-0.22	-0.43	-0.45	-	-
TIME94	-1.42	-1.42	-1.56*	-1.70	-	-
TIME95	-1.03	-1.07	-1.10	-1.24	-	-
TIME96	-1.73*	-1.87	-1.87**	-2.17	-	-
TIME97	-3.29***	-3.62	-	-	-	-
TIME98	-3.01***	-3.32	-	-	0.23	0.34
TIME99	-3.40***	-3.74	-	-	-0.24	-0.36
TIME00	-1.96**	-2.16	-	-	1.13*	1.66
TIME01	-3.08***	-3.21	-	-	-0.09	-0.12
ASSET	-2.08***	-6.69	-5.89***	-11.76	-0.40	-1.00
EXPORT	0.00	1.19	0.08***	6.22	0.00	0.99
ROA	-0.64***	-57.96	-0.64***	-39.21	-0.65***	-44.40
RISK	-0.00	-0.85	0.00**	2.08	-0.00***	-3.40
LISTED	-0.01	-0.03	1.34**	2.03	-0.70	-1.29
NEW	-2.40***	-4.82	-4.32***	-3.63	-1.81***	-3.20
CP	0.77	1.41	1.85***	2.51	0.69	0.88
DEPSALE	-0.00	-1.52	-0.00	-1.20	-0.00	-1.17
ADVSALE	0.04**	2.25	-0.26***	-3.76	0.05***	2.91
CAT1	3.23**	2.33	-0.07	-0.04	4.81**	2.39
CAT3	-2.74*	-1.68	-1.98	-0.85	-3.40	-1.48
CAT4	4.17***	2.59	0.32	0.15	5.76***	2.51
CAT5	-0.38	-0.28	-1.94	-1.09	0.35	0.18
CAT6	2.23*	1.72	-0.56	-0.33	3.38*	1.77
CAT7	0.04	0.03	-2.22	-1.28	1.12	0.58
CAT8	-0.02	-0.01	2.60	0.73	-1.12	-0.37
R-squared	0.15		0.19		0.14	
F-statistic	164.12		101.38		117.31	
N	23,456		8,812		14,644	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

3.2. Application of the Model for Banks: Periods of Financial Distress

This section examines the hypothesis that banks have advantages in resolving informational asymmetric and agency problems and this leads to fewer liquidity constraints on firms, particularly at times of distress (Hypothesis 2). If banks conduct relationship lending, then they would continue to provide stable credit to relatively low-quality but viable firms regardless of their business cycles (as long as banks are certain that they can offset the loss in the near future). To test this hypothesis, this paper uses the same model adopted as above, but includes lag variables of ROA. According to the hypothesis, a viable but temporarily unprofitable firm is able to obtain loans from banks. Thus, the coefficients of one and two lag variables of ROA (ROA_{t-1} , ROA_{t-2}) are expected to be statistically significant and negative. The results for all sample periods are reported in the second column of Table 3.

Table 3. Estimation Results for Firm's Choices over Bank Loans with Lags: 1992-2001

Dependent Variable: Bank Loans						
Variable	Period: 1992-2001		Period: 1992-1996		Period: 1997-2001	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
C	22.16***	13.00	30.08***	14.23	17.30***	7.73
TIME93	-0.77	-0.66	-0.64	-0.62	-	-
TIME94	-1.59	-1.43	-1.78*	-1.80	-	-
TIME95	-1.51	-1.39	-1.53	-1.58	-	-
TIME96	-0.82	-0.78	-0.87	-0.93	-	-
TIME97	-1.54	-1.52	-	-	-	-
TIME98	-2.81***	-2.81	-	-	-1.25*	-1.64
TIME99	-3.89***	-3.87	-	-	-2.40***	-3.12
TIME00	-3.12***	-3.10	-	-	-1.71**	-2.20
TIME01	-3.99***	-3.78	-	-	-2.73***	-3.23
ASSET	-1.47***	-4.19	-5.72***	-10.22	0.21	0.47
EXPORT	0.00	1.21	0.12***	7.92	0.00	1.00
ROA	-0.44***	-25.98	-0.40***	-16.64	-0.45***	-19.19
ROA 1	-0.21***	-9.88	-0.25***	-7.64	-0.20***	-7.33
ROA 2	-0.28***	-14.32	-0.29***	-9.33	-0.30***	-11.64
RISK	0.00***	4.37	0.00	0.69	0.00***	4.03
LISTED	-0.02	-0.04	1.65**	2.21	-0.76	-1.20
NEW	-2.01***	-3.36	-3.62*	-1.83	-1.41**	-2.13
CP	1.11*	1.92	1.97***	2.58	1.30	1.58
DEPSALE	-0.00***	-3.51	-0.01***	-3.10	-0.00***	-2.99
ADVSALE	0.14***	5.40	-0.20**	-2.27	0.16***	5.74
CAT1	4.05***	2.76	1.03	0.53	5.48***	2.58
CAT3	-2.08	-1.18	-0.69	-0.27	-2.75	-1.13
CAT4	4.65***	2.68	1.06	0.44	5.87**	2.41
CAT5	0.27	0.19	-1.29	-0.70	1.03	0.50
CAT6	2.70**	2.00	-0.56	-0.32	4.01**	2.01
CAT7	0.99	0.71	-1.80	-1.01	2.28	1.13
CAT8	0.88	0.35	2.64	0.67	0.18	0.05
R-squared	0.19		0.24		0.17	
F-statistic	161.56		98.00		115.30	
N	19.016		6.757		12.259	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

The estimation results show that the coefficients of ROA_{t-1} and ROA_{t-2} were statistically significant and negative throughout the period in line with the hypothesis. Also, this model has improved the overall estimation results, as evidenced by the size of R^2 . The results suggest that banks are responsive to firms' past profitability and tend to extend credit to firms even though their profit levels have been low in the recent past. This may indicate that banks engage in relationship lending by processing information about their borrowers and monitoring their performance, and, thus, provide loans to firms that are temporarily unprofitable, but viable firms.¹²

3.3. Application of the Model to Financial Institutions

In India, financial institutions are generally referred to as development banks established to promote industrial and agricultural development. These are divided into seven categories: (i) industry, (ii) investment, (iii) insurance and credit guarantees by the Deposit Insurance and Credit Guarantee Corporation of India Ltd. (iv) export-import trade (including EXIM Bank), (v) capital market, (vi) agriculture, and (vii) housing developments (Desai, 2001). Moreover, these development banks are categorized into (a) All-India Institutions and (b) State level institutions. In particular, industrial development banks classified as All-India Institutions consist of financial institutions that lend to (1) medium- and large-firms (such as the Industrial Development Bank of India [IDBI] and Industrial Credit and Investment Corporation of India [ICICI]), (2) the small sector (such as Small Industrial Development Bank [SIDBI] and State Financial Corporations [SFCs]), and (3) villages (such as SIDBI, and the Khadi and Village Industries Commission [KVIC]). Industrial development banks for large firms provide long-term loans, underwrite shares and bonds, subscribe to them, and guarantee deferred payments and loans denominated in foreign currencies.

Compared with banks, financial institutions have the following unique features: they (i) subscribe to rights issues and underwrite public issues, (ii) provide long-term loans, (iii) convert debt to equity when firms become financially distressed, and (iv) raise long-term financing from bonds. These institutions used to provide long-term loans at interest rates lower than those applicable to working capital or any other short-term loans (Patil, 2001). To enable these institutions to provide subsidized long-term finance, their bonds were issued with a government guarantee. Moreover, their funds were often granted through the budget and a large portion of RBI's National Industrial Credit (long-term credit) was allocated (to IDBI). Also, these financial institutions used to be protected from competition with banks through regulations to prevent the latter from extending large term-loans to industrial units and encouraging them to provide small term-loans only to small-scale industrial units on a priority basis (Patil, 2001). In the past, therefore, these financial institutions did not have sufficient incentives to process information about their borrowers and/or issuers or monitor their performance (Chakravarty, 1985). These financial institutions comprised the primary source of institutional investment in India until 1991. They were generally insufficiently oriented

¹² A regression estimation was also performed with a fixed effect. The results were similar to those reported in Table 3.

toward the task of monitoring managers and were, thus, unlikely to exercise effective governance (Khanna and Palepu, 1999).

However, since the reform began, financial institutions have been more likely to face greater incentives to perform better, owing to their greater exposure to market forces. There are various reasons for this. First, since the early 1990s, the Government eliminated guarantees on their bonds and cheap funds from the budget. As a result, financial institutions gradually found it more costly to issue long-term bonds without government guarantees and increased short- or medium-term bonds. Financial institutions raise few funds through cheaper deposits owing to the limited number of branches and RBI's limit on their access to deposits, since they are not subject to the SLR and cash reserve ratio (CRR). Consequently, their funding costs are becoming greater than those of banks. Second, the demarcation between banks' and financial institutions' lending business has been gradually disappearing. As a result, banks have been increasingly engaging in large-scale project finance and becoming direct competitors to financial institutions. Third, interest rates were liberalized in the 1990s not only for lending and deposit rates, but also for interest rates of bonds (which used to be fixed at low levels) in 1991. This also contributed to raising the cost of public debt for financial institutions.

As a result of these changes, dual holdings of term loans and equity by financial institutions may give them an incentive to monitor their borrowers and/or issuers, compared with banks. Since banks and financial institutions differ in their financing sources, the mechanisms to mitigate problems of adverse selection and moral hazard are likely to be different. Banks are able to minimize problems of adverse selection and moral hazard through repeating short-term financing transactions (refinancing) and carrying settlement and checking accounts. On the other hand, financial institutions may attempt to minimize such problems through conducting more extensive due diligence to evaluate projects, pricing the risk more carefully with considerable monitoring, and investing in borrowers' equity. Alternatively, financial institutions may extend credit only to high-quality borrowers.

This section tests the hypothesis that financial institutions have become more sensitive to firms' specific features and increased lending to firms with high degrees of information asymmetry and agency problems during the reform period (Hypothesis 3). To test this hypothesis, this section attempts to run a regression model similar to that in Section 3.1, except that the dependent variable is firms' borrowings from financial institutions as a share of total liabilities. The signs of the coefficients of independent variables would be the same.

Table 4. Estimation Results for Firm's Choices over Loans from Financial Institutions: 1992-2001

Dependent Variable: Loans from Financial Institutions						
Variable	Period: 1992-2001		Period: 1992-1996		Period: 1997-2001	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
C	2.12**	2.12	6.78***	4.82	-5.69***	-4.56
TIME93	-0.71	-1.09	-0.58	-0.88	-	-
TIME94	-0.95	-1.52	-0.92	-1.45	-	-
TIME95	-1.93***	-3.20	-1.80***	-2.93	-	-
TIME96	-4.00***	-6.90	-3.63***	-6.06	-	-
TIME97	-5.27***	-9.24	-	-	-	-
TIME98	-5.47***	-9.61	-	-	-0.29	-0.72
TIME99	-5.77***	-10.11	-	-	-0.68*	-1.68
TIME00	-6.10***	-10.69	-	-	-1.05***	-2.60
TIME01	-7.05***	-11.70	-	-	-2.05***	-4.60
ASSET	5.31***	27.17	2.68***	7.72	6.78***	28.81
EXPORT	-0.00	-0.90	0.00	0.22	-0.00	-0.97
ROA	-0.34***	-48.73	-0.24***	-21.30	-0.40***	-45.99
RISK	-0.00***	-5.30	-0.00	-1.25	-0.00***	-7.02
LISTED	1.23***	4.65	1.05**	2.28	1.14***	3.55
NEW	2.84***	9.07	2.70***	3.27	3.04***	9.08
CP	-4.15***	-12.10	-2.30***	-4.48	-5.43***	-11.77
DEPSALE	0.00***	5.57	0.01***	5.55	0.00***	4.17
ADVSALE	-0.05***	-5.18	-0.15***	-3.19	-0.05***	-4.76
CAT1	3.17***	3.63	-0.13	-0.10	4.86***	4.08
CAT3	6.05***	5.89	4.27***	2.66	6.77***	4.99
CAT4	5.79***	5.72	2.16	1.41	7.65***	5.62
CAT5	5.82***	6.88	4.76***	3.85	6.38***	5.48
CAT6	8.16***	10.01	7.45***	6.33	8.34***	7.38
CAT7	3.44***	4.14	2.23*	1.85	4.09***	3.56
CAT8	5.17***	3.62	5.51**	2.23	5.16***	2.89
R-squared	0.15		0.09		0.19	
F-statistic	159.38		45.92		169.12	
N	23,456		8,812		14,644	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

The results reported in Table 4 can be interpreted as follows: First, the coefficients of ROA and CP (NEW) turned out to be statistically significant and negative (positive) for all sample periods. This means that loans from financial institutions to unprofitable, new firms, and firms not issuing CP were greater, suggesting that financial institutions provide credit to relatively low-quality firms. Second, the coefficient of EXPORT was statistically insignificant for all sample periods, indicating that there were no differences between export-oriented and less export-oriented firms in terms of access to loans from financial institutions. Third, the coefficients of DEPSALE (and ADVSALE) were statistically significant and positive (negative), in line with the hypothesis. This suggests that loans from financial institutions to firms with a large amount of tangible assets were larger. Fourth, however, loans from financial institutions to large, publicly listed firms remained larger, as evidenced by the statistically significant and positive coefficients of ASSET and LISTED. Moreover, financial institutions seem to have extended credit to both high-risk and low-risk firms indiscriminately during 1992-1996, as the statistically insignificant level of the coefficient of RISK indicates. However, their credits to low-risk firms became larger than those to high-risk firms in 1997-2001, contrary to the hypothesis.¹³

These results indicate that financial institutions, like banks, have been responsive to firms' specific features in the reform period. Banks and financial institutions extended more credit to unprofitable firms compared with profitable firms. Further, compared with banks, financial institutions extended loans increasingly to new firms (relative to old ones) and those not issuing CP (relative to CP-issuing ones). This suggests that financial institutions engage in more relationship lending than banks. This may be related to the fact that financial institutions remain long-term financiers to manufacturing firms compared with banks. The problems of adverse selection and moral hazard are more severe for long-term financiers than for short-term financiers like banks, as the latter can exert discipline on borrowers through frequent refinancing while the former cannot do so. Thus, the incentive to process information about borrowers and monitor their performance is likely to be greater for financial institutions than for banks.

3.4. Impact of Government Bonds

Traditionally, banks' holdings of government securities have been heavily affected by the SLR requirement, which requires banks to hold a certain portion of their deposits in the form of government and eligible bonds. Thus, one would expect that a gradual and steady decline in the SLR from 38.5% in 1993 to 25% in 1997 would have lowered the amount of banks' investment in government securities (together with other approved securities) in terms of assets, in line with the declining SLR. However, Shirai (2002) reported that the share of investment in government securities indeed increased in 1997-2000, and this phenomenon took place regardless of the ownership of banks, while the share of other approved securities to assets declined steadily. This indicates

¹³ A regression estimation with a fixed effect was performed. The results were not very different from those reported in Table 4.

that, in recent years, banks have been holding government securities beyond the amount required by the SLR.

This may reflect that (i) interest rates paid on government bonds have increasingly become more market-based through the introduction of auction systems and (ii) stringent prudential norms and accounting standards have induced banks to become more cautious in terms of their lending activities to the private sector and, thus, they prefer safer, more liquid government securities. The recent increase in banks' holdings of government bonds also reflects a lack of high-quality borrowers due to mild recession. However, there are serious concerns that once the economy enters an expansionary phase, banks' preference for government bonds may result in crowding out of the private sector, particularly SMEs.

Against this background, this paper tests the hypothesis (Hypothesis 4) that other things being equal, banks tend to reduce lending levels in response to increases in holdings of government bonds. This hypothesis is tested by using the bank-level panel data from the Prowess database and running an OLS regression for 1994-2000. The dependent variable is each bank's advances as a share of total assets. Independent variables are government bonds as a share of total assets (SBOND) and banks' ownership indicators. The ownership dummies are SBI, NATIONAL, OFOREIGN, OPRIVATE, NFOREIGN, and NPRIVATE. OFOREIGN (NFOREIGN) equals 1 if the bank is old foreign (new foreign)-owned and equals 0 otherwise. OPRIVATE (NPRIVATE) equals 1 if the bank is old private (new private)-owned and equals 0 otherwise. SBI (NATIONAL) equals 1 if a bank belongs to the SBI group of (nationalized) banks and equals 0 otherwise. Since NATIONAL is excluded from the regression model, each ownership dummy should be interpreted as the difference from nationalized banks. The control variables include the asset size of banks (ASSETB). Also, TIME dummies are included. The same model is then estimated with the fixed individual bank effect.

The sign of SBOND would be expected to be negative. Table 5 indicates that the coefficient of SBOND was statistically significant and negative, supporting the hypothesis. The results are consistent also with those of estimation using the fixed individual bank effect. The implication of these results is that banks may be increasing investment in low-risk assets rather than improving risk management skills needed for extending credit to SMEs. The risk management skills could be improved by increasing lending activities through which skills and expertise with respect to financing low-quality firms are accumulated. This result merits attention since once the economy begins an expansionary phase, an increased preference for government bonds may crowd out the private sector, particularly SMEs whose information is highly idiosyncratic and tends to be subject to severe moral hazard problems.

Table 5. Estimation Results for the Relationship between Bank's Advances and Investment in Government Bonds: 1994-2000

Dependent Variable: ADVANCES Variable	OLS Estimate		With Fixed Effect	
	Coef	t-Stat	Coef	t-Stat
C	28.55***	6.04	-	-
SBOND	-0.46***	-7.48	-0.24***	-3.44
TIME95	-0.68	-0.33	-0.11	-0.07
TIME96	2.54	1.25	2.49*	1.73
TIME97	1.31	0.66	0.08	0.06
TIME98	-0.76	-0.39	-3.32**	-2.16
TIME99	-4.30**	-2.17	-7.45***	-4.59
TIME00	-1.99	-0.99	-6.59***	-3.85
ASSETB	2.78***	6.30	7.33***	7.78
OFOREIGN	6.56***	3.40	-	-
OPRIVATE	8.21***	4.52	-	-
NFOREIGN	10.50***	4.30	-	-
NPRIVATE	0.04	0.02	-	-
SBI	3.00	1.48	-	-
R-squared	0.17		0.68	
N	620		620	
F-Stat	9.22		10.76	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

4. Testing Changes in the Relationship Among Different Financial Markets

4.1. Bank Loans Versus Bond Finance

At the firm level, the co-movement of bank lending and bond issuance would be expected to be negative especially for firms with lesser degrees of information asymmetry and conflicts of interest. To examine the choice firms face between bank loans and bond finance, it is important to first understand fundamental differences between these two debt instruments (Yoshitomi and Shirai, 2001). In the case of bank finance, the ultimate creditors are depositors who make an investment in the form of deposits with banks. However, it is not the depositors but the banks that directly bear the risks associated with lending to borrowing firms. Banks cannot transfer such risks to depositors, even though they are intermediaries between depositors and borrowing firms. This suggests that banks have to minimize their own risks by carefully collecting information and monitoring borrowing firms.

Since banks bear the risk, they attempt to reduce the costs of collecting and processing information about their borrowers and monitoring their performance—mainly by obtaining “private” information about them through various means. First,

banks gain access to information through performing repeated transactions (Diamond, 1991). Second, borrowers are more willing to reveal information to banks than to bond investors, especially when information contains confidential or proprietary elements. Also, more information can be provided from borrowers if banks gain a reputation as trustworthy financiers and, thus, build up trust. Third, banks may be able to reduce the costs of collecting and evaluating information through economies of scale, which arise from the fixed cost of hiring professional staff with special expertise in loan evaluation. Fourth, banks can obtain private information through providing settlement and checking accounts, and other financial services to their borrowers (Chemmanur and Fulgheri, 1994). This is one great advantage that banks have over other financial institutions, which cannot open such settlement accounts. Fifth, banks can take collateral to minimize conflicts of interest between themselves and borrowing firms.

Moreover, private information held by banks is largely idiosyncratic and firm-specific, hence, its content and quality cannot be easily evaluated in the market. Since it is too costly for ultimate creditors (i.e., depositors) to directly extend credit to firms, banks become delegated monitors of borrowers on behalf of ultimate creditors and sometimes on behalf of other banks, in view of the expensive monitoring costs. Banks specialize in extracting and processing information on borrowers through maintaining a close relationship with them and this feature is not replicable by individual investors. Depositors expect banks to provide banking services, liquidity, and, if possible, high interest rates on deposits—not information about banks' borrowers. This is true especially when a deposit insurance scheme guarantees the value of deposits. In other words, the banking system seriously attempts to reduce problems of information asymmetry and agency costs between banks (agents for depositors) and borrowing firms—but does not attempt to reduce the problems between depositors (principals) and borrowing firms. This makes sense, since banks directly bear the risk from extending loans.

In sharp contrast to bank loans, the ultimate creditors in the corporate bond markets are public investors. These investors make own investment decisions and, thus, have to bear the risks of these decisions. Thus, information about issuing firms needs to be standardized and transferable so that the characteristics and performances of firms can be easily grasped in terms of coupon rates, risk premiums, length of maturity, credit rating, etc. The availability of standardized information to public investors, therefore, constitutes a crucial element in mitigating the problems of asymmetric information between issuing firms and public investors and, hence, promoting the development of corporate bond markets. Generally, investment banks play a critical role as market intermediaries in bond markets by reducing the information asymmetry between issuing firms and public investors. They do this by standardizing and disseminating information about the firms, so that public investors are able to purchase new corporate bonds with confidence. They offer various services such as advising issuing firms as to the terms and conditions (coupon rates, maturity, etc.), preparing a prospectus, forming the syndicate (or underwriting group) to underwrite the sale of new issues, and promoting sales of the issues. Since investment banks have to face the potential losses of holding unsold new issues, they make great efforts to ensure the new issues are as marketable as possible. Also, investment banks need to strike a balance between

issuers' and investors' demands. Based on the available information, public investors judge whether to invest by taking into consideration the balance between yields and risks associated with bond investment.

With respect to minimizing agency problems and improving corporate control, bond finance is less effective compared with bank finance. This is because in the bond market, disciplining issuers is undertaken mainly through preparing bond covenants. Bond covenants are generally written in terms of readily observable indicators of the firm's ability to repay (based on imperfect information on default risk). Even if bond covenants generate inefficient results (allowing unprofitable projects to continue or profitable projects to be terminated), corporate bondholders, unlike bankers, lack the ability to respond to different contingencies in a flexible manner so as to effect better resource allocation (Berlin and Loeys, 1988). Renegotiation is difficult and costly in corporate bond agreements, because a change in covenants must be approved by bondholders through collective representation clauses (for example, permitting changes in the covenants if two-thirds of bondholders agree; and changes to the principal amount or maturity if all bondholders agree, as in the case of the United States). As a result, the more widely bonds are held, the more difficult renegotiation is.

However, an advantage of the bond market is that since many public investors are involved in purchasing new corporate bonds, the burden of credit risks can be spread among them. Thus, the corporate bond market can assume and diversify more risks than bank finance, making long-term finance for high-risk projects possible. By contrast, bank loans have limits to maturity transformation from short-term liabilities to long-term assets, because (i) banks' liabilities are short-term liquid deposits, which are withdrawn on demand; (ii) information on bank customers is highly idiosyncratic, implying high risk; and (iii) banks themselves bear risks of credit extension. Banks, however, manage to make *de-facto* maturity transformation to some extent through rolling-over short-term loans based on interim monitoring about their borrowing firms and reducing loan risks by obtaining more credible information through repeated relational transactions. Reflecting all these fundamental differences, contracts of bank loans are in many aspects implicit, whereas contracts of corporate bonds are in every aspect very explicit. This implicit nature of bank loan contracts is reflected in such characteristics of bank loans as being flexible and discretionary, which are not observable in the case of bond finance.

Compared with the banking system, it generally takes time to develop viable bond markets in developing countries for supply- and demand-side, and institutional reasons. As an important supply-side reason, there are a small number of large, reputable firms in developing countries, whose information is openly available and transferable in the market, thereby making such firms creditworthy potential bond issuers. These firms must be financially sound, supported by a record of solid corporate performance, but at the same time they must be able to issue bonds regularly and on a sizable scale through public offerings if the cost of issuing is to be minimized. In particular, first-time issuers will be qualified more convincingly if they have good track records of creditworthiness accumulated through the long-term relations with banks. Such bonds are likely to be transacted frequently on a large scale in the market,

contributing to the development of liquid secondary markets. Because of a small number of firms that satisfy these qualifications, it takes time for developing countries to expand the number of such qualified corporations and develop a viable bond market.

On the demand-side, the investor base is narrow and concentrated for two reasons. First, households tend to hold their assets in the form of liquid and short-term bank deposits, since savings are not yet ample and, thus, tend to be highly risk-averse. Second, low levels of income and wealth accumulation also reflect the presence of few diversified institutional investors, such as pension funds, insurance firms, mutual funds and other financial institutions, since the small amount of funds has accumulated in the hands of institutional investors.

There is also an institutional reason for the underdevelopment of corporate bond markets in developing countries. For this, it is crucial to comprehend the fundamental differences between the informational, legal, and judicial infrastructures needed for a sound bond market and compared to those needed for a sound banking system. The infrastructures necessary for a sound bond market need to inspire the confidence of public investors while protecting them, since it is these investors that bear the risks of their own investment. Like the equity market, standardization of information (accounting, auditing and disclosure systems on issuers), comprehensive legal and judicial systems, and institutional development (e.g., credit rating agencies, investment banks, lawyers, auditors, etc.) are a prerequisite in order to ensure that public investors are protected from severe information asymmetries and moral hazard problems so that corporate securities issuers, underwriters, and market intermediaries will be severely punished for malpractices.

Therefore, the determinants of whether bank finance or bond finance becomes dominant depends to a large extent on (i) the degree of information asymmetry between ultimate creditors and borrowers; (ii) the stage reached of economic development, reflected in the number of large, reputable firms and corporations and the number of institutional and individual investors; and (iii) development of the informational, legal, and judicial infrastructures, reflecting the nature of the respective financing methods.

4.2. Testing the Relation between Loans and Bond Finance

Based on the above arguments, low-quality firms tend to have greater access to the bond market owing to the higher degree of standardization about their information and reputation as a diligent payer of debt services. These firms, therefore, tend to switch from banks to cheaper bond issuance or reduce their share of bank finance. However, firms whose information is highly idiosyncratic and, thus, difficult to standardize find it difficult to gain access to the bond market. Similarly, firms without any reputation or track record as a regular payer of debt tend to face severe moral hazard problems. Thus, these firms often find it difficult to issue bonds and consequently, heavily depend on bank loans, resulting in a weak relationship between bank finance and bond finance.

To test that hypothesis (Hypothesis 5) that firms with lesser degrees of information asymmetry and agency problems tend to have increased recourse to bond issuance compared with bank loans and to assess how this relationship has changed over the period, this section uses the same model adopted in Section 2. It includes the interaction-variables between firms' bonds issued and dummy variables characterizing the extent of firms' information asymmetry and moral hazard problems. For these purposes, HASSET, HROA, LRISK, OLD, CP, LISTED, HEXPORT, HDEPSALE and LADVSALE are introduced. HASSET is equal to 1 if a firm has above-average asset and 0 otherwise. HROA is equal to 1 if a firm has above-average profitability and 0 otherwise. LRISK is equal to 1 if a firm has below-average variance of ROA and 0 otherwise. HEXPORT is equal to 1 if a firm has above-average exports as a percentage of sales and 0 otherwise. HDEPSALE is equal to 1 if a firm has above-average depreciation expenditure as a share of sales and 0 otherwise. LADVSALE is equal to 1 if a firm has a below-average sum of marketing and advertising expenditures as a share of sales and 0 otherwise.

Then, using outstanding bonds as a percentage of total liabilities (BOND), interaction variables are generated: BOND×HASSET, BOND×HROA, BOND×LRISK, BOND×OLD, BOND×CP, BOND×LISTED, BOND×HEXPORT, BOND×HDEPSALE, and BOND×TIME ×LADVSALE. BOND×HASSET, BOND×HROA, BOND×LRISK, and BOND×OLD refer to the ratios of outstanding bonds issued to total liabilities for large firms in relation to small ones, for profitable firms in relation to unprofitable ones, for low-risk firms in relation to high-risk ones, and for old firms in relation to new ones, respectively. Moreover, BOND×CP, BOND×LISTED, and BOND×HEXPORT refer to the ratios of outstanding bonds issued to total liabilities for CP-issuing firms in relation to those not issuing CP, for publicly listed firms in relation to unlisted ones, and for export-oriented firms in relation to less export-oriented ones, respectively. The signs of these interaction variables are expected to be negative. It should be noted that the overall relationships between bank loans and bond finance should be derived by adding the coefficient of BOND to the coefficient of each interaction variable.

Moreover, BOND×HDEPSALE and BOND×LADVSALE refer to the ratio of outstanding bonds issued to total liabilities for firms with a large amount of tangible assets. As for these interaction variables, the existing theories do not say much about this relationship between bank loans and bond finance. Banks may require large fixed assets or collateral on firms with high degrees of asymmetric information and conflicts of interest. At the same time, bond investors may require collateral as well for such firms. In such a case, the coefficients of BOND×HDEPSALE and BOND×LADVSALE are positive since firms with a large amount of tangible assets may have access to both bank loans and bond finance, compared to those with a small amount of tangible assets. The regression estimation is performed for domestic manufacturing firms using the OLS method for the 1990-2001 period. A similar model is estimated for the case of firms' borrowings from financial institutions.

The estimation results as reported in Table 6 indicate the following: First, in the equation of firms' bank loans as a share of total liabilities, the coefficient of

BOND×HASSET was statistically significant and negative, in line with the hypothesis that bank loans and bond finance are substitutes for each other for large firms compared with small firms. Second, however, the coefficients of BOND×HROA and BOND×HEXPORT turned out to be statistically significant but positive. This suggests that bank loans and bond finance are complementary for profitable firms (relative to unprofitable firms) and export-oriented firms (relative to less export-oriented firms). The complementary relationship between bank loans and bond finance for profitable and export-oriented firms may reflect the fact that banks tend to provide shorter-term working capital and thus this finance is not a substitute for relatively longer-term bond finance (concentrated between five and seven years).

With respect to firms' borrowings from financial institutions, the main results are as follows: First, the coefficients of BOND×HASSET, BOND×LRISK, and BOND×LISTED were statistically significant and negative, in line with the hypothesis. These results suggest that borrowings from financial institutions and bond finance function as substitutes for each other for large firms (relative to small ones), low-risk firms (relative to high-risk ones) and publicly listed firms (relative to unlisted ones). The fact that financial institutions provide long-term loans may explain why loans from these institutions and bond finance tend to become substitutes for each other for large, low-risk, and listed firms. Second, the coefficient of BOND×OLD was statistically significant and positive. Third, the coefficient of BOND×LADVSALE turned out to be statistically significant and positive. These results suggest that loans from financial institutions and bond finance are complementary for old firms and, to some extent, for those with a large amount of tangible assets.

The overall weak relationship between loans (from banks and financial institutions) and bond finance may indicate that the bond market has not distinguished high-quality firms from low-quality ones. This may be closely associated with the fact that most bonds are issued in the private placement market, to which low-quality firms also have access. Therefore, the differences between loans and bond finance are subtle. This also suggests that the informational, legal, and judicial infrastructures needed for a sound bond market have not yet been fully established and that there are few high-quality firms qualified as public issuers.

4.3. Bank Loans Versus Equity Finance

With respect to the relationship between equity finance and debt finance, Dmirgüç-Kunt (1992) showed that their aggregate relationship is positive or complementary, based on data for the top 50 listed manufacturing firms for nine developing countries during 1980-1990. Using 30 industrial and developing countries for the 1980-1991 period, Dmirgüç-Kunt and Maksimovic (1995) pointed out that equity market development promotes better risk sharing and aggregation of information about firms and, thus, increases leverage, especially in the initial stage of economic development. Thus, equity finance and debt finance are complementary in developing countries, although equity finance can substitute for debt finance in industrial countries.

Table 6. Estimation Results for the Relationship between Loans and Bond Finance: 1992-2001

Variable	Dependent Variable: Bank Loans		Dependent Variable: Loans from Financial Institutions	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	21.01***	12.49	4.98***	4.72
TIME93	-0.26	-0.26	-0.60	-0.92
TIME94	-1.70*	-1.68	-0.92	-1.46
TIME95	-1.39	-1.42	-2.06***	-3.36
TIME96	-2.22**	-2.35	-4.26***	-7.23
TIME97	-3.84***	-4.13	-5.52***	-9.51
TIME98	-3.55***	-3.83	-5.76***	-9.93
TIME99	-3.93***	-4.23	-6.06***	-10.41
TIME00	-2.51***	-2.69	-6.41***	-11.00
TIME01	-3.49***	-3.59	-7.38***	-12.13
ASSET	-1.46***	-4.32	6.18***	29.26
ROA	-0.65***	-57.40	-0.34***	-47.74
OLD	2.38***	4.66	-2.98***	-9.30
CP	1.20*	1.89	-3.67***	-9.25
LISTED	0.11	0.26	1.63***	5.95
EXPORT	0.00	1.13	-0.00	-1.02
DEPSALE	-0.00	-1.32	0.00***	5.69
ADVSALE	0.03**	2.13	-0.05***	-5.07
RISK	-0.00	-0.82	-0.00***	-5.23
CAT1	2.34*	1.67	2.22***	2.53
CAT3	-3.65**	-2.22	5.07***	4.92
CAT4	3.14**	1.94	4.54***	4.46
CAT5	-1.21	-0.89	5.01***	5.88
CAT6	1.44	1.10	7.35***	8.96
CAT7	-0.90	-0.67	2.46***	2.94
CAT8	-0.73	-0.32	4.46***	3.12
BOND	-0.04	-0.28	0.22**	2.30
BOND*HASSET	-0.18***	-2.75	-0.14***	-3.55
BOND*HROA	0.15***	2.59	-0.04	-1.05
BOND*LRISK	0.03	0.40	-0.25***	-4.59
BOND*OLD	-0.03	-0.36	0.11**	1.95
BOND*CP	-0.08	-1.05	-0.02	-0.43
BOND*LISTED	-0.07	-0.64	-0.33***	-4.82
BOND*HEXPORT	0.12*	1.83	0.03	0.80
BOND*HDEPSALE	-0.07	-1.25	0.03	0.80
BOND*LADVSALE	-0.02	-0.39	0.10***	2.58
R-squared	0.15		0.15	
F-statistic	118.88		120.5	
N	23,456		23,456	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

While the positive relationship may hold on the aggregate data level, as with Dmirgüç-Kunt (1992) and Dmirgüç-Kunt and Maksimovic (1995), micro-level data may show different results. Provided that adequate informational, legal, and judicial infrastructures are installed in the equity market, equity finance requires more stringent disclosure requirements than bond finance, even though the infrastructures needed for a sound bond market can often equally be applied to the equity market. This is because issuers are subject to constant disclosure of information to their shareholders, who possess the right to dismiss managers, while bondholders are passive as long as they receive debt services regularly. In order for the interest of managers to be held in line with those of shareholders, further, an equity market needs additional devices (such as shareholders' meetings, boards of directors, incentive-compatible compensation, and the threat of takeover bids) as mentioned earlier. In this sense, the presence of a sound equity market also helps in the development of a sound bond market. In both the equity and bond markets, the infrastructures should make information on issuing firms credible and transactions in the market fair and honest. However, it is likely to take time to establish the sophisticated infrastructures needed, since they need to cover a wide range of players and require comprehensive institutions. By contrast, the infrastructures necessary for a sound banking system are aimed at reining in excessive risk-taking behavior, limiting systemic bank runs, and protecting depositors. Since depositors are protected under the deposit insurance system and banks bear the risk of credit extension, the focus of banking sector regulation is placed on banks themselves (Yoshitomi and Shirai, 2001). Compared with the infrastructures needed for a capital market, therefore, it is relatively easier to develop the appropriate infrastructures for the banking system.

Thus, firms with a low degree of information asymmetry tend to have greater recourse to equity finance, while those with a high degree of information asymmetry tend to depend more heavily on bank loans. This is because outside shareholders can distinguish profitable firms, for example, from unprofitable firms, so they would not price these firms similarly. Thus, managers of profitable firms do not need to increase debt in order to signal their true profitable position to outside shareholders. If the degree of information asymmetry is severe, profitable firms have an incentive to increase debt over equity, since unprofitable firms have higher marginal expected bankruptcy costs for any debt level, so that they would not follow profitable firms by issuing more debt (Harris and Raviv, 1991).

For firms with a low degree of information asymmetry, moreover, outside shareholders would not discount the prices of newly issued—thereby avoiding the situation where more than the net present value of the new project is accrued to outside shareholders and a new loss is acquired by inside shareholders (Myers and Majluf, 1984). Since inside shareholders would not reject new projects to avoid losses in this instance, this would not cause underinvestment and limit firms' growth. Thus, managers that are aware of a profitable project do not need to issue more debt over equity in order to benefit existing shareholders fully from the project.

Similarly, firms with a low degree of agency problems are more likely to depend on equity finance than firms without such problems. For these firms, agency costs or moral hazard problems are less severe due to reputation, availability of track

records, and standardized information. Therefore, such firms do not need to increase debt in order to reduce free cash available to managers for engaging in unproductive activities, thus mitigating conflicts of interest between shareholders and managers (Jensen, 1986; Stulz, 1990). Moreover, if their cash flows are favorable, there are small conflicts of interest in that managers may want to continue firms' current operations while debtholders would prefer liquidation (Harris and Raviv, 1990). In this case, thus, there is little need to give creditors an option to force liquidation when cash flows are poor.

For firms with a low degree of conflicts of interest, further, the "asset substitution effect" of debt is negligible. The asset substitution effect refers to the situation in which the debt contract gives shareholders an incentive to invest suboptimally by accruing large returns that are well above the face value of the debt to shareholders when a project is successful and making debtholders bear the failure of the project due to shareholders' limited liability (Harris and Raviv, 1991). When the asset substitution effect is present, shareholders may benefit from investing in high-risk projects, lowering the value of debt. Another example of the asset substitution effect occurs in near bankruptcy, where shareholders may not increase holdings of equity even though the project is value-increasing (Myers, 1977). This is because shareholders have to bear the entire cost of the investment, while debtholders may obtain returns. Thus, the more debt accumulates, the higher the probability of rejecting value-increasing projects. These asset substitution effects are likely to be lower in the case of large, reputable, profitable firms with stable returns.

4.4. Testing the Relation between Loans and Equity Finance

Based on these theories, this section tests whether bank loans and equity finance have substituted for each other for firms with lower degrees of information asymmetry and moral hazard (Hypothesis 6). Moreover, if firms hold a large amount of intangible assets with growth potential, such firms are likely to issue more equity over bank loans (Hypothesis 6). This paper adopts the same regression model adopted in Section 4.2, but uses the ratio of share capital to total liabilities (SHARE) instead of BOND. It would be expected that the sign of the coefficients of SHAREHASSET, SHARE×HROA, SHARE×LRISK, SHARE×OLD, SHARE×CP, SHARE×LISTED, and SHARE×HEXPORT might be negative. As for firms with a large amount of intangible assets, two dummy variables are used: LDEPSALE and HADVSALE being equal to 1 if firms have above-average intangible assets and 0 otherwise (opposite dummy variables are used from the model used in Table 6). The coefficients of SHARE×LDEPSALE and SHARE×HADVSALE would be expected to be negative. This is because banks and financial institutions are unlikely to extend credit to firms without a sufficient amount of collateral, while such firms may have access to the equity market due to growth options. The OLS estimation is performed for domestic manufacturing firms for 1990-2001.

The same model is applied for the case of borrowings from financial institutions. Since many of these financial institutions are long-term development banks, the negative relationship between loans from financial institutions and equity

finance can be more pronounced. This is because long-term loans and equity are more likely to be substitutes for each other, while banks tend to provide shorter-term loans and, thus, their relationship with equity finance tends to be less obvious. At the same time, financial institutions often invest in shares of their borrowers, giving rise to a complementary relationship between loans from financial institutions and equity finance. If this effect exceeds the above effect, the positive relationship between loans and equity finance is expected.

The estimation results are reported in Table 7 for the case of firms' borrowings from banks and from financial institutions. The results indicate the following: First, in the equation for firms' bank loans, the coefficients of $\text{SHARE} \times \text{HASSET}$, $\text{SHARE} \times \text{HROA}$, $\text{SHARE} \times \text{LRISK}$, and $\text{SHARE} \times \text{HEXPORT}$ were statistically significant and negative, in line with the hypothesis. These results indicate that bank loans and equity finance are substitutes for each other in the case of large firms (in relation to small firms), profitable firms (relative to unprofitable firms), low-risk firms (in relation to high-risk firms), and export-oriented firms (in relation to less export-oriented firms). However, this relationship may reflect simply temporary stock market booms driven by the liberalization of stock prices in 1993-1995, when many firms listed their shares at stock exchanges in order to take advantage of the low cost of equity. Second, however, the coefficients of $\text{SHARE} \times \text{OLD}$ and $\text{SHARE} \times \text{LISTED}$ turned out to be statistically significant and positive, suggesting that bank loans and equity finance are complementary for old firms (relative to new firms), and publicly listed firms (relative to unlisted firms). Third, the coefficients of $\text{SHARE} \times \text{LDEPSALE}$ and $\text{SHARE} \times \text{HADVSALE}$ turned out to be statistically significant, but the sign of $\text{SHARE} \times \text{LDEPSALE}$ be positive.

The greater negative relationships between bank loans and equity finance compared with those between bank loans and bond finance may have been influenced by the two stock market boom periods of 1993-1995 and 1999-2000. As pointed out in Section 2, there has been no steady shift from bank loans to equity finance. Equity finance has been highly volatile, reflecting poor informational, legal, and judicial infrastructures. Therefore, the negative relationship between bank loans and equity finance does not necessary imply that the importance of bank loans over equity has constantly declined over the period.

With respect to firms' borrowings from financial institutions, the results are summarized as follows: First, the coefficients of $\text{SHARE} \times \text{LRISK}$ and $\text{SHARE} \times \text{LISTED}$ were statistically significant and negative, suggesting that loans from financial institutions and equity finance are substitutes for each other in the case of low-risk and publicly listed firms. Second, however, coefficients of $\text{SHARE} \times \text{HASSET}$, $\text{SHARE} \times \text{OLD}$, $\text{SHARE} \times \text{CP}$, and $\text{SHARE} \times \text{HEXPORT}$ were statistically significant but positive, contrary to the hypothesis. The complementary relationship between loans from financial institutions and equity finance for large, old, CP-issuing, and export-oriented firms may reflect that financial institutions tend to provide long-term credit as well as investing in their equity. Indeed, Sarkar and Sarkar (2000) pointed out that the company value (measured by the market-book ratio and the proxy for Tobin's Q ratio) remains unchanged as the share of financial institutions

increases from 0% to 25%, while the company value increases after the share rises more than 25%. This suggests that financial institutions have a strong monitoring effect on firms' performance once they have substantial stakes in their invested firms. Third, the coefficients of $SHARE \times HDEPSALE$ and $SHARE \times LADVSALE$ were statistically significant and negative in line with the hypothesis.

Table 7. Estimation Results for the Relationship between Loans and Equity Finance: 1992-2001

Variable	Dependent Variable: Bank Loans		Dependent Variable: Loans from Financial	
	Coefficient	t-Statistic	Coefficient	t-Statistic
C	26.13***	14.98	9.03***	8.14
TIME93	-0.18	-0.18	-0.72	-1.11
TIME94	-1.60*	-1.64	-0.39	-0.63
TIME95	-1.55*	-1.65	-1.32**	-2.20
TIME96	-2.60***	-2.85	-3.36***	-5.78
TIME97	-4.23***	-4.69	-4.17***	-7.25
TIME98	-3.88***	-4.31	-4.67***	-8.16
TIME99	-4.19***	-4.63	-4.77***	-8.29
TIME00	-3.09***	-3.38	-4.83***	-8.33
TIME01	-2.72***	-2.85	-6.85***	-11.31
ASSET	-0.21	-0.53	4.94***	19.72
ROA	-0.60***	-49.48	-0.31***	-40.79
OLD	-3.85***	-5.23	-7.28***	-15.55
CP	1.08	1.61	-4.85***	-11.40
LISTED	-3.98***	-7.66	1.68***	5.09
EXPORT	0.00	1.26	-0.00	-0.95
DEPSALE	-0.00**	-2.25	0.00***	3.88
ADVSALE	0.07***	4.10	-0.05***	-4.35
RISK	-0.00***	-5.62	-0.00***	-5.58
CAT1	3.38***	2.48	2.77***	3.20
CAT3	-2.77*	-1.73	5.01***	4.91
CAT4	3.55**	2.24	5.45***	5.42
CAT5	0.00	0.00	5.25***	6.25
CAT6	2.65**	2.08	7.68***	9.49
CAT7	0.52	0.40	2.92***	3.53
CAT8	1.11	0.50	4.68***	3.30
SHARE	0.03**	2.03	0.01	0.78
SHARE*HASSET	-0.13***	-3.59	0.07***	3.11
SHARE*HROA	-0.02*	-1.86	-0.01	-0.88
SHARE*LRISK	-0.29***	-25.67	-0.02**	-2.35
SHARE*OLD	0.15***	10.51	0.12***	13.12
SHARE*CP	-0.05	-1.15	0.10***	3.27
SHARE*LISTED	0.19***	13.59	-0.02***	-2.54
SHARE*HEXPORT	-0.04***	-3.56	0.02***	2.53
SHARE*LDEPSAL	0.03***	3.19	-0.10***	-14.86
SHARE*HADVSAL	-0.08***	-7.41	-0.04***	-5.50
R-squared	0.19		0.16	
F-statistic	152.84		128.80	
N	23,456		23,456	

Note: ***, **, * indicate significance at 1%, 5% and 10% respectively.

5. Conclusions

This paper has assessed the changes in corporate financing patterns of India's domestic manufacturing firms during the reform period. The results are summarized into the following five findings. First, observations with respect to firms' corporate financial choices have revealed that the capital structure of domestic manufacturing firms depends on their characteristics. For example, new, small, unprofitable, high-risk firms tend to depend more heavily on loans from domestic banks and financial institutions than old, large, profitable, low-risk firms, as the latter can generate greater internal resources. Moreover, the latter have greater access to the CP and foreign credit markets as compared with the former, suggesting that the latter can be characterized as high-quality firms.

Second, on the other hand, there are no distinct differences in terms of access to the corporate bond market, although large and low-risk firms issue corporate bonds more than small and high-risk ones. This could be closely associated with the fact that most bonds are privately placed, so issuers are not subject to stringent accounting and disclosure requirement set by SEBI. In India, major issuers are financial institutions while major investors are government-controlled mutual funds and other institutional bodies. Since these large investors of privately-placed debt have not traditionally imposed much discipline on managements of invested firms, this allowed low-quality firms to gain access to the bond market.

This is contrasted with the case of the United States, where privately placed debt is one of the largest source of long-term funds. It should be noted that major lenders in this market are banks and life insurance firms who perform comprehensive credit evaluations before a debt issue and monitor firms' performance afterward (Krishnaswami et al., 1999). Thanks to these institutions' specific skills, smaller firms—whose access to public markets is limited by the high floatation and other transaction costs in the public debt market because of severe informational problems—are able to issue bonds in the privately placed market. In the United States, firms that issue bonds publicly are not generally information-problematic, because public market investors rely mainly on reports by rating agencies and other publicly available information for evaluations of credit risk at the time of issuance and for monitoring. However, even large or high-quality firms often issue bonds in the private placement market, but they do so in order to avoid high legal, accountants' and trustees' fees (arising out of Securities and Exchange Commission registration, the requirement for certified financial statements, bond counsels' opinions, etc.).

The observations on India are consistent with the empirical estimation results, which show that there has been no clear shift from bank loans to bond finance for high-quality firms (characterized as old, profitable, low-risk, export-oriented, CP-issuing, and publicly listed). However, a relatively stronger inverse relationship is observed between loans from financial institutions and bond finance (for large, low-risk, and publicly listed firms). This may reflect that financial institutions tend to provide long-term loans to manufacturing firms so that their loans are direct substitutions for bonds (of five to

seven years), whereas banks tend to provide short-term loans so that their loans are not substitutes for bonds.

Third, the equity market provided important financing sources for India's domestic manufacturing firms in 1990-2001. Large firms are major issuers of new equity, but even new, high-risk firms have also increased equity finance during this period, enabling them to diversify their corporate financing sources. While equity finance has become one of the most important financing sources (compared with bonds, CP, and foreign credit markets), the equity market has failed to provide stable sources of finance to manufacturing firms over the period. Firms appear to have taken advantage of the two stock market booms in order to raise funds cheaply, but have shifted away from the market once the boom collapsed. Therefore, there is no marked decline in the importance of loans from domestic banks and financial institutions relative to equity for any types of firms. This reflects that the informational, legal and judicial infrastructures needed for a sound capital market have remained inadequate, despite SEBI's efforts, so investor confidence in the equity market has not increased. This is evidenced by the frequent cases of malpractices and price riggings. Moreover, the inadequate protection of minority shareholders as well as poor corporate governance have also discouraged investors from entering the equity market. In addition, tighter regulations in the public capital market have encouraged firms to shift to the privately placed bond market. Such a regulatory arbitrage merits greater attention.

In addition, the empirical estimation showed that bank loans and equity finance have an inverse relationship for high-quality firms (characterized as those that are large, profitable, low-risk, and export-oriented). However, it reflects the temporary stock market booms of 1993-1995 and 1999-2000, not a general move from bank loans to equity finance. Moreover, loans from financial institutions and equity finance turned out to be complementary for high-quality firms (those that are large, old, CP-issuing, and export-oriented). The greater positive relationship is closely associated with the fact that financial institutions not only extend term loans to firms but also invest in their shares.

Fourth, this paper assessed the impact of the banking sector and capital market reforms on banks' lending behavior. For this purpose, it tested the hypothesis that the reforms have induced banks to become more sensitive to firms' characteristics. At the same time, they have increased their incentives to process information and monitor their borrowers (particularly, low-quality firms) given that high-quality firms have gained access to the capital market. In other words, this paper tested whether banks have engaged in "relationship lending," which is necessary when extending credit to firms such as SMEs, on whom information is largely idiosyncratic. The results indicated that banks have been responsive to many characteristics of firms (i.e., years of incorporation, scale, profitability, risk). In particular, bank credits to unprofitable firms have been larger over the period. Moreover, bank credits to high-quality firms (those that are export-oriented, publicly listed, and CP-issuing) have been larger in 1992-1996. But the differences between export-oriented and less export-oriented, between publicly listed and unlisted firms, and between CP-issuing and those not issuing have been insignificant during 1997-2001. These are indications that banks have engaged in

relationship lending to low-quality firms in more recent years. Further, banks have extended credit more intensively to firms that are temporarily unprofitable, indicating that they allow credit to financially distressed firms—further evidence of relationship lending. Nevertheless, banks continue to extend more credit to old firms during 1992-2001 and to low-risk firms in 1997-2001, suggesting that relationship lending is not performed to a full extent.

In addition, this paper has found that compared to banks, financial institutions have a greater incentive to extend credit to low-quality firms. Financial institutions not only provide loans intensively to unprofitable firms, but also finance heavily new firms and those not issuing CP. This reflects financial institutions' greater incentive to engage in relationship lending. Such a difference reflects that financial institutions are long-term financiers to manufacturing firms and, thus, the potential problems of adverse selection and moral hazard are likely to be more severe for them than those faced by banks. Thus, the incentive to engage in relationship lending is greater for financial institutions compared with banks, because banks as short-term financiers can impose discipline on borrowers through frequent refinancing, while financial institutions cannot do so.

Fifth, based on the above findings, this paper focused on why banks have fewer incentives to engage in relationship lending compared with financial institutions. It found that banks tend to increase their investment in government bonds by lowering advances to firms, in spite of a decline in SLR (requiring banks to hold a certain portion of deposits in the form of government and approved bonds). Banks' preference toward government bonds over lending raises concerns that they have not sufficiently improved the risk management skills needed for extending credit to SMEs, whose information is more idiosyncratic and which are subject to severe moral hazard problems. Another concern is that the increased holdings of government bonds may eventually crowd out the private sector, once the economy starts expanding, by squeezing credit available to SMEs or other relatively low-quality firms. While the tightening of the capital adequacy requirement has contributed to this phenomenon, some incentive-enhancing measures may be necessary. They may include a removal of compulsory priority sector lending (or an introduction of government guarantees if such lending practices continue), a further liberalization of lending rates, and measures to develop policy lending separately from the commercial banking system.

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Acronyms

ADB	Asian Development Bank
CCI	Controller of Capital Issues
CP	commercial paper
GDP	gross domestic product
ICICI	Industrial Credit and Investment Corporation of India
IDBI	Industrial Development Bank of India
IPO	initial public offering
IT	information technology
NPA	nonperforming asset
NSE	National Stock Exchange
OLS	Ordinary Least Squares
RBI	Reserve Bank of India
R&D	research and development
ROA	return on assets
SBI	State Bank of India
SEBI	Securities and Exchange Board of India
SLR	statutory liquidity ratio
SME	small and medium enterprise

Variables Used for Regression

ADVANCES	100 * Total advances divided by total assets of banks
ADVSALE	100 * advertising and marketing expenditure divided by net sales
ASSET	Natural logarithm of total assets of firms
ASSETB	Natural logarithm of total assets banks
BANK LOANS	100 * total bank borrowings divided by the total liabilities
BOND	100 * Bonds outstanding divided by total liabilities
CAT1	Dummy variable (=1 if a company produces category 0&1 products - food, beverages, and live animals; =0 otherwise)
CAT3	Dummy variable (=1 if a company produces category 3 products - mineral and energies; =0 otherwise)
CAT4	Dummy variable (=1 if a company produces category 4 products - fats and oil; =0 otherwise)
CAT5	Dummy variable (=1 if a company produces category 5 products - chemical and related products; =0 otherwise)
CAT6	Dummy variable (=1 if a company produces category 6 products - leather, textile, rubber, plastic, paper, nonmetallic minerals, and metals; =0 otherwise)
CAT7	Dummy variable (=1 if a company produces category 7 products - machinery, transport equipment and electronics; =0 otherwise)
CAT8	Dummy variable (=1 if a company produces category 8 products - miscellaneous manufacturing goods; =0 otherwise)
CAT9	Dummy variable (=1 if a company produces category 9 products - firms producing diversified products; =0 otherwise)
CP	Dummy variable (=1 if a company has issued CP; =0 otherwise)
DEPSALE	100 * depreciation expenditure divided by net sales
EXPORT	100 * total exports divided by gross sales
HASSET	Dummy variable (=1 if asset of a firm in a particular year is above the average of all firms in that year; =0 otherwise)
HADVSALE	Dummy variable (=1 if ADVSALE of a firm in a particular year is above the average of all firms in that year; =0 otherwise)
HDEPSALE	Dummy variable (=1 if DEPSALE of a firm in a particular year is above the average of all firms in that year; =0 otherwise)
HEXPORT	Dummy variable (=1 if EXPORT of a firm in a particular year is above the average of all firms in that year; =0 otherwise)
HROA	Dummy variable (=1 if ROA of a firm in a particular year is above the average of all firms in that year; =0 otherwise)
LRISK	Dummy variable (=1 if RISK of a firm in a particular year is below the average of all firms in that year; =0 otherwise)
LADVSALE	Dummy variable (=1 if ADVSALE of a firm in a particular year is below the average of all firms in that year; =0 otherwise)
LDEPSALE	Dummy variable (=1 if DEPSALE of a firm in a particular year is below the average of all firms in that year; =0 otherwise)
LISTED	Dummy variable (=1 if a company is listed; =0 otherwise)

LOANS FROM FINANCIAL INSTITUTIONS	100 * total borrowings divided by the total liabilities
NEW	Dummy variable (=1 if a company is incorporated from 1993 onwards; =0 otherwise)
NFOREIGN	Dummy variable (=1 if a bank is incorporated after 1991 and foreign owned; =0 otherwise)
NPRIVATE	Dummy variable (=1 if a bank is incorporated after 1991 and private owned; =0 otherwise)
OFOREIGN	Dummy variable (=1 if a bank is incorporated before 1991 and foreign owned; =0 otherwise)
OLD	Dummy variable (=1 if a company is incorporated before 1993; =0 otherwise)
OPRIVATE	Dummy variable (=1 if a bank is incorporated before 1991 and domestic private owned; =0 otherwise)
RISK	Variance of ROA estimated using three years (current year and two preceding years)
ROA	100 * profit after tax divided by average asset of current and preceding years
ROA_1	First lag of ROA
ROA_2	Second lag of ROA
SBI	Dummy variable (=1 if a bank belongs to SBI group; =0 otherwise)
SBOND	Investment in government bonds divided by total assets
SHARE	100 * share capital divided by total liabilities
TIME	Dummy variable for time

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