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Firm's IPO Behavior and its Financial Impacts
in Developing Financial Market
A Case of Thai Securities Markets in the Early 1990s

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Abstract

The paper examines how Thai securities markets at the pre-crisis period functioned as a place of fund raising for domestic large firms. At first, by critically surveying the previous relevant researches and observing the characteristics of Thai firms' capital structure, we examine a modified view of "pecking order hypothesis" for seeking more applicable models of corporate finance in developing financial markets. Then, with firm-level data at the period of 1992-95, and various information on ownership such as business group affiliations or foreign ownership, we conduct two types of the estimations: a panel estimation on the effect of the firms' IPOs on their fund raising behavior, and a Probit estimation on the determinate of firms' IPO behavior.

From the estimations, we find the various evidences that shareholders of Thai large firms tend to utilize the securities markets in relation with their internal capital market, whereas a certain type of foreign owned firms utilize the securities markets as a mechanism for better governance. We also find that there is a kind of complementarity between firm's participation in the securities markets and the transactions in bank loan markets.

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1. Introduction

The purpose of the paper is to investigate the effect of firms' behavior of the participation in securities markets in their fund mobilization. The case in the paper is Thai securities markets in the early 1990s.

In developing countries, generally capital market is not necessarily active as a place of fund mobilization. Even in large firms, bank loan is the most popular method, and the transactions in internal capital market are also active. Many major companies hesitate to go public and remain as private corporations. In the East Asian countries, joint ventures established by foreign and domestic firms play a key role in the developing process, and they retain the fund channels with foreign parent companies.

Accordingly, the consideration to the existence and the features of vast numbers of non-listed firms in the large company layer is essential for discussing the structures of corporate finance in East Asian countries. Furthermore, in the growing process of the securities markets, there are the clue and the process of the shift of non-listed firms to listing to organized securities markets. It is crucially important to investigate the determinant of the listing and the change of fund mobilization brought by it, in discussing the corporate finance in developing countries.

After the Asian financial crisis, many studies focus the corporate governance in East Asia as a cause of the crisis, which criticizes the structure of "expropriation" of minority shareholders which caused by the insulation of control rights and cash flow rights under the pyramid type of firm ownership structures. The problem in this type of critics is that their discussions are only limited to listed firms, so that they don't evaluate the total picture of the fund mobilizations and the governance of major firms including non-listed ones.

In East Asian countries, we can see the following features of the firm ownership: (i) Not all the major firm are taken in the business group with pyramid type ownership. There are many independent large companies. (ii) listed firms are not necessarily large firms in pyramid type business groups. In many cases, listed firms are smaller sized ones. (iii) foreign firms are not independent entities but consist of pyramid type business group, because they are established as joint venture with domestic business group. Accordingly, the previous studies focusing the corporate governance issues only in listed firms do not necessarily capture the total picture of the fund raising behaviors and the situation of securities markets for the national economy, although they gives us important implications for the investors side in capital market.

With consideration to the points above, we will analyze the relationship between the firms' IPO behaviors and their fund mobilization with the financial data both of listed and non listed firms in the early 1990s in Thailand. Our aim is to make clear the role and significance of securities markets for firms in developing countries, and to examine the firms' motivation for the IPO.

The organization of the paper is as follows. In Section 2, the history and the features of securities markets in Thailand are explained. Section 3 we discuss the previous studies on corporate finance and corporate governance in Thailand and East Asia, and examine the dispute on the debt ratio of Thai firms. In Section 4 our approach is presented. In Section 5, we examine the data and basic observation. In Section 6, regression analyses on the impact of firms' IPOs on their fund mobilization are implemented. Section 7 concludes the paper. The paper has the appendix, which analyzes the determinant of the firms' IPO probability by Probit estimations.

2. Securities Markets in Thailand

2.1 Recent Transition

The history of securities markets in Thailand is relatively short. Current exchange market (Security Exchange of Thailand, hereafter SET) is established in 1975, but the transactions in the market had been inactive in 1980s. In 1990s, the market expanded partly due to economic booming with financial liberalization. And after the crisis of 1997, the market has extremely shrunken. The recent reforms of the financial market emphasize the function of securities markets. The reforms aim to diversify the fund mobilizations and to enhance the governance as well as to bring up securities markets by the reform of company law and the securities exchange rules.

Table 1 summarizes the transition of the securities exchange rules. Table 2 presents the basic figures for performance of the market in the period of 1975-2001. It is only after 1992 that comprehensive and consistent legal regimes for the market are equipped. Hence, before mid-1980s, the merit of listing to the SET for firms is trivial so that the number of listed firms is very limited.

After late 1980s, the market had expanded so rapidly. In 1993 the stock price and market turnover was peaked, and is counted about 10 times of the level in 1985. The market expansion continues until the 1997, the number of firms, and market capitalization are peaked in 1996 (454 firms), and in 1995, relatively.

In 1997, the financial crisis brought the extreme shrunk in the securities markets. The stock price fallen down by 55%, and in 2000, the number of listed firm are fallen to 381.

2.2 The reforms after the crisis

After the crisis, the government accepts the emergency loan program from IMF and World Bank, and started their reforms on the securities markets as a part of economic structural reform. In the comprehensive financial reforms under the agreement with IMF in March of 1998, the amended of the public company law was proceeded, and the guidelines on securities exchange are drawn by SET and Securities Exchange Committee (hereafter SEC). The aim of such reforms was to overcome the vulnerability of financial system by diversifying the bond

and equity markets. For this purpose, until mid-1999, a lot of schemes and rules were built to enhance the corporate governance and the disclosure to enhance the protection of the rights of minority shareholders.

The effect of such reforms seems, however, very limited. The market stagnated after late 1999, and many firms are delisted. After 2000 the government moved the focus of the reforms from the corporate governance and the disclosure to the direct support for listing of state owned enterprises and high performance firms. SEC released “Emergency Support Package” in July of 2000 to support the listing. In May of 2001, corporate tax rate for listed firms are reduced. The amended public company law materialized in June 2001 was retreated from the original draft in June of 1999 which emphasized the enhancement of the corporate governance and the disclosure.

3. Survey on the issues on corporate finance in Thailand

3.1 Corporate finance in East Asia

After the crisis, the studies on corporate finance and corporate governance in East Asia regarding them as one of the crucial cause of the crisis, have been flourishing. Singh (1985) and Singh and Hamid (1992)³ are pioneering works for focusing the issues in 1980s. Claessens et al. (1998) calculated the debt ratio with the data of listed firms in East Asia, and insists that in the countries facing the crisis, firms tend to strengthen the dependence on debt for fund raising in 1990s. Pedro et al. (1998) presented the view that in Thailand, high dependence on debt finance and low performance are come from the common reason that weak corporate governance caused by extremely concentrated ownership. World Bank (1998) also presented the view in the context of the crisis that the firms’ dependence on debt finance are strengthened due to the concentrated ownership and weak market discipline in East Asian countries, which in turn, weaken the corporate governance.

On the other hand, the some of studies shed the light on the negative effect of the pyramid type of ownership structure on performance and investors. Following the method of La Porta et al. (1999) and Claessens et al. (1998, 1999) empirically examined with the data of listed firms in East Asia that pyramid type of ownership structure incurred the insulation between cash flow rights and control rights of firms, which eroded corporate value. They insist that such structure means “expropriation” of the minority shareholders or investors.

3.1 Previous studies on corporate finance in Thailand

Wiwattanakantang (1999) and Mieno (2004) are the studies focusing the case of Thailand and examining the corporate finance. The former analyzed the determinant of capital structure

³ Using same dataset of International Finance Corporation, Booth et al. (2001) investigated the determinant of capital structure for ten developing countries (including Thailand) in 1980s.

with the data of non-financial listed firms in 1996. The paper insists that concentration of the ownership is negatively related to debt ratio, and on the other hand, the firms whose ownership is concentrated to a single family have high debt ratio.

The latter analyzed the determinant of debt ratio, bank borrowings and intra-firm credit with the data both of listed and non-listed firms in manufacturing sectors in 1992-95. It found the following facts: (i) listed firms has lower debt ratio but higher bank borrowing ratio, (ii) foreign firms tend to depend on intra-firm credit, and (iii) the firms belong to the “Financial Conglomerate” is unexpectedly lower in bank borrowing ratio and higher in intra-firm credit.

For the issues of corporate governance in Thailand, Suehiro (2001) and Wiwattanakantang (2001) investigate the features from various viewpoints. One of the common recognitions among them is that the firms who have controlling shareholders indicate better performance, whether they are foreigners or not.⁴

The significance of non-listed firms in Thai economy is suggested by Mieno (2002). Table 3 compares the share of listed and non-listed firms in large firms in November of 2000, based on Mieno (2002). The share of non-listed firms is never trivial. Among the top 100 firms measured by total asset, the listing rate is only 38%. In top 300 firms, the rate is less than 30%. Whereas, even in top 500 firms, number of listed firm is only 117, which is less than one out of third of total number of listed firms (381).⁵ This means that listed firms are not necessarily the large firms, and many small and medium sized firms are included in it. These facts indicate that it is crucially important to focus the non-listed firms and their listing behavior as an analytical target for examining the function of securities markets in Thailand.

3.2 Are debt ratios of Thai firms high or low?

Table 4 summarizes the debt ratios in Thai firms presented in various previous studies. In the table, Singh (1985) and Booth et al. (2001) are comparative studies on multiple developing countries, and present the view that the debt ratio is lower (around 50% in Thai case) and equity finance is active in developing countries.⁶ Conversely, Claessens et al. (1998) calculate the debt ratio, with unbalanced panel data of 564 firms in 1990s in case of Thailand. They

⁴ Khanthanavit et al. (2003) observe the change of control rights in non financial firms after crisis. Their conclusion is that the controls of family, pyramid type structure and cross holding are slightly declined but still remain after the crisis.

⁵ A figure of the end of 2000.

⁶ According to the lower part of table 4 summarizing the debt ratio of developed countries based on Booth et al. (2001), we can understand that they could be divided into two groups: (i) United Kingdom, United State and Canada, who has lower debt ratio, and (ii) Italy, France and Japan, who are relatively higher. Also, we can understand that debt ratios of listed firms in Thailand and many developing countries are still lower than the lower group of developed countries.

found that the ratio were 60-70%, relatively high and more importantly, had rising trend until the crisis to conclude that excess dependence on debt finance is one of the serious causes for the financial crisis.

We can conjecture the reason why these two controversial views coincide, by comparing with the studies concentrating to case of Thailand. The figure of Wiwattanakantang (1999) calculated from 270 non financial listed firms in 1996 is close to those of Singh (1985) and Booth et al. (2001). Whereas, according to the figure of Mieno (2002, 2004) calculated with classifying listed and non-listed firms in manufacturing sector, the debt ratios of listed firms are close to that of Singh (1985), and those of non-listed firms are around 70%.

Considering the fact that the number of listed firms in Thailand is 454 and maximum in 1996, and around 350-400 before 1995, the sample of Claessens et al. (1998) should include substantial amounts of non-listed firms, because they use 564 unbalanced panel samples. Accordingly, their finding of the high debt ratio and rising trend may come from sample bias.

In conclusion, before the crisis, debt ratios of Thai major firms are around 50% in listed firms, and around 70% in non-listed firms, which is lower than those of developed countries in both cases.⁷

Tables 5-1 and 5-2 summarize the total pictures of capital structures classified by year.⁸ They taught us that the gap in debt rate between listed and non-listed firms before the crisis comes from the capital surplus in equity. Table 5-3 presents the change of capital structure before and after the listing. This also shows that capital surplus increase in the period of the listing. It seems that the difference of the debt ratios or dependence on the equity could be explained by the cash flow gained as stock premium at IPOs.

4. Our approach

4.1 Viewpoint: modification of pecking order hypothesis

Considering the features of Thai securities markets discussed above, it is need to consider the following two points when applying the standard theory of corporate finance such as pecking order hypothesis to Thailand.

The first is the matter of firms' decision of the behavior for participating in the securities markets. Pecking order hypothesis developed by Myers (1984) and Myers and Majluf (1984) point out the deference of agency cost among self finance, debt finance and equity finance, and insist the existence of preference order in fund mobilizing methods. Previous studies such as Wiwattanakantang (1999) and Mieno (2004) interpreted the results

⁷ Comparing the Japanese case, 70% of debt ratio in non listed firms could be understood as lower.

⁸ The figures and observation are based on Mieno (2002).

of estimations under this hypothesis and as matters of agency cost.

In developing countries, however, equity finance is not naturally given, but the matter of choice. The firms who prefer the equity finance should go public at the previous stage. The firms will decide whether or not to list themselves to the securities markets, considering the merits such as obligation of diversifications of the fund raising method, gaining stock premium and demerits such as releasing control rights.

The second is the viewpoints of internal markets. The transactions of internal capital market such as intra-firm credits and debt guarantees are substantially prevailed both in pyramid type business groups and foreign firms. In such cases, the IPO decisions of group firms might be related to the fund demand within internal market.

4.2 Previous studies on going public

The focus and methodology adopted in the empirical part of the paper is followed by the several previous studies. Pagano et al. (1996) show us comprehensive survey on the relationship between firms listing and performance. They point out efficient monitoring, decrease of transaction cost of securities and risk diversification as merits of going public, and worsening of the performance caused by information asymmetry, administration cost for listing and weakening of the competitiveness due to disclosure. Holmström and Tirole (1993) point out the possibility that the market discipline by listing improves the performance.

In the empirical aspect, Pagano et al. (1996, 1998) implemented the two type of regression with the data of Italian firms. The first is to capture the change in performance after going public by event study. Thought the event study, they found various facts on financial changes after firms' listing: (i) decline of performance, (ii) repayment of debt and increase of financial assets, (iii) no increase of investment, (iv) decline of fund raising cost and (v) stock selling by existing shareholders. The second is to investigate the motivation of firms' listings by the estimation with qualitative dependent variables (Probit model). They found (i) demand for fund is determinant of going public, (ii) bargaining power to banks is one of the motivations and (iii) size and profit ratio is positively related to the listing behavior.⁹

Some studies examine the relationship of listing behavior and operating performance in East Asian countries, by applying the part of the concern and methodology of Pagano et al. (1996). Kutsuna et al. (2002) observe the change in performance of the firms listing to JASDAQ in Japan and insists that the performance decline after the listing. Kim et al. (2004) analyze the relationship between firm performance after listing and managerial shareholders in Thailand.

Contrast to such previous studies, our concern in this paper is the change of the

⁹ Corwin and Harris (2001) also analyze the determinant of firms' listing from the view point of competition among the markets.

structure of fund mobilization. We will examine the changes in debt ratio, bank borrowing ratio etc, after going public. In the appendix, we will estimate the determinant of the firms decision of listing, with consideration to the cooperate ownership such as business groups and foreigners.

5. Sample Description

5.1 Data

We use two types of data sets. The first is from *Listed Company Info. (CD-ROM, various issues), Securities Exchange of Thailand* (hereafter, SET sample). This statistics covers the balance sheets and income statements of all the listed firms after 1992. In order to investigate our interests from this data, we choose 322 non-financial over 1992-97. The sample is an unbalanced panel data and the number of observations is 1,747.¹⁰ This also covers the pre-IPO observations of firms that went public in the period.

The second is the data compiled from *Manager Information Service* (hereafter, MIS sample) that had the database of the balance sheets and income statements for about 5,000 listed and non-listed firms over 1991-95.¹¹ From the database, the sample of 2,170 firms is now available, but we choose 320 firms whose detailed information is available and that satisfied the IPO criteria that their total assets were more than 1 billion bahts in 1994. The sample is unbalanced panel and the number of observations is 1,496.¹²

Those two samples are the complement to each other. The SET sample covers all industries, but consists merely of the firms that went public over the period. The MIS sample covers only a manufacturing sector and does not have enough observations for the established year and so on, but comprehensively consists of many large listed and non-listed firms.

We investigate the following 13 indicators that are divided by 4 groups.

A. Managerial Performance

1. ROA: $\text{Net Income} / \text{Total Assets}$
2. Equipment Investment: $\text{Increase of Property, Plant and Equipment} / \text{Total Assets}$

¹⁰ Since some variables require taking difference or making the growth rate, the number of observations used in our estimation is 1,197. The sample size in each year is 115 in 1993, 267 in 1994, 269 in 1995, 271 in 1996, and 275 in 1997. Those over IPO date are 10 in 3 years before, 34 in 2 years before, 65 in 1 in 1 year before, 88 in the IPO year, 120 in 1 year after, 114 in 2 years after, 123 in 3 years after, 111 in 4 years after, 108 in 5 years after, and 424 in more than 5 years after.

¹¹ The MIS went bankrupt in 1998.

¹² Because of the same reason of SET sample, the number of observations in MIS sample is 1107. The sample size in each year is 268 in 1992, 279 in 1993, 284 in 1994, and 276 in 1995. Those over IPO date are 2 in 3 years before, 6 in 2 years before, 14 in 1 year before, 24 in the IPO year, 34 in 1 year after, 38 in 2 years after, 37 in 3 years after, and 168 in more than 3 years after.

3. Growth of Sales

B. Finance

4. Debt Ratio: Total Liabilities / Total Assets

5. Bank Loan / Total Assets

6. Bank Loan / Liabilities

7. Long Term Debt / Total Assets

8. Paid-up Capital / Total Assets

9. Capital Surplus / Total Assets: (Shareholders Equity - Retained Earnings - Paid-up Capital) / Total Assets

C. Bargaining Power to Lenders

10. Average Fund Raising Cost: Interest Expenses / Liabilities with Interest

D. Internal Capital Market

11. Financial Assets / Total Assets

12. Investment and Loans from to Affiliated Firms / Total Assets

13. Loans from Affiliated Firms / Total Assets

Group A is for managerial performance, and consists of ROA, equipment investment, and the growth of sales. From these indicators, we investigate the hypothesis of Holmström and Tirole (1993) that market monitoring after going public improves managerial incentives. Moreover, we observe whether the equipment investments are financed by funds raised through an IPO. Group B is the indices that represent the effects of an IPO on financing through bonds and bank borrowings. Our main interest in this group is to observe whether equity financing after going public is the complement of borrowing from banks. We study it using 6 indices presented above. Following Pagano et al. (1996), Group C investigates the impact of going public on the bargaining power to banks and thereby the decrease of financing costs. Group D is to examine for what the firms use the funds raised through an IPO. In particular, paying attention to the functions of internal market, we adopt the ratio of the financial assets, investment and loan to affiliated firms, as well as loans from the affiliated firms to total assets.

Table 6 reports the averages and standard deviations of the indices of Groups B and D. The data used in the table is chosen from our sample so as to be a balanced panel (the SET sample covers 308 firms over 1993-1997 and the MIS sample covers 213 firms over 1992-1995). The average of debt ratio approximates 55 percent over the period in SET sample and around 60% in MIS sample. The ratios hardly change by 1995. This is consistent with the findings of Singh (1985), Booth et al. (2001), and Wiwattanakantang (1999), and in opposition to the view of Claessens et al. (1998). Bank loan and short-term funds are similar to it. On the other hand, the average of retained earnings tends to decrease and that of financial investment, contrary, tends to increase.

5.2 Wilcoxon Signed Rank Tests

We now observe statistically the tendency of the indices. Table 7 shows the differences between the median in 1 year before and that in s years after ($s = 0,1,2,3$). The asterisks denote the significance levels of the Wilcoxon signed rank test, which tests the null hypothesis that the level of an index in each period is the same. In short, it represents whether the index changes significantly from 1 year before going public.

ROA decreases significantly at the 1 percent significance level. Also, the growth rate of sales decreases dramatically. This implies that going public cannot improve managerial performance. Further, equipment investment does not change at the year of an IPO and decreases gradually. Thus, the funds raised through an IPO tend not to be invested to the equipments.

Debt ratio decreases at the period of IPO first, but increases after the third year. Particularly, the ratio of bank loan to total assets increases from next year after IPO. The ratio of bank loan to liability increases from the IPO year. The changes in long-term debt are the same as those in debt ratio. On the other hand, average fund raising cost tends to fall, implying that IPO firms raise more funds through banks since the bargaining power increases.

While the decrease of debt ratio means that capital increases relative to liabilities, the ratio of paid-up capital to total assets continues to fall after going public. Capital surplus which is defined here as “shareholders equity less retained earnings less paid-up capital” rises significantly just after an IPO.

Both financial assets and investment and loans to affiliated firms increase after going public. The former, especially in the MIS sample, rises gradually whilst the latter rises just after an IPO. This implies that the funds raised through an IPO tend to be invested to financial assets and partly affiliated firms rather than equipment.

6. Regressions

6.1 The models

Although the Wilcoxon signed rank test has advantages of nonparametricity, it is important to note that it has some problems in our sample. Firstly, the number of observations that are available for this test is relatively small. The Wilcoxon test requires enough observations of two periods for each firm. For instance, in order to compare the index in 1 year before going public and that in 3 year after, we need the data in both periods for a large number of firms. Secondly, since the indices are not controlled by the other variables that may influence them, the test could capture the indirect correlations. We introduce the vintage of firms as a regressor because young firms may be difficult to satisfy the IPO criteria. In this section, we employ more reliable and robust methods to examine our findings.

6.1.1 Pooled panel data model

Following Pagano et al. (1998, Section IV.A), we consider a linear model which regress a performance index on dummy and control variables. First, we assume that all the firms are homogeneous, that is, the sample is a pooled panel data. The model is

$$y_{it} = \alpha + \sum_{j=-1}^3 \beta_j d(t - IPO_i = j) + \beta_4 d(t - IPO_i < -1) + \gamma \log(Age_{it}) + \varepsilon_{it},$$

where y_{it} is the performance index of firm i at period t , IPO_i is the IPO date of firm i , $d(\cdot)$ is a dummy variable that takes 1 if the condition is satisfied and 0 otherwise, Age_{it} is the age of firm i at period t , and ε_{it} is a disturbance with mean zero. The intercept, α , denotes the post-IPO average of y_{it} (strictly speaking, the average in 4 period after going public), β_j ($j = -1, \dots, 3$) denotes the average difference between α and the index in j periods after, and β_4 denotes that between the index in pre-IPO and post-IPO periods (2 period before and 4 period after). We estimate the parameters of this model by the ordinary least squares (OLS) estimator.

6.1.2 Random effects models

Next, we relax the assumption of homogeneity and incorporate individual effects into the model. We consider the random effects model,

$$y_{it} = \alpha + \sum_{j=-1}^3 \beta_j d(t - IPO_i = j) + \beta_4 d(t - IPO_i < -1) + \gamma \log(Age_{it}) + u_i + \varepsilon_{it},$$

where u_i denotes a time-invariant firm-specific effect with mean zero and is uncorrelated with regressors. We estimate the parameters of this model by a feasible generalized least-squares (FGLS) estimator.

6.2 Results of Estimation

6.2.1 SET sample

The results of the estimation are shown in Tables 8 and 9.¹³ Since the results of both tables are similar, we mainly refer to that of a random effects model.¹⁴

All the indices in Group A, that is, ROA, equipment investment, and the growth of sales, tend to fall significantly and gradually. Most previous studies suggest that managerial performance deteriorates after going public, and so do Kim et al. (2004) who investigate the stock market in Thailand. Our finding is consistent with them.

¹³ We estimate the heteroskedasticity robust (White) standard error in the pooled panel data and fixed effects models.

¹⁴ Although the financial crisis occurred in 1997-1998, the following results are robust to a 1997-year dummy.

The impact of going public on the indices in Group B is as follows. First, debt ratio around the IPO year is relatively low. In particular, the level falls just in the IPO year, and returns gradually to its original level. As in the results from the Wilcoxon signed rank tests, the level in 2 years after an IPO is significantly greater than that in 1 year before.¹⁵ Second, the ratio of bank loan to total assets falls significantly in 1 year before and in the IPO year. However, the levels in 1 and 2 years after IPO are not significantly different from zero, and that in 3 years after is positively significant. For the bank loan to liabilities ratio, the estimates for 1-year-before and IPO-year dummies are not significant, but rises significantly from 1 year after. The ratio of long-term debt to total assets increases in more than 3 years after at the 10 percent significance level. Third, the ratio of paid-up capital to total assets does not change after an IPO, whereas the ratio of capital surplus to total assets rises slightly in 1 year before, jumps in the IPO year, and continues to be high after an IPO. This is consistent with the results from the Wilcoxon signed rank tests.

These findings imply that, after an IPO, firms raise the shareholders' equity relative to the total assets, and thereby lower the ratio of liabilities to total assets. The increase of the shareholders' equity stems from that of capital surplus which is raised through an IPO. Capital surplus increases temporarily after an IPO, but paid-up capital tends to fall. That is, firms do not raise the funds by continuously utilizing equity finance. On the other hand, bank loans increase gradually, except in the IPO year.¹⁶

The index in Group C, capital cost, tends to fall in 1 year after an IPO. However, after that, it is not significantly different from zero or positively significant, so it does not move clearly.

We obtain the following findings from the indices in Group D. First, the ratio of financial assets to total assets increases significantly after an IPO. This shows that firms raise it steadily and persistently. Second, in the estimation of loans and investment to affiliated firms, the coefficient estimate in more than 3 years after is significantly different from zero. Although in the Wilcoxon signed rank tests, this index rises just after an IPO. Both inferences are common in the tendency that the index increases after an IPO. Considering the fact that equipment investments decrease after an IPO, the first finding implies that the cash flow raised through an IPO is used for financial investments rather than equipment investments. Further, the second finding implies that these firms, then, provide it to its affiliate through internal capital market.

The estimations using SET sample bring some insights about the finance of the Thai firms that went public in 1990s. Firstly, the decision to go public is motivated by raising funds

¹⁵ The results of t-tests are available upon request.

¹⁶ Furthermore, debt ratio tends to be low in the long run around an IPO. This may result from the restriction of debt to satisfy the condition for going public. Investigating this point is a task for the future.

through an IPO or stock premium. However, equity finance is inactive after an IPO. Also, bonds may be hardly issued under the environment that the amount of issued bonds is relatively small. Second, these funds tend to be used for financial investments rather than equipment investments. In addition, investments and loans to related firms increase a few years after an IPO. The first and second findings show that some firms in business groups are sold for fulfilling temporal needs for cash flow for pyramid type of business groups. Also, with consideration to the fact in Section 3 that a substantial fraction of listed firms consists of small-scale firms, the firms chosen to go public for financing the investments of the groups may be minor subsidiaries, not core firms. Firms' behaviors to IPOs in 1990s are characterized as "one shot" financing in the way of gaining stock premium reflected by the situations in the internal market.

Third, we find that the firms that went public borrow more from banks and lower the cost for fund. Going public stimulates the overall financial transaction including bank borrowings through decreasing the information asymmetry by the disclosures. This, could be understood that going public has externality. It is worth to note that equity finance is the complement to indirect financial markets, even though firms primal motivation for equity finance is to gain stock premium.

6.2.2 MIS sample

The estimation results using the MIS sample are shown in Table 9. Since there are the firms whose established year is not available, we omit the log of established year as a regressor. The MIS sample covers only a manufacturing sector and includes the firms that did not go public in the sample period, 1991-1995. However, the results using it are not different from those of the SET sample. Like the last subsection, we note mainly the difference between the results of random effects models using the SET and MIS samples.

First, the indices for managerial performance, Group A, do not necessarily decrease after an IPO. In particular, equipment investment rises significantly in the IPO year. This suggests that, as far as a manufacturing sector is concerned, the funds raised through an IPO are directly used for property, plant, and equipment investment at least partly. Second, the finding from the indices for inside lending, Group D, evidently corresponds with that using the SET sample. After an IPO, the ratio of financial assets to total assets rises over the long run, which can be said of the SET sample. The increase of investments and loans to affiliated firms and the decrease of borrowing from affiliated firms are clearer than those of the SET sample. Third, the movements of the debt ratio and the ratio of bank loans to total assets are almost similar to that of the SET sample, whereas the ratio of long-term debt to total assets falls significantly in the MIS sample. This implies that, with respect to a manufacturing sector, the equity raised through an IPO tends to be substituted for long-term debt. Fourth, the capital costs after an IPO decrease more clearly.

As a whole, the results from the MIS sample suggest that, in the manufacturing sector, the funds raised through an IPO are used partly for the equipment investments and mainly for loans to related firms via internal market. And the funds tend to substitute for bank loans, particularly long-term debt.

7. Concluding remarks

In this paper, we investigate the features of Thai securities markets from the viewpoint of development of securities markets in developing countries. The results of observations give us various implications on the reforms of the securities markets after the financial crisis. We found that in Thailand, the participation in the securities markets by major firms are not complete, and that the decision of the participation seems related to the internal market. We also found that the function of the market is very limited as a place of continuous fund mobilization.

The reforms after the crisis require the listed firms to improve disclosure and to enhance corporate governance. It is true that such requirements contribute to the protection of minority shareholders or investors. However it is worth to note that this type of reforms includes the factors that erode the attractiveness of the securities markets for potential listed companies. Our estimation results show that securities markets are not utilized as a place for fulfilling the demand for fund except for the stock premium at IPO. This means that the regulation only targeting the listed companies may incur the firms' hesitation to participate in the market. This could be one answer to the question why securities markets reforms in Thailand in 1999 failed to realize the anticipated result.

Considering the results such as the relationship between securities markets and internal market, and the positively simulative effect of the going public on the transaction of bank loan market, securities markets reforms should be designed and treated in the context of the function of financial markets as whole. The reforms in Thailand also needed to be directed for enhancing the attractiveness of the securities markets for the firms.

The largest task still remained is the analysis with the information of firm attribution such as business group affiliation and foreign ownership. This work may give us further knowledge, because the business group and foreign firms is thought to be linked to their unique internal market. These are imposed to our future work.

Appendix. Probit estimation of IPO decision

A.1 Data

In this appendix, we will estimate the determinant of firms' IPO decision with the same method as Pagano et al. (1996). We employ same SET and MIS dataset. We also use the information on firms' affiliation to business group compiled in Mieno (2004) for MIS dataset, and information on the share of foreign shareholders in 1996.

A.2 Methodology

We employ the following Probit models for estimation.

$$\Pr(\text{IPO}=1) = F(\text{Independent Variables})$$

$$\Pr(\text{LIST}=1) = F(\text{Independent Variables})$$

Dependent variable “IPO” is a dummy variable which indicate 1 if the firm list to SET at the period of the sample, and 0 otherwise. “LIST” is also a dummy variable which indicate 1 if the firm is listed firm at the period of the sample, and 0 otherwise.

Independent variable are categorized into four groups same as in the Section 5. The first is figures on firm performance related to IPO criteria. Pagano et al. (1993) point out that the probability may be higher the larger the firm size is. We measure the firm size by total sales. Profit ratio (ROA) is the primal factor for IPO criteria. However, the firms whose profit ratio is higher may hold affluent cash flow so that incentive for fund mobilization in capital market may be little. The second is figures related to demand for fund, which is most primal motivation for going public. For the proxy, we adopt growth of sale, equipment investment, debt ratio and bank borrowing ratio for the repressors. The third is average cost for fund as a proxy of the negotiation power to banks. The firms who hold poor negotiation power to banks may have incentive to overcome their positions by diversification of fund raising method.

We will introduce the dummy variables for examining the effect of the ownership structure. For foreign ownership,

1. Dummy for foreign shareholding (for SET Sample, 20% and 40% cut-off)
2. Dummy for firms established by foreign Multi National Companies
(for MIS Sample)

And for the affiliation to the business group, we introduce a dummy for “Financial Conglomerate” and a dummy for “Manufacturing Groups” in MIS Sample.

A.3 Results of estimation

Tables 11- 1 to 11-3 present the estimation results and they are also summarized in Table 10. In the estimation with dependent variable “IPO”, we fail to have consistent results partly due to lack of enough samples in SET sample. And in the estimation with MIS sample, we fail to estimate consistent and significant results. We will interpret the estimation results mainly on the estimation with SET sample and “LIST” variable. In these estimations, adjusted R-square is 0.1-0.3, but signs of the coefficients of many explanatory variables are opposite to the presumptions. Therefore, interpretation of the results here is tentative.

We got three finding on basic variables. Firstly, in the estimation with SET sample, the coefficients of Sales are positively significant and those of ROA are negatively

significant.¹⁷ The sign in ROA is opposite to the result of Pagano et al. (1996) and could be understood that the firms who have affluent cash flow do not feel the necessity for diversification of fund mobilization.

Secondly, the estimation results on the variables related to demand for fund are totally opposite to the presumptions and the results of Pagano et al. (1996). The coefficients of growth of sales, debt ratio are negatively significant, and those of equipment investment are negatively significant in SET sample and insignificant in MIS sample. The firm's decision for IPO does not seem related to the demand for fund.

Thirdly, the coefficients of Average Cost for Fund are negatively significant with "LIST" variable, and insignificant with "IPO" variable both in SET and MIS sample. We could not find any evidences that firms chose listing to the securities markets for the sake of more advantageous position against the banks.

The results related to the ownership are as follows. In the estimation with SET sample and "LIST" variable, the coefficients of the dummy for 20-40% foreign shareholdings are positively significant. However those of the dummy for over 40% are insignificant. In the estimation with MIS samples, coefficients of the dummy for the firms established by MNCs are negatively significant both in SET and MIS samples. The firms established by MNCs seem shrinking for listing.

In the estimation with the SET sample by divining into manufacturing sector and non-manufacturing sector, the firms of manufacturing sector are more probable for listing with 10% significance. And the result of estimation with manufacturing sector, coefficient of the dummy for 20-40% is no longer significant. In manufacturing sector, the effect of 20-40% foreign ownership on the attitude to listing is relatively weak.

Lastly, for the attribution of affiliated business group, the firms of "Financial Conglomerate" are more probable for listing and those of "Manufacturing Group" are less probable.

A.4 Implication

The results of estimations are partially consistent to our analysis in Section 6. In Section 6, we found that there is no evidence that equipment investment increases after the listing. The fact is consistent to the finding that demands for fund are independent to the motivation of listing. The behavior of the listing seems indifferent to the necessity of the cash.

The results of estimations on the effect of foreign ownership are consistent to the market discipline hypothesis insisted by Holmström and Tirole (1993) and interpreted as follows. In the case that foreign shareholders are founders of or completely control the management, the agency problem among the shareholders, and between shareholders and

¹⁷ However, in MIS sample the sign in Sales is negatively significant.

managers are relatively less serious. At the same time, the agency cost of external finance such as intra-firm credit or loans from foreign banks are also low. Therefore there is low incentive for listing. On the other hand, in case that control of foreign shareholders is not complete due to the limited shareholding, the agency problem among the shareholders and between shareholders and managers might be serious, and information asymmetries are also serious. The preference for the participation in the securities markets by the firms with 20-40% foreign shareholdings could be understood that foreign shareholders tend to prefer the participation in the securities markets in order to minimize the moral hazard of domestic shareholders and managers by market discipline.

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Table 1 The transition of Thai cooperate law and securities exchange law

1928	Promulgation of the section 3. “Contract” in Civil and Commercial Law
1935	Promulgation of Civil and Commercial Law (All parts)
<hr/>	
1974	Promulgation of Securities Exchange of Thailand Act) The criteria of listing for existing private limited companies are enacted (the details of the criteria are released by Ministry of Finance in succession.
1975	Securities exchange of Thailand (after 1991, Stock Exchange of Thailand) are opened
1978	Promulgation of Public Company Act * Public Limited Company under the act is strictly divided from private limited company under the Civil and Commercial Law. * Civil and Commercial Law are amended to prohibit issuing bonds and public offering equities by private limited companies. * Stipulations on retaining a certain share of minority shareholders * Newly established companies with over 100 employees and Bt500 mil. Paid up capital must be registered as public limited companies
1984	Amendment of Securities Exchange of Thailand Act ((No.2), BE2527) * Removal of a ban on public offering equities and issuing bonds by private limited companies which is listed to SET * Implemented under the spirit for prevailing the corporate ownership and upbringing the investors at the Fifth five year National Social and Economic Plan (1982-86)
1992	Promulgation of new securities exchange act (Securities and Exchange Act), and Securities Exchange Committee Act. Amendment of Public Companies Law * Securities Exchange Committee is established

Table 2. Major Indicators of Stock Exchange Market of Thailand

	No. of Listed Companies	Market Capitalization (1,000 Bahts)	Yearly Turnover (1,000 Bahts)	SET index (1974=100)
1975	21	5,390	560	84
1976	25	7,260	990	82
1977	39	19,230	26,280	182
1978	61	33,090	57,070	258
1979	69	28,380	22,450	149
1980	77	24,884	6,302	125
1981	80	23,058	2,358	107
1982	81	28,970	5,481	124
1983	88	34,222	8,757	135
1984	96	46,710	10,258	142
1985	97	49,457	15,438	135
1986	93	75,200	29,807	207
1987	109	138,170	119,179	285
1988	141	221,958	141,473	387
1989	175	656,842	344,778	879
1990	214	604,566	584,154	613
1991	276	897,159	767,056	711
1992	305	1,485,019	1,830,026	893
1993	347	3,325,393	2,201,148	1,683
1994	389	3,300,800	2,113,900	1,360
1995	416	3,564,500	1,534,900	1,281
1996	454	2,559,558	1,303,144	832
1997	431	1,133,344	929,600	373
1998	418	1,268,198	855,170	356
1999	392	2,193,070	1,609,790	482
2000	381	1,279,220	923,697	269
2001	382	1,607,310	1,577,758	304

Note. From 1984 to 91, "Listed Companies" and "Authorized Companies" are included in the figures

Source. Fact book, Annual Report, Securities Exchange of Thailand / The Stock Exchange of Thailand, each year

Table3. Number of Listing and Non listing Major Manufacturing Firms

Numbers, ordered by Total Assets	No. of Listing Firms	Listing Rate
100	38	38.0%
200	65	32.5%
300	82	27.3%
400	105	26.3%
500	117	23.4%

Source: "Bingo" database, Business on Line Ltd. downloaded at November, 2000

Table 4. Debt Ratio of Thai Firms in Previous Studies

Paper	Focus of study	Debt Ratio Debt/T.A.	Leverage Debt/Equity	Sample			
					No. of Firm	sample coverage	Data Source
Singh (1985)	Developing Countries	55.8%	1.262	1980-90	50-100	Major listed firms	n.a
Booth et al. (2001)	Developing Countries	49.4%	0.976	1983-90	64	Major firms	n.a
		50.9%	1.037	1985-87	64	Major firms	n.a
Claessens et al. (1998)	East Asia	61.6%	1.602	1988	564 (unbalanced panel data)	Major firms including non-listed firms?	SET-Anu.Rep., Worldscope, Financial Times Extel
		64.8%	1.837	1992			
		70.2%	2.361	1996			
Wittanakantan (1999)	Thailand	51.4%	1.056	1996	270	Listed firms	Listed Company Info. ,SET
Mieno (2000,2002B)	Thailand	55.3%	1.237	1994	105	Listed major manufacturing firms	Manager Info. Service Co.,Ltd
		70.9%	2.436	1994	182	Non-listed major manufacturing firms	
Mieno (2002A)	Thailand	72.7%	2.663	1997-99	72-77	Listed major manufacturing firms	Business on Thailand Co.,Ltd
		78.4%	3.630	1997-99	84-98	Non-listed major manufacturing firms	

Debt Ratio of Major Developed Countries

Japan		74.0%	2.846	1991	514	Over 1 billion yen in paid in capital 10 -49million yen in paid in capital	Hojin kigyo toukei kiho
		85.0%	5.667	1991			
		69.0%	2.226	1991			
France		71.0%	2.448	1991	225	Listed firms?	Booth et.al. (2001),Table I, p90
Italy		70.0%	2.333	1991	118		
United States		58.0%	1.381	1991	2580		
United Kingdom		54.0%	1.174	1991	608		
Canada		56.0%	1.273	1991	318		

Table 5. Capital Structure of Thai Firms**Table 5-1. Non Listing Firms**

		1991-94	1995-96	1997-99
	No. of Sample		72	77
1	Debt Ratio		70.2%	78.4%
2	Bank Loan		36.4%	40.9%
3	Borrowing from Affiliated Firms		7.7%	9.4%
4	Bond		0.0%	0.0%
5	Other Liabilities		26.1%	28.1%
6	Capital Account		29.8%	21.6%
7	Paid up Capital		29.1%	21.2%
8	Retained Earnings		-8.3%	-4.6%
9	Capital Surplus and Others		9.0%	5.0%
	Loan and Investment in Affiliated Firms		6.5%	7.8%
	Intra-Firm Credit (3+5)		33.8%	37.5%
	Leverage (1/6)		2.4	3.6

Table 5-2. Listing Firms

		1991-94	1995-96	1997-99
	No. of Sample	79-98	98	84-87
1	Debt Ratio	54.2%	56.4%	72.7%
2	Bank Loan	37.1%	40.5%	51.0%
3	Borrowing from Affiliated Firms	3.1%	1.4%	1.7%
4	Bond	0.0%	0.0%	2.0%
5	Other Liabilities	14.0%	14.4%	18.0%
6	Capital Account	45.8%	43.6%	27.3%
7	Paid up Capital	17.6%	16.5%	18.1%
8	Retained Earnings	14.3%	12.9%	-10.5%
9	Capital Surplus and Others	13.9%	14.4%	14.4%
	Loan and Investment in Affiliated Firms	11.7%	13.0%	14.8%
	Intra-Firm Credit (3+5)	17.1%	15.9%	19.7%
	Leverage (1/6)	1.2	1.3	2.7

Source: Mieno(2002A p.234), Original data are from Business on Thailand, Co.,Ltd

Table 5-3. Timing of Listing and Change of Capital Structure

		-2year	-1year	0	+1year	+2year
	No. of Sample	23	33	42	37	37
1	Debt Ratio	64.6%	59.1%	50.3%	53.6%	53.4%
2	Bank Loan	40.8%	37.7%	37.1%	36.7%	37.0%
3	Borrowing from Affiliated Firms	5.9%	4.8%	2.0%	1.1%	1.6%
4	Bond	0.0%	0.0%	0.0%	0.0%	0.0%
5	Other Liabilities	18.0%	16.7%	11.2%	15.8%	14.8%
6	Capital Account	35.4%	40.9%	49.7%	46.4%	46.6%
7	Paid up Capital	26.3%	24.6%	21.3%	17.6%	15.8%
8	Retained Earnings	5.9%	7.3%	8.9%	8.8%	11.7%
9	Capital Surplus and Others	3.2%	9.0%	19.5%	20.0%	19.2%
	Loan and Investment in Affiliated Firms	8.2%	7.3%	6.6%	7.9%	7.7%
	Intra-Firm Credit (3+5)	23.8%	21.5%	13.2%	16.9%	16.4%
	Leverage (1/6)	1.8	1.4	1.0	1.2	1.1

Source: Mieno(2002A p.234), Original data are from Business on Thailand, Co.,Ltd

Note: Samples are only before 1996

**Table 6. Basic indicator in Sample Firms
SET sample**

	full sample	1993	1994	1995	1996	1997
No. of Samples	1667	308	308	308	308	308
Debt Ratio	54.4%	50.0%	48.1%	49.8%	52.7%	74.0%
	0.3260	0.1968	0.1936	0.1975	0.2739	0.5682
(Leverage)	1.1913	1.0015	0.9261	0.9932	1.1139	2.8486
Bank Loan / Total Asset	36.9%	33.1%	31.6%	33.4%	35.8%	53.5%
	0.2735	0.1916	0.1880	0.1933	0.2349	0.4377
Long Term Debt / Total Asset	14.8%	13.0%	12.5%	13.5%	13.7%	21.7%
	0.1529	0.1245	0.1172	0.1263	0.1266	0.2263
Retained Earnings / Total Asset	6.8%	13.9%	13.0%	11.5%	8.2%	-16.5%
	0.3662	0.1454	0.1542	0.1731	0.3369	0.6860
Capital Surplus / Total Asset	19.9%	16.6%	20.3%	20.8%	20.6%	22.7%
	0.1578	0.1495	0.1519	0.1431	0.1416	0.1903
Bank Loan / Liability	64.0%	63.4%	62.1%	63.8%	64.9%	67.5%
	0.2610	0.2543	0.2609	0.2598	0.2596	0.2562
Bond / Liability	2.4%	1.6%	3.1%	4.1%	4.1%	0.0%
	0.1009	0.0893	0.1113	0.1266	0.1322	0.0000
Financial Asset / Total Asset	27.1%	23.7%	27.4%	29.7%	29.6%	26.6%
	0.2348	0.2239	0.2273	0.2382	0.2417	0.2400
Loan and Investment in Affiliated Firms / Total	19.5%	16.5%	19.1%	20.6%	22.5%	20.3%
	0.2136	0.1920	0.2066	0.2187	0.2294	0.2275
Borrowing from Affiliated Firms / Total Asset	1.7%	1.8%	1.5%	1.4%	1.6%	1.8%
	0.0466	0.0496	0.0428	0.0466	0.0460	0.0437

Note: Upper rows denote averages and lower rows denote standard deviations.

MIS sample

	full sample	1992	1993	1994	1995
No. of Samples	852	213	213	213	213
Debt Ratio	60.6%	61.3%	60.5%	59.5%	60.9%
	0.2152	0.2151	0.2078	0.2210	0.2179
(Leverage)	1.5351	1.5843	1.5307	1.4712	1.5572
Bank Loan / Total Asset	36.4%	36.8%	34.3%	35.4%	39.1%
	0.2162	0.2161	0.2116	0.2110	0.2243
Long Term Debt / Total Asset	10.6%	10.8%	10.9%	10.3%	10.3%
	0.1343	0.1428	0.1392	0.1286	0.1269
Retained Earnings / Total Asset	16.8%	15.2%	15.4%	17.8%	18.8%
	0.1650	0.1568	0.1573	0.1675	0.1760
Capital Reserve / Total Asset	9.2%	8.8%	9.5%	9.7%	8.9%
	0.1265	0.1330	0.1242	0.1276	0.1216
Bank Loan / Liability	59.3%	59.0%	56.3%	59.1%	62.7%
	0.2841	0.2868	0.2855	0.2858	0.2763
Financial Asset / Total Asset	15.9%	12.8%	14.2%	17.5%	19.2%
	0.1882	0.1757	0.1755	0.1941	0.2004
Loan and Investment in Affiliated Firms / Total	12.6%	10.2%	11.8%	12.9%	15.3%
	0.1723	0.1637	0.1617	0.1735	0.1862
Borrowing from Affiliated Firms / Total Asset	4.0%	4.2%	4.2%	4.2%	3.4%
	0.1067	0.1024	0.1087	0.1198	0.0949

Note: Upper rows denote averages and lower rows denote standard deviations.

**Table 7: Changes in basic indicator of IPO firms
SET Sample**

	Year relative to completion of IPO			
	From -1 to 0	From -1 to +1	From -1 to +2	From -1 to +3
ROA	-0.166 ***	-0.542 ***	-0.780 ***	-1.580 ***
Equipment Investment	0.123	0.091	-0.716 ***	-0.894 *
Growth of Sales	-0.335 ***	-0.725 ***	-0.791 ***	-0.622 **
Debt Ratio	-0.149 ***	-0.054	0.047	0.212 ***
Bank Loan / Total Asset	-0.049 *	0.051 *	0.295 **	0.533 ***
Bank Loan / Liability	0.059 *	0.110 ***	0.164 ***	0.138 **
Long Term Debt / Total Asset	-0.268 ***	0.274	0.411 **	0.956 ***
Paid in Capital / Total Asset	-0.116 ***	-0.238 ***	-0.325 ***	-0.413 ***
Capital Surplus / Total Asset	0.231 ***	0.139 **	0.566	2.133
Average Fund Raising Cost	-0.214 **	-0.118 *	0.324	0.795
Financial Assets / Total Asset	0.194 *	0.195 *	0.319 **	0.138
Loan and Investment in Affiliated Firms	0.100 *	0.070	0.085	-0.009

MIS Sample

	Year relative to completion of IPO		
	From -1 to 0	From -1 to +1	From -1 to +2
ROA	0.131	-0.374	-0.634 ***
Equipment Investment	-0.590	-0.879	-0.532
Growth of Sales	-0.444 **	-0.492	-0.081
Debt Ratio	-0.220 ***	-0.174 ***	0.003
Bank Loan/Total Asset	-0.239 **	-0.121	0.077
Bank Loan/Liability	-0.019	0.009	0.047
Long Term Debt/Total Asset	-0.239	-0.209	-0.136
Paid in Capital/Total Asset	-0.089	-0.384 **	-0.437 ***
Capital Surplus/Total Asset	2.066	1.629	16.861
Average Fund Raising Cost	-0.193	-0.298	0.289
Financial Assets/Total Asset	0.441 **	0.705 ***	0.655 **
Loan and Investment in Affiliated Firms	0.184	0.650 **	1.323

Table 8: Results of Estimation with SET sample – pooled panel data

	ROA	Investment	Sales Growth	Debt Ratio	Bank / T.A.
C	0.0722 *** 2.9088	0.1075 *** 3.6807	1.1911 *** 3.3147	0.7298 *** 20.0288	0.4874 *** 11.8224
Dummy -1	-0.0085 -0.4699	-0.0298 -0.9264	-0.2602 * -1.7122	-0.1576 *** -4.3749	-0.0787 ** -2.0577
Dummy 0	-0.0285 -1.6188	-0.0325 -1.1166	0.0143 0.0319	-0.2558 *** -7.7589	-0.1256 *** -3.4028
Dummy +1	-0.0781 *** -3.8506	-0.0399 -1.3681	-0.3882 ** -2.5076	-0.1758 *** -5.4384	-0.0651 * -1.8002
Dummy +2	-0.0923 *** -4.5569	-0.0627 ** -2.1867	-0.4322 *** -2.8093	-0.1400 *** -4.2259	-0.0447 -1.1870
Dummy +3	-0.1326 *** -5.2186	-0.0676 ** -2.2343	-0.4563 *** -3.0648	-0.1072 *** -3.2197	-0.0250 -0.6810
Dummy >+3	-0.1192 *** -6.6707	-0.0830 ** -2.9145	-0.4015 ** -2.3294	-0.1094 *** -3.7754	0.0008 0.0247
log(Age)	0.0145 * 1.9561	0.0009 0.1535	-0.2265 -1.5989	-0.0351 *** -3.3661	-0.0439 *** -4.1811
adj. R-sq	0.0495	0.0419	0.3278	0.0468	0.0243

	Bank / Debt	Long-term Debt	Paid up Capital	Capital Surplus	Capital Cost
C	0.6937 *** 13.0874	0.2068 *** 6.2711	0.2374 *** 10.6069	0.0193 1.0410	0.0811 *** 7.6285
Dummy -1	0.0123 0.2396	-0.0096 -0.3406	0.0593 ** 2.4619	0.0899 *** 4.0160	0.0115 0.7419
Dummy 0	0.0125 0.2467	-0.0261 -0.9639	0.0160 0.8190	0.2393 *** 14.5735	-0.0154 -1.4703
Dummy +1	0.0576 1.2196	0.0032 0.1189	-0.0008 -0.0421	0.2100 *** 13.6148	-0.0280 *** -2.9259
Dummy +2	0.0496 1.0275	0.0209 0.7105	-0.0173 -0.9209	0.2012 *** 12.8904	-0.0217 ** -2.2304
Dummy +3	0.0592 1.2485	0.0193 0.7049	-0.0017 -0.0835	0.1945 *** 11.8383	-0.0110 -1.1041
Dummy >+3	0.0859 ** 2.0147	0.0244 0.9755	-0.0028 -0.1532	0.1619 *** 12.3063	-0.0058 -0.6223
log(Age)	-0.0473 *** -3.6630	-0.0242 ** -2.1735	-0.0204 *** -3.3781	0.0059 0.8847	0.0024 0.8875
adj. R-sq	0.0141	0.0327	0.0264	0.0895	0.0351

	Financial Asset	Inv. To Affiliation	Borrowing from Affiliation
C	0.1339 *** 3.2895	0.1243 *** 3.5094	0.0195 1.9778 *
Dummy -1	0.0273 0.6812	-0.0097 -0.3126	-0.0150 -1.5243
Dummy 0	0.0806 ** 2.1725	0.0140 0.4747	-0.0123 -1.2519
Dummy +1	0.0802 ** 2.2418	0.0375 1.2926	-0.0111 -1.1067
Dummy +2	0.1066 *** 2.8854	0.0574 1.8967	-0.0083 -0.8075
Dummy +3	0.0797 2.1874	0.0553 1.8433	-0.0123 -1.2294
Dummy >+3	0.1259 *** 3.9000	0.1006 *** 3.8308	-0.0083 -0.8411
log(Age)	0.0174 1.5056	0.0038 0.3322	0.0013 0.9795
adj. R-sq	0.0284	0.2625	0.0015

Note: Lower rows represent t-value. *, **, *** represent 10, 5, 1 percent significance level respectively.

Table 8: Results of Estimation with SET sample – Random Effects Model

	ROA	Investment	Sales Growth	Debt Ratio	Bank / T.A.
C	0.1038 *** 3.2264	0.1067 *** 4.8513	1.2973 *** 5.7040	0.6084 *** 12.8368	0.3750 *** 7.8562
Dummy -1	-0.0133 -0.4774	-0.0293 -1.3640	-0.2681 -1.2392	-0.1368 *** -4.9386	-0.0656 * -2.2190
Dummy 0	-0.0360 -1.3486	-0.0309 -1.5110	-0.0202 -0.0977	-0.2142 *** -7.9331	-0.0872 *** -3.0323
Dummy +1	-0.0915 *** -3.5301	-0.0392 * -1.9953	-0.4307 ** -2.1670	-0.1242 *** -4.6214	-0.0222 -0.7780
Dummy +2	-0.1144 *** -4.2437	-0.0623 *** -3.1109	-0.4825 ** -2.3708	-0.0692 ** -2.3838	0.0118 0.3844
Dummy +3	-0.1647 *** -6.0653	-0.0659 *** -3.3018	-0.5079 ** -2.4981	-0.0076 -0.2510	0.0563 * 1.7757
Dummy >+3	-0.1694 *** -6.5501	-0.0816 *** -4.4155	-0.4402 ** -2.3253	0.0534 * 1.7257	0.1266 *** -0.3247 *
log(Age)	0.0151 1.5387	0.0007 0.1232	-0.2504 *** -3.9398	-0.0317 * -1.8010	-0.0347 * -1.9949
adj. R-sq	0.0528	0.0419	0.0385	0.0243	0.1860

	Bank / Debt	Long-term Debt	Paid up Capital	Capital Surplus	Capital Cost
C	0.6330 *** 10.7909	0.2014 *** 4.8852	0.2398 *** 9.1588	0.0035 0.1155	0.0682 *** 5.7276
Dummy -1	0.0151 0.4480	-0.0380 -1.2865	0.0508 *** 3.7565	0.0918 *** 5.6666	0.0167 * 1.7713
Dummy 0	0.0395 1.2015	-0.0332 -1.1509	0.0082 0.6202	0.2268 *** 14.3208	-0.0100 -1.0968
Dummy +1	0.0807 * 2.4643	-0.0045 -0.1586	-0.0063 -0.4733	0.2016 *** 12.7291	-0.0193 ** -2.1645
Dummy +2	0.0798 * 2.2517	0.0197 0.6503	-0.0176 -1.2212	0.1904 *** 11.0626	-0.0088 -0.9353
Dummy +3	0.1060 ** 2.8833	0.0371 1.1991	-0.0083 -0.5502	0.1840 *** 10.2614	0.0026 *** 0.2716
Dummy >+3	0.1429 *** 3.7739	0.0688 * 2.2255	-0.0136 -0.8603	0.1621 *** 8.6995	0.0093 0.9921
log(Age)	-0.0411 * -1.8783	-0.0313 ** -2.1974	-0.0179 * -1.7836	0.0124 1.0843	0.0030 0.7652
adj. R-sq	0.1079	0.0072	0.0868	0.0314	0.0373

	Financial Asset	Inv. To Affiliation	Borrowing from Affiliation
C	0.1346 *** 2.8681	0.0862 * 2.0242	0.0216 * 2.9328
Dummy -1	0.0287 1.4574	-0.0118 -0.6925	-0.0157 ** -2.5626
Dummy 0	0.0596 *** 3.0687	-0.0026 -0.1548	-0.0145 ** -2.4590
Dummy +1	0.0540 *** 2.7413	0.0140 0.8148	-0.0138 ** -2.3992
Dummy +2	0.0678 *** 3.1121	0.0315 1.6588	-0.0104 * -1.7389
Dummy +3	0.0459 * 1.9898	0.0369 * 1.8269	-0.0141 ** -2.3244
Dummy >+3	0.0761 *** 3.0868	0.0621 *** 2.8620	-0.0107 * -1.8327
log(Age)	0.0305 1.6439	0.0277 1.6321	0.0012 0.5413
adj. R-sq	0.0250	0.0270	0.0072

Note: Lower rows represent t-value. *, **, *** represent 10, 5, 1 percent significance level respectively.

Table 9: Results of Estimation with MIS sample – pooled panel data

	ROA	Investment	Sales Growth	Debt Ratio	Bank / T.A.
C	0.0648 *** 29.3150	0.0568 *** 10.2207	2.0841 1.4282	0.6635 *** 82.0357	0.3908 *** 44.3672
Dummy -1	0.0659 1.5095	0.0241 0.3987	-1.4340 -0.9688	-0.0478 -0.9634	0.0510 0.9234
Dummy 0	0.0162 1.3429	0.0704 ** 2.1029	-1.8422 -1.2606	-0.1618 *** -4.3280	-0.0251 -0.7362
Dummy +1	0.0162 1.4235	0.0107 0.5899	-1.8846 -1.2898	-0.1387 *** -4.6105	-0.0510 * -1.8098
Dummy +2	0.0002 0.0200	-0.0011 -0.0946	-1.9492 -1.3353	-0.1438 *** -5.3139	-0.0178 -0.5587
Dummy +3	-0.0034 -0.4181	-0.0167 -1.0525	-1.9480 -1.3328	-0.1335 *** -4.1799	0.0192 0.6311
Dummy >+3	-0.0053 -1.1798	-0.0193 ** -1.9829	-1.9336 -1.3248	-0.1166 *** -7.7773	-0.0044 -0.2673
Adj. R-sq	0.0134	0.0032	-0.0050	0.0634	-0.0026

	Bank / Debt	Long-term Debt	Paid up Capital	Capital Surplus	Capital Cost
C	0.5662 *** 53.3526	0.1473 *** 22.3748	0.1786 *** 34.7948	0.0394 *** 11.9384	0.0377 *** 42.3521
Dummy -1	0.1065 1.5000	-0.0145 -0.3701	0.0268 1.4353	-0.0057 -0.2858	-0.0066 -1.5329
Dummy 0	0.1413 *** 3.2496	-0.0334 -1.4996	0.0048 0.2751	0.1541 *** 7.2372	-0.0119 *** -4.4564
Dummy +1	0.0771 * 1.8387	-0.0750 *** -4.4586	-0.0109 -0.7446	0.1494 *** 8.1192	-0.0076 ** -2.5926
Dummy +2	0.1297 *** 3.2689	-0.0766 *** -4.4197	-0.0185 -1.2243	0.1619 *** 8.3437	-0.0065 ** -1.9692
Dummy +3	0.1897 *** 6.7666	-0.0552 ** -2.4822	0.0012 0.0605	0.1618 *** 7.8730	-0.0019 -0.4569
Dummy >+3	0.1288 *** 6.6053	-0.0221 * -1.7178	-0.0350 *** -2.9144	0.1177 *** 10.9998	-0.0071 *** -4.2130
Adj. R-sq	0.0408	0.0100	0.0040	0.2606	0.0140

	Financial Asset	Inv. To Affiliation	Borrowing from Affiliation
C	0.1173 *** 19.9049	0.0926 *** 17.4553	0.0537 *** 12.2231
Dummy -1	0.0107 0.4245	-0.0027 -0.1221	-0.0288 * -1.7357
Dummy 0	0.0636 * 1.8869	0.0241 0.8266	-0.0377 *** -4.5075
Dummy +1	0.0568 ** 2.3156	0.0415 * 1.8061	-0.0410 *** -5.0475
Dummy +2	0.0729 ** 2.5921	0.0692 *** 2.6395	-0.0230 * -1.9360
Dummy +3	0.0981 *** 3.2360	0.0750 *** 2.7047	-0.0466 *** -8.1547
Dummy >+3	0.1377 *** 7.1775	0.1259 *** 6.7188	-0.0419 *** -8.5996
Adj. R-sq	0.0736	0.0695	0.0228

Note: Lower rows represent t-value. *, **, *** represent 10, 5, 1 percent significance level respectively.

Table 9: Results of Estimation with MIS sample – Random Effects Model

	ROA	Investment	Sales Growth	Debt Ratio	Bank / T.A.
C	0.0643 *** 19.3690	0.0568 *** 10.8946	2.0276 1.2973	0.6666 *** 51.6468	0.3970 *** 29.1902
Dummy -1	0.0652 *** 4.5635	0.0238 0.6088	-1.2803 -0.1469	-0.0684 * -1.9083	-0.0062 -0.1428
Dummy 0	0.0222 * 1.9173	0.0708 ** 2.3543	-1.7396 -0.2549	-0.2115 *** -6.7280	-0.1013 *** -2.7287
Dummy +1	0.0186 * 1.8355	0.0107 0.4200	-1.8031 -0.3090	-0.1724 *** -5.9486	-0.1033 *** -3.0776
Dummy +2	-0.0055 -0.5639	-0.0011 -0.0454	-1.8922 -0.3413	-0.1615 *** -5.6761	-0.0567 * -1.7361
Dummy +3	-0.0061 -0.6352	-0.0168 -0.6886	-1.8961 -0.3398	-0.1517 *** -5.3019	-0.0221 -0.6767
Dummy >+3	-0.0058 -0.7883	-0.0193 -1.5543	-1.8626 -0.5197	-0.0890 *** -3.4161	0.0157 0.5519
Adj. R-sq	-0.3590	-0.3723	-0.3980	-0.2955	-0.3825

	Bank / Debt	Long-term Debt	Paid up Capital	Capital Surplus	Capital Cost
C	0.5711 *** 34.8135	0.1482 *** 14.9362	0.1830 *** 21.8455	0.0358 *** 5.8523	0.0380 *** 28.8188
Dummy -1	0.0451 0.8613	-0.0456 -1.3253	-0.0003 -0.0113	0.0101 0.5465	-0.0085 * -1.7006
Dummy 0	0.0751 * 1.6822	-0.0471 -1.6288	-0.0332 -1.6447	0.1793 *** 11.2137	-0.0173 *** -4.1587
Dummy +1	0.0291 0.7195	-0.0699 * -2.7018	-0.0421 ** -2.2608	0.1696 *** 11.6462	-0.0108 *** -2.9510
Dummy +2	0.0873 ** 2.2206	-0.0566 ** -2.2620	-0.0587 *** -3.2035	0.1652 *** 11.6268	-0.0100 *** -2.8223
Dummy +3	0.1402 *** 3.5598	-0.0353 -1.4083	-0.0311 * -1.6895	0.1550 *** 10.8785	-0.0049 -1.3845
Dummy >+3	0.1404 *** 4.0943	-0.0261 -1.2371	-0.0246 -1.4633	0.1222 *** 9.6736	-0.0043 -1.4853
Adj. R-sq	-0.3270	-0.3650	-0.3818	-0.0201	-0.3629

	Financial Asset	Inv. To Affiliation	Borrowing from Affiliation
C	0.1129 *** 10.6053	0.0919 *** 9.2699	0.0526 *** 8.6077
Dummy -1	-0.0213 -0.6673	-0.0162 -0.5667	-0.0334 -1.5208
Dummy 0	0.0609 ** 2.2074	0.1764 0.7072	-0.0369 ** -2.0138
Dummy +1	0.0755 *** 3.0011	0.0564 ** 2.4665	-0.0377 ** -2.3056
Dummy +2	0.0880 *** 3.5846	0.0864 *** 3.8617	-0.0227 -1.4377
Dummy +3	0.1419 *** 5.7575	0.1166 *** 5.1855	-0.0407 ** -2.5793
Dummy >+3	0.1534 *** 6.9981	0.1253 *** 6.0084	-0.0370 *** -2.8259
Adj. R-sq	-0.2770	-0.2845	-0.3456

Note: Lower rows represent t-value. *, **, *** represent 10, 5, 1 percent significance level respectively.

Table 10. Probit Estimation: Summary of the Results

Factors	Independent variables	Presumption	Pagano et.al (1996)	SET LIST	MIS LIST	MIS IPO
1. Basic Factor: Size Profit	Sales	+	+	+	-	
	ROA	+/-	+	-	-	n
2. Demand for Finance :Growth of Firm Investment Debt Ratio Dependence on Bank	Growth of Sales	+	(+)	n	-	-
	Equ. Investment	+	(+)	-	n	+
	Debt Ratio	+	n	-	-	-
	Bank loan Ratio	+	n	n	+	n
3. Negotiation against Banks	Ave. Cost for Fund	+		-	-	n
4. Foreign Shareholders	Foreign Shareholders			+		
	Established by Foreign Firms				-	
5. Business Group	Financial Conglomerate				+	
	Manufacturing Group				-	

Note. "n" indicates that the results are statistically insignificant.

Table 11-1 Results of Probit Estimation (SET Sample, Dependent Variable="LIST")

	All Samples		All Samples		All Samples		All Samples		All Samples		Manufacturing Firms		Non-Manufacturing Firms	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	1.0964 2.1511 [.031]		1.0949 2.1124 [.035]		1.0891 2.1229 [.034]		1.1209 2.1437 [.032]		1.2482 2.3755 [.018]		0.9225 1.0218 [.307]		1.8867 2.5503 [.011]	
Sales	-1.6281 -2.6735 [.008]		-1.6221 -2.6032 [.009]		-1.6193 -2.6432 [.008]		-1.6501 -2.6241 [.009]		-1.7512 -2.7894 [.005]		-1.9070 -1.9023 [.057]		-1.6847 -2.0483 [.041]	
ROA	0.4310 6.2747 [.000]		0.4157 5.9046 [.000]		0.4324 6.2031 [.000]		0.4099 5.7019 [.000]		0.3934 5.5238 [.000]		0.5020 4.0589 [.000]		0.2861 3.0034 [.003]	
Growth of Sales	-0.0002 -0.0041 [.997]		-0.0144 -0.3437 [.731]		0.0000 0.0009 [.999]		-0.0158 -0.3764 [.707]		-0.0154 -0.3671 [.714]		-0.5003 -1.6784 [.093]		-0.0160 -0.3062 [.759]	
Equipment Investment	-9.9242 -7.2191 [.000]		-10.2865 -7.2423 [.000]		-9.9017 -7.1449 [.000]		-10.3805 -7.1912 [.000]		-10.8712 -7.3558 [.000]		-9.7458 -5.1291 [.000]		-12.0254 -5.0353 [.000]	
Debt Ratio	-3.6082 -5.4749 [.000]		-3.4580 -5.1726 [.000]		-3.6120 -5.4738 [.000]		-3.4388 -5.1318 [.000]		-3.2881 -4.8759 [.000]		-4.5754 -3.4766 [.001]		-2.4742 -2.8553 [.004]	
Bank Loan	0.5172 0.7921 [.428]		0.4741 0.7129 [.476]		0.5204 0.7960 [.426]		0.4632 0.6961 [.486]		0.0247 0.0345 [.972]		1.5979 1.1855 [.236]		-0.9730 -1.0330 [.302]	
Average Financial Cost	-4.0978 -3.1959 [.001]		-4.1014 -3.1729 [.002]		-4.0889 -3.1858 [.001]		-4.1275 -3.1828 [.001]		-4.8167 -3.5300 [.000]		-3.9874 -2.1204 [.034]		-5.3010 -2.4777 [.013]	
20% < Foreign holdings <40% (Dummy)			0.4788 1.9880 [.047]				0.5000 2.0233 [.043]		0.5238 2.1318 [.033]		0.3761 1.0210 [.307]		0.7132 1.9528 [.051]	
40% < Foreign Holdings (Dummy)					-0.0260 -0.1271 [.899]		0.0818 0.3875 [.698]				-0.0083 -0.0324 [.974]		0.2650 0.5074 [.612]	
Manufacturing Dummy									0.2920 1.7395 [.082]					

Table 11-2 Results of Probit Estimation (MIS Sample, Dependent Variable="LIST")

	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	1.0862 5.8945 [.000]		1.1293 5.7022 [.000]		1.1894 6.2670 [.000]		0.9988 5.3290 [.000]		1.0164 5.5181 [.000]	
Sales	-0.1525 -2.1665 [.030]		-0.1366 -1.8974 [.058]		-0.1385 -1.9507 [.051]		-0.1220 -1.7008 [.089]		-0.1528 -2.1733 [.030]	
ROA	-1.4937 -2.1022 [.036]		-0.9483 -1.3087 [.191]		-1.3334 -1.8502 [.064]		-1.4395 -2.0145 [.044]		-1.1824 -1.6619 [.097]	
Growth of Sales	-0.2271 -2.6547 [.008]		-0.2490 -2.7391 [.006]		-0.2135 -2.5154 [.012]		-0.2376 -2.7065 [.007]		-0.2607 -2.8886 [.004]	
Equipment Investment	-0.0022 -0.0083 [.993]		-0.0014 -0.0053 [.996]		0.0304 0.1134 [.910]		-0.0064 -0.0250 [.980]		-0.0344 -0.1368 [.891]	
Debt Ratio	-3.0851 -8.3273 [.000]		-2.8188 -7.5240 [.000]		-3.0170 -8.1277 [.000]		-3.0436 -8.2124 [.000]		-2.9218 -7.8231 [.000]	
Bank Loan	1.1981 3.1131 [.002]		0.9360 2.3654 [.018]		0.9999 2.5378 [.011]		1.1145 2.8711 [.004]		1.1777 3.0516 [.002]	
Average Financial Cost	-0.9790 -2.3739 [.018]		-1.0867 -2.4707 [.013]		-1.1064 -2.4534 [.014]		-1.0691 -2.4194 [.016]		-0.9472 -2.3789 [.017]	
Foreign Established (Dummy)			-0.3785 -2.7276 [.006]		-0.3217 -2.7258 [.006]					
Financial Conglomerate (Dummy)			-0.0008 -0.0073 [.994]				0.2283 2.4960 [.013]			
Manufacturing Business Group (Dummy)			-0.8776 -3.4770 [.001]						-0.8011 -3.3143 [.001]	
R-squared	0.1694		0.1764		0.1912		0.1752		0.1816	

Note: Lower column presents "t Value"

Sales=log (Yearly Sales), ROA=Earnings / Total Assets, Growth of Sales = Growth Rate of Yearly Sales, Equipment Investment= Yearly Increase in Fixed Asset / Total Asset
Leverage= Liability / Equity, Bank Loan = Bank borrowings / Total Assets, Average Financial Cost = Interest Expense / Total Raised Fund

Table 11-3 Results of Probit Estimation (MIS Sample, Dependent Variable="IPO")

	Coefficient P-value	Coefficient P-value	Coefficient P-value
Constant	-0.5745 -1.3158 [.188]	-0.4257 -0.9359 [.349]	-0.8627 -1.8812 [.060]
Sales	-0.1554 -0.9914 [.321]	-0.1301 -0.8189 [.413]	-0.0660 -0.4067 [.684]
ROA	-0.4092 -0.2679 [.789]	-0.1222 -0.0769 [.939]	-0.0781 -0.0487 [.961]
Growth of Sales	-0.0578 -0.4831 [.629]	-0.0540 -0.4524 [.651]	-0.0746 -0.5557 [.578]
Equipment Investment	1.3788 2.3568 [.018]	1.3798 2.3531 [.019]	1.3024 2.1521 [.031]
Debt Ratio	-2.9804 -3.1651 [.002]	-2.8618 -3.0170 [.003]	-2.9680 -3.0531 [.002]
Bank Loan	1.2414 1.2463 [.213]	0.9396 0.9234 [.356]	1.1833 1.1485 [.251]
Average Financial Cost	-1.2382 -0.8689 [.385]	-1.5650 -0.9888 [.323]	-1.6194 -1.0221 [.307]
Foreign Established Dummy		-0.4518 -1.5266 [.127]	
Financial Conglomerate (Dummy)			0.6000 2.6660 [.008]

Note: Estimation with Manufacturing Business Group Dummy is omitted due to data availability