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**Financial Structure and Managerial Discretion  
in the Japanese Firm:  
An Implication  
of the Surge of Equity-related Bonds**

by

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# Financial Structure and Managerial Discretion in the Japanese Firm:

## An Implication of the Surge of Equity-related Bonds\*

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### Abstract

The surge of equity-related bonds in the latter half of the 1980s in Japan is a puzzle from the viewpoint of the standard theory of finance. This paper proposes a hypothesis that issuing those bonds represented managerial behavior of seeking "free cash flow," which is likely to encourage corporate management to deviate from maximizing profits of shareholders. Based on this hypothesis, this paper statistically investigates whether the "internal capital market" consisting of the main bank relationship and mutual shareholding was effective in monitoring incumbent managers. The investigation obtains the result that the "internal capital market" was not effective in preventing managers from seeking "free cash flow" during the 1980s.

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## 1 Introduction

The mechanisms of corporate governance in Japan are widely believed to be different from those of the Anglo-American style. Specifically, it is unanimously agreed that the mechanisms of open capital market to discipline corporate managers or the contest for corporate control such as the tender-offer, proxy fights, hostile takeovers have not significantly worked in Japan. In Japan, the mutual share-holding, the main-bank and other big institutional investors as "stabilizing shareholders", and intimate relationships between managers and employees are thought to have effectively prevented the open capital market from exerting influence on behavior of incumbent managers.<sup>1)</sup>

We have not yet reached, however, a unanimous conclusion regarding the consequences of the Japanese style of corporate governance on the efficiency of corporate management. Some people claim that in place of the Anglo-American mechanisms of disciplining managers, the "internal capital market" has efficiently worked in the Japanese financial system. Through the "internal capital market" based on the long-term relationship with major banks, companies raised a large amount of fund in the form of loans from the banking sector by face to face negotiation. At the same time, the internal capital market has been effective in preventing managers' opportunism and disciplining them to pursue "efficient" management from the viewpoint of standard economic theory. More specifically, both the long-term relationship with its client firms and its status of major shareholders of the firms help banks to efficiently monitor managerial behavior of the firms and appropriately punish them when their behavior is inconsistent with profits of shareholders.<sup>2)</sup>

Thus, according to this argument, in spite of absence of the contest for managerial control in the open capital market, incumbent managers of Japanese corporations cannot pursue managerial objectives different from maximizing profits of shareholders. At the same time, the immunity from the pressure of external capital markets gives both managers and employees incentives to accumulate capital specific to the firm, thereby promoting the long-term productivity of the corporation.<sup>3)</sup>

On the other hand, some people doubt whether mechanisms of the internal capital markets actually make corporate management efficient in the sense that maximizing profits of shareholders are pursued as the standard neoclassical theory often assumes. According to them, most important players in the internal capital market are incumbent managers who are not interested in profit-maximization but in, for example, expanding the firm's market share, undertaking diversified business not related to their major businesses to preserve job opportunities for employees, and so on at the expense profits of shareholders. These operations may seem to be a form of "perquisites" as pointed out by Jensen and Meckling(1976) to shareholders.

The "perquisites" of incumbent managers would decrease the market share prices, thereby intensifying a threat to them of the hostile takeovers. But the mutual shareholding prevents this mechanism from working. Thus, managers can extend and preserve their discretionary power under the regime of mutual shareholding between corporations because they mutually refrain from interfering in the discretionary power of their partners. They utilize their discretionary power to pursue the objectives not necessarily consistent with the efficiency criterion of the standard

economic theory. This argument may lead to the conclusion that the Japanese corporations have been successful because the structure of corporate governance makes it possible for managers to pursue the policy of expanding their market shares without honoring shareholders interests.<sup>4)</sup>

These two conflicting views are concerned with the efficiency of the "internal capital market" in monitoring and disciplining corporate management in Japan. More specifically, it is at issue whether the internal capital market based on the mutual shareholdings or the main-bank relationships helps the discretion of incumbent managers to deviate from the objective of maximizing profits of shareholders. The purpose of this paper is to statistically investigate this issue.

Before proceeding to the empirical analysis, however, we must be clear about how to measure the degree of deviation of corporate management from maximization of profits for shareholders. Generally speaking, it is difficult to measure this degree accurately. In this paper, we pay attention to the fact that the Japanese firms actively issued so-called equity-related bonds since the mid-1980s. From the viewpoint of standard theory of corporate finance, it is difficult to understand why they were so active in issuing those bonds, although many businessmen claimed that those bonds could be issued at very "low costs." This paper proposes the hypothesis that the issuing of equity-related bonds represents managerial behavior of seeking "free cash flow" which is likely to encourage deviation of managers from pursuing the objective of maximizing shareholders' profits.<sup>5)</sup> Based on this hypothesis, this paper examines the relationship between issuing equity-related bonds and some characteristics of the internal capital market of individual firms.<sup>6)</sup>

The paper proceeds as follows. Section 2 describes the surge of issuing equity-related bonds during the 1980s. It is emphasized that the neoclassical finance theory, which assumes corporate managers simply represent the interests of shareholders, cannot explain this surge. In Section 2, a tentative assumption is proposed that issuing equity-related bonds indicates the strong discretionary power of incumbent managers. Section 3 provides some propositions concerning the relationship between issuing equity-related bonds and financial background of individual firms based on the tentative assumption explained in Section 2. In Section 4, we describe a sample of companies and statistically examine the propositions concerning the bond-issuing behavior and financial background of individual firms. Section 5 gives a summary and concluding remarks of the investigation of this paper.

## 2. The Issue of Equity-Related Bonds by the Japanese Firms

During the latter half of the 1980s, a number of Japanese corporations reduced their borrowing from banks and actively issued "equity-related bonds," i.e., both convertible and warrant bonds. Chart 1 shows that the firms' reliance on borrowing decreased, and instead the relative importance of equity and bond financing increased. According to Chart 2, the major part of corporate bonds consisted of convertible and warrant bonds. In this section, we inquire into why the Japanese firms so actively issued equity-related bonds during this period, and propose a hypothesis to answer this question.

**The puzzle of equity-related bonds:** Japan experienced sharp increases in stock prices during this period. Many businessmen explain that the surge of issuing equity-related bonds was based on the optimistic expectations that the stock prices would continue to rise in the future. According to them, the optimistic expectation substantially lowered the cost of issuing equity related bonds compared with, for example, borrowing at the long-term prime rate. It was a favorite story among Japanese businessmen that they could enjoy very low levels of coupon rates below 1% by issuing Swissfranc convertible bonds around the mid-1980s.

From the viewpoint of shareholders, however, it is not persuasive that the equity-related bonds were issued at low costs. The equity-related bond is a contract according to which, if the stock price rises in the future, valuable shares will be distributed to the bond holders at low prices. Because of this contract, the company can issue the bonds at low interest rate, thereby increasing the amount of current cash-flow. Obviously, this financial contract in itself does not imply any benefit to present shareholders. Therefore, they have no particular incentives to encourage managers to issue equity-related bonds.

Some observers argue that during the late 1980s, corporate managers, shareholders and other investors had commonly too optimistic expectations that the stock price would continue to go up. It seems to be true that too optimistic expectations were prevailing during the period. The full-scale easy money policy adopted by the Bank of Japan with a view to reducing huge surplus of current accounts surely stimulated the optimism. It is doubtless that the atmosphere during the latter half of 1980s encouraged Japanese firms to raise a large amount of fund and to expand their

investments. But it cannot explain why many Japanese firms were particularly active in issuing equity-related bonds. The surge of equity-related bonds still remains a puzzle.<sup>7)</sup>

The claim that equity-related bonds could be issued at "low costs" during the 1980s is a nonsense from the viewpoint of the standard theory of corporate finance based on the assumption that corporations are totally governed by equity-holders. According to the standard theory of corporate finance, it is reasonable for companies to issue equity-related bonds when debt-holders are seriously concerned with opportunistic behavior of incumbent managers at the expense of debt-holders benefits under the asymmetric information. In the United States, convertible bonds tend to be issued by smaller and more speculative firms, because they face more difficulties of asymmetric information than large-scale companies do.<sup>8)</sup>

In Japan, the restrictive "eligibility rules" on bond-issuing has prevented small and medium-size companies from issuing not only equity-related bonds but also other types of bonds. In other words, only a small number of relatively big firms could get access to corporate bonds market in Japan. Therefore, the above reasoning of issuing equity-related bonds does not seem to be applicable to the Japanese case.

One possible reason for equity related bonds: As has been explained above, the standard theory cannot explain why many Japanese firms rushed to issuing equity-related bonds during the latter half of the 1980s. If we accept the presumption that incumbent managers actually control corporations, and that they could pursue the objectives inconsistent with shareholders' profits at their discretion, however, we can understand this



phenomenon. The standard theory denies the cheapness of issuing equity-related bond, but from the viewpoint of incumbent managers, the "cost of issuing equity related bonds" may have been very low compared with alternative means of fund-raising. More specifically, by issuing equity-related bonds, managers can satisfy their preference for "free cash flow" emphasized by Jensen(1986).<sup>9)</sup> A simple model may be helpful to make it clear. The following is an extremely simplified version of the model proposed by Myers and Majluf(1984).

There are two time periods: i.e., the "first" and the "second" period. For simplicity, all agents are assumed to be risk-neutral, and the discount rate to be zero. The firm has an investment opportunity with positive net present value in the first period. The firm can finance the required fund by issuing either "straight bonds" or "convertible bonds."<sup>10)</sup> The managers can, however, divert a part of the fund  $\Phi$  to perquisite consumption of "free cash flow"  $Z$  in the first period. In the second period, the value of the firm will be  $X_H$  with probability  $p$  and  $X_L$  with probability  $(1 - p)$ , and  $X_H$  is definitely greater than  $X_L$ .

When the firm issues straight bonds, the face value  $F$  must be determined. In the first period, the firm utilizes the raised fund  $\Phi$  to carry out the investment project  $I$  and to enjoy "free cash flow"  $Z$ ; i.e.,

$$\Phi = I + Z.$$

In the second period, the straight bonds must be redeemed at the face value  $F$ . Thus, the following relationship will hold:

$$\Phi = F \tag{1}$$

The amount of "free cash flow" in this case is,

$$Z = F - I. \tag{2}$$

Obviously, the value of equity of this firm  $S$  is

$$S = p \cdot X_H + (1 - p)X_L - I - Z. \quad (3)$$

In short, the sum of value of equity  $S$  and "free cash flow"  $Z$  is equal to the net present value of the investment opportunity.

When the firm issues convertible bonds, it must determine their face value  $F^*$  and a call price. We assume that when the firm's value is  $X_H$  in the second period, investors exercise option of converting the bonds into a predetermined proportion  $\theta$  of the firm's equity value  $X_H$ . Consistency requires that  $\theta X_H > F^*$ . On the other hands, when the value of the firm at the second period is  $X_L$ , the convertible bonds are not converted into equity so that the firm is forced to redeem those bonds at their face value  $F^*$ . The present value of this convertible bond  $\Phi$  is determined as follows:

$$\Phi = p \cdot \theta X_H + (1 - p)F^*. \quad (4)$$

As is the case of straight bonds, managers can divert a part of  $\Phi$  to "free cash flow"  $Z$ . Therefore,

$$\Phi = I + Z.$$

The amount of "free cash flow"  $Z$  is represented by the following equation:

$$Z = p \cdot \theta X_H + (1 - p)F^* - I. \quad (5)$$

The value of equity  $S^*$  is

$$S^* = p \cdot X_H + (1 - p)X_L - I - Z, \quad (6)$$

which is the same as the value of equity in the case of straight bond.

In order to avoid complexity associated with default, it is assumed that if the firm's value at the second period falls short of the face value of the debt  $F$  (or  $F^*$ ), an extremely high cost is imposed on the managers of the firm. Therefore, the face value  $F$  (or  $F^*$ ) of corporate bonds is always determined at a level not higher than  $X_L$  (i.e.,  $F$  (or  $F^*$ )  $\leq X_L$ ).<sup>11)</sup> If the

firm wants to maximize the "free cash flow"  $Z$  in the first period, it must increase the face value of the bond  $F$  (or  $F^*$ ) as much as possible. Therefore, the maximum "free cash flow" in the case of issuing the straight bonds is attained when  $F = X_L$  : i.e.,

$$(Z)_{\max} = X_L - I \quad (7)$$

Similarly, in the case of issuing the convertible bonds, the maximum amount of "free cash flow" can be attained when  $F^* = X_L$ ; i.e.,

$$(Z^*)_{\max} = p \cdot \theta X_H + (1 - p)X_L - I \quad (8)$$

From (7) and (8), we can derive the following equation:

$$(Z^*)_{\max} = (Z)_{\max} + (\theta X_H - X_L)p. \quad (9)$$

Equation (9) implies that, *ceteris paribus*, the larger the value of converted bond  $\theta X_H$ , and the greater the probability  $p$  of conversion of the bonds into equity, the greater amount of "free cash flow" manager can enjoy by issuing the "convertible bonds" than by issuing the "straight bonds." In contrast, both equation (3) and (6) shows that the larger the amount of "free cash flow"  $Z$ , the smaller the value of equity will become.

The essence of our argument is obvious. Generally speaking, the higher is the face value of bonds ( $F$  or  $F^*$ ), the larger amount of "free cash flow" managers obtain in the first period. But managers cannot increase the face value so high as to incur default associated with extremely high costs. Thus, the possibility of default constrains managers' behavior of seeking "free cash flow." The convertible bond is advantageous for incumbent managers in the sense that it mitigates this constraint of default particularly when the value of the firm is expected to substantially rise. On the other hand, when investors expect that the value of the firm will not go up sufficiently, the convertible bond loses

this advantage for managers.

The equity-related bonds and profit rates: The simple model in the above discussion shows that the preference for "free cash flow" induces managers to issue equity-related bonds, when stock prices of their firms are expected to rise sharply. Thus, the surge of equity-related bonds implies an increase in the amount of "free cash flow" likely to lead to managers' decision-making inconsistent with benefits of shareholders. This model can explain why the Japanese corporations rushed to issue equity-related bonds, thereby excessively expanding their productive capacities and/or indulging in excessive risk-taking associated with securities investment (so-called "zai-tech" in Japanese) during the 1980s.

Actually, those firms that actively issued equity-related bonds during the latter half of 1980s seem to have experienced decreases in their profit rates in the late 1980s and the beginning of 1990s. Chart 3 based on data of companies that will be explained in detail in the next section shows that those firms issuing bonds (most of which were equity-related) during five years from 1984 to 1988, on average, suffered from decline in profit rates during the three years from 1988 to 1990 compared with the average profit rates during the decade before 1988. By contrast, those that did not issue bonds during the period from 1984 to 1988 tended to enjoy mild increases in profit rates during the period from 1988 to 1990.

Thus, this paper proposes a hypothesis that issuing equity-related bonds represents preference of incumbent managers for "free cash flow." Of course, investors could and should understand the relationship between issuing equity-related bonds and the preference of managers for "free cash

flow." Then, issuing those bonds by a company would inform securities markets that management of the firm deviates from maximization of shareholders profits, thereby leading to a quick drop in its share price as equation (6) and (9) suggests. Therefore, the managers who are severely disciplined by both open and internal capital markets would refrain from issuing those bonds, but other managers enjoying wider discretion of neglecting profits of shareholders would actively issue the equity-related bonds.

Influences of financial liberalization in the 1980s: It is well known that there have existed restrictive rules concerning the eligibility of bond issues in Japan. Under this eligibility rules, Japanese firms were not allowed to freely issue various kinds of bonds both in domestic and international markets.<sup>12)</sup> As financial globalization and liberalization proceeded during the 1980s in the Japanese financial system, however, the restrictive eligibility rules were gradually but steadily liberalized during the mid-1980s.

Therefore, the financial liberalization surely had something to do with the increase in issuing corporate bonds during the 1980s. The liberalization by itself, however, cannot explain why many Japanese managers considered equity-related bonds as cheaper than other means of fund-raising. At the same time, some firms actively issued equity-related bonds, while other firms were not so active in issuing those bonds despite being in the apparently same circumstances. This difference in attitudes of individual firms towards bond-issuing cannot be explained by the financial liberalization.

Section 4 of this paper will explain different behavior of individual firms with respect to issuing bonds by introducing explanatory variables of their financial backgrounds. The empirical analysis there will support the hypothesis that the financial liberalization provided Japanese corporate managers with opportunities of exerting their discretionary power ensured by the mutual shareholdings and the other mechanisms of warding off pressure on them from external capital markets.

### 3. Financial Structure and Corporate Control

This paper proposes a hypothesis that the surge of equity-related bonds during the latter half of 1980s represented strong discretionary power of incumbent managers. Starting from this hypothesis, we examine some hypothesis concerning relationships between financial structure and corporate governance in Japan.

First, we test the role of institutional investors in the mechanisms of corporate governance. Since the institutional investors including banks are regarded as a specialist of monitoring corporate management, they are supposed to be able to control decision-making of incumbent managers and prevent managers from neglecting profits of shareholders. In many cases, institutional investors are predominantly important as both debt-holders and share-holders of corporations. Therefore, if the above view is correct, those firms borrowing heavily from banks and other financial institutions or whose majority of shares is held by institutional investors should be forced to refrain from issuing equity-related bonds which will increase the "free cash flow."

Secondly, we pay particular attention to the main-bank relationships, because the role of main banks seems to be ambivalent in the mechanism of corporate governance in Japan. On one hand, since the so-called main-bank relationship is at the core of the mutual relationship, it can be assumed that the discretionary power of managers has been supported by mutual shareholding between corporations. If so, those firms having stable relationship with their main banks tend to be active in increasing "the free cash flow" by issuing equity-related bonds.

On the other hand, however, according to some people, the Japanese firms have been closely monitored by their main banks which are often one of the largest shareholders of individual firms, and have disciplined incumbent managers to pursue profits of shareholders. According to this argument, the internal corporate control mechanisms organized by the main banks is effective in limiting the scope for incumbent managers to deviate from the principle of maximizing profits for shareholders. This mechanism can be seen as a substitute for that of the Anglo-American capital market. If this view is true, those firms that have stable relationship with their main banks were not allowed by the main banks to issue equity-related bonds during the late 1980s, or even if they were allowed to do so, under the effective monitoring by their main banks, they tended to expand their capacities carefully not to incur decline in profit rates after the late 1980s. We test those hypothesis based on simple statistical methods in Section 4.

#### 4. Statistical Analyses of Corporate Governance

This section presents some empirical analyses on the relationship between financial structure of corporations and their behavior of issuing bonds. The objective of our investigation is to examine the influence from financial relationships on corporate management. Most big companies such as those which had already been listed in the first section of Tokyo Stock Exchange before mid-1960s are closely integrated into the traditional *keiretsu* or *zaibatsu* groups. The management of those firms seems to have been significantly influenced not only by financial factors such as main bank relationships but also by nonfinancial factors such as trading relationships. Therefore, it would be difficult for us to identify any influence of financial structure on their management.

Thus, we choose as a sample a set of manufacturing firms which were listed in the second section of Tokyo Stock Exchange (TSE) as of 1965, and their financial data do not lose continuity until 1990. The number of those firm is 345. They seem to be relatively suitable for our statistical investigations because, since most of them have been rather independent from the traditional *keiretu* groups, they are considered as more sensitive to external influence from financial markets. Some of them have showed good performance since the mid-1960s, and obtained higher status of being listed in the first section of TSE.

**Bond-issuing firms and no-issuing firms:** As has already been explained, the Japanese firms rarely issued corporate bonds (including equity-related bonds) before the 1980s. During the 1980s, however, as various restraints on bond issuing were liberalized, the amount of various



bonds issued by the Japanese firms both in domestic and foreign markets sharply increased. Particularly in the latter half of the 1980s, we saw a dramatic increase in the amount of bonds issued by Japanese corporations. The major part of them was occupied by the equity-related bonds. For example, of the sampled 345 firms, 180 firms issued bonds during the five years from 1986 to 1990. We call those firms "bond-issuing firms," and the other 165 firms "non-issuing firms."

Table 1 compares some performance values between "bond-issuing" and "non-issuing" firms. As for the total asset (book value) of fiscal year end of 1985, the average of "bond issuing firms" is significantly larger than the average of "non-issuing firms." This is mainly because the eligibility rules for bond-issuing tended to favor large scale companies. The average profit rate of "bond-issuing firms" was higher both in the decade until mid 1980s and in the late 1980s than that of "non-issuing firms." It is noteworthy, however, that the profit rate of "bond-issuing firms" declined in the late 1980s whereas the "non-issuing firms" did not experienced such a decline in profit rates on average. (See also Chart 3.)

Comparing the five years since 1984 with the decade until 1984, the Japanese firms reduced the amount of borrowing while the ratio of their equities held by financial institution went up to some extent. (In this paper, fund-raising by issuing bonds is not including in "borrowing.") During the decade until 1984, the "bond-issuing firms" were less dependent on borrowing and higher ratios of their shares were held by financial institutions than the "non-issuing firms." This suggests that the decrease in reliance of firms on borrowing and the increase in the ratio of shares held by financial institutions encouraged the Japanese companies to issue

various bonds during the 1980s.<sup>13)</sup> We investigate this relationship more carefully in the following.

"Firms with stable main-bank relationship": We divide the sample firms into two groups; i.e., one is a group of those with stable main-bank relationships and another is a group of firms without stable main-bank relationships. It is not easy to specify the main bank for individual firms, because the main-bank relationship is not an explicit financial contract. Some argue that the main bank for an individual firm can be identified only when the firm gets into serious financial distress.<sup>14)</sup> It is widely believed, however, that we can identify the main bank for each individual firm by examining history of its transaction with various financial institutions, the relationship of shareholding with banks, and personnel exchanges with banks.<sup>15)</sup> The *Keizai Chosa Kai* has compiled detail time series data of the main-bank relationships for most of major companies since the early 1960s. This paper depends on this data to identify the main bank of individual sampled firms.

According to the data compiled by the *Keizai Chosa Kai*, 165 of the sampled firms continued to have the main-bank relationship with particular banks from 1965 to 1988.<sup>16)</sup> We call them "the firms with stable main-bank relationship." The other 180 firms of the sample either had no main-bank relationships or changed at least once their main banks during the period from 1965 to 1988. Those firms are called "the other firms" in the following.

Table 2 compares some statistics of both "the firms with stable main-bank relationship" and "the other firms." We cannot find remarkable

differences between these groups. However, the average of profit rates was consistently lower for "the firms with stable main-bank relationship" than for "the other firms." While both of these two groups decreased their long-term borrowing after 1980, "the firms with stable main-bank relationship" reduced more drastically than "the other firms."

As for the total borrowing, each of two groups continued to decrease the total amount of borrowing. However, the relative importance of total borrowing was steadily higher for "the firms with stable main-bank relationship" than for "the other firms." On the other hand, the average ratio of shares held by financial institutions rose a little since the early 1980s. Generally speaking, while the Japanese firms reduced their reliance on borrowing and, in this sense, the influence on their management from banks and other financial institutions seemed to be weakened, the relative shares of equities held by their main banks and other financial institutions continued to rise suggesting the possibility that those financial institutions strengthened their presence in the corporate governance through their shareholdings.

According to Table 2, the amount of bonds most of which were equity-related issued by both groups of sampled firms substantially increased since the early 1980s. These increases in bond-issuing accompany the relative decrease in their long-term borrowing. It is notable, however, that "the firms with stable main bank relationship" increased the amount of bond-issuing more than "the other firms" did. Thus, the stable main-bank relationship did not appear to restrict expansion of bond-issuing by their client firms.

Table 3 compares the bond-issuing during five years from 1986 to 1990

of both firm groups in more detail. During the five years, in the case of "the firms with stable relationship" 93 out of 165 firms issued bonds, while 87 out of 180 firms issued in the case of "the other firms." The proportion of the firms issuing bonds was a little higher for "the firms with stable main-bank relationship" than for "the other firms," although the amount of bonds issued was on average slightly larger for "the other firms" than for "the firms with stable main-bank relationship." The essence of both Table 2 and Table 3 is that the firms with stable main-bank relationship did not tend to refrain from issuing equity-related bonds during the latter half of the 1980s.

**Financial structure of firms with stable main-bank:** Table 4 examines the financial structure of "the firms with stable main-bank relationship" in detail. The relative importance of total borrowing for them decreased steadily after the 1970s. On the other hand, the proportion of borrowing from their main banks was around a quarter of the total borrowing during the period before 1974, and the proportion remained at almost the same level after 1980. The proportion of borrowing from financial affiliates (*kinyu keiretsu*), which includes not only the main bank but also insurance and other financial institutions closely linked to the firms, was around 40% before mid-1970s. After the early 1980s, this proportion did not change greatly.

The proportion of the total shares held by the main bank slightly increased since the early 1980s. On average, the main bank holds only 3 or 4% of the shares of its client firms. This percentage is, however, large enough to make the main bank one of the largest shareholders of client

firms. Needless to say, the shareholding by the financial affiliates was significantly larger than the holding by the main bank. The proportion of the share held by the financial affiliates went up since 1980.<sup>17)</sup>

Table 4 shows changes in the average financial structure of "the firms with stable main-bank relationship." There are, however, substantial differences among individual firms with respect to the financial structure. Table 5 summarizes these differences. This table shows the distribution of "the firms with stable main-bank relationship" in terms of two dimensions of the relative share of borrowing from their main bank and the proportion of shares held by them. For example, the number of the firms whose relative shares of borrowing from their main banks are less than 10% and the proportions of main-bank shareholding are less than 1.0% is 15. Meanwhile, the number of those firms which their main banks both lent more than 50% of the firms' total borrowing and held more than 5% of the total number of shares is 6. This table shows rather wide variation in the financial structure of "the firms with stable main-bank relationship." We utilize the information contained in Table 5 in the following statistical analyses.

**Bond issuing and financial background:** This paper has provided some hypotheses concerning the relationship between bond-issuing of individual firms and their financial background. In particular, it has been explained that issuing equity-related bonds implies the deviation of corporate management from maximization of profits for shareholders. If this hypothesis is true, the effective monitoring by institutional investors and/or main banks should have suppressed active issue of those bonds. On

the other hand, however, institutional investors including main banks may have helped of incumbent managers of their client firms by protecting the managers from disciplinary pressure of external capital markets. If this is true, institutional investors and main banks could not prevent active issue of equity-related bonds. In the following, we statistically test which of these hypotheses is true.

We use a "Probit Model," in which we assign 1 to those firms that issued bonds during five years from 1986 to 1990, and assign 0 to those that did not issue bonds at all during the same time period. This variable is BOND in the following analysis. We assume that the probability of issuing bonds by a specific firm positively relates to both the total amount of assets of the firm ASSET at the beginning of the time period ( 1985 ) and the firm's average profit rate PROF during the decade until 1984. As has already been explained in this paper, the eligibility rules for bond-issuing tended to favor those firms with larger amount of book value assets. At the same time, the higher profit rate of a firm will, *ceteris paribus*, make it easier for the firm to issue bonds.

We then add the average value of borrowing per total asset BOR for individual firms during 1975-1984 and the average of the proportion of shares held by financial institutions in individual firms FSTOCK during the same decade. If the discretionary power of incumbent managers of those firms heavily depending on borrowing is constrained by lending institutions, BOR will negatively correlate with the probability BOND. If financial institutions can restrict the discretionary power of managers through shareholdings, FSTOCK will also be negatively related to BOND.

Table 6 presents estimated results of the Probit Model for 345 sampled

firms. According to this table, both the total assets ASSET and the average profit rate during the past decade PROF positively (and significantly) influenced bond-issuing of individual firms BOND as has been expected. The average borrowing per total asset during the past decade BOR, however, had no significant influence on BOND. The average proportion of shareholdings by financial institutions during the past decade FSTOCK positively not negatively influenced the probability BOND. Thus, shareholdings by financial institutions seem to have contributed to strengthening the discretionary power of incumbent managers.

We also estimated the same form of the Probit Model by substituting changes in both BOR and FSTOCK for BOR and FSTOCK; i.e., XBOR and XFSTOCK respectively. Specifically, XBOR is a change in BOR during ten years from 1975 to 1984, and XFSTOCK is a change in FSTOCK during the same decade. The estimated result is presented in (3) of Table 6. According to this result, XBOR negatively and XFSTOCK positively influenced BOND. Thus, it was more probable for those firms that reduced their dependence on borrowing to a greater extent during the past decade to issue bonds (including equity-related bonds) during 1986-1990. Similarly, the more greatly the proportion of shareholdings by financial institutions increased during the past decade for a individual firm, the more likely it is for the firm to issue bonds. These results suggest that the rapid decrease in dependence of firms on borrowing since the mid 1970s led to expansion of discretionary power of corporate managers, and that the increase in shareholdings by financial institutions rather promoted this tendency.

**Influence of the main-bank relationship:** We add a dummy variable MAIN

to the Probit Model in Table 6 in order to examine whether the main-bank relationship influenced bond-issuing of individual firms during 1986-1990. The dummy variable MAIN is 1 for "the firm with stable main-bank relationship," and 0 for "the other firms" respectively. The estimated results are presented in (2) and (4) of Table 6. These equations show that issuing bonds is more probable for "the firms with stable main-bank relationship" than for "the other firms" although the relationship was statistically insignificant.

Then, we estimated the same Probit Model by picking up only "the firms with stable main-bank relationship" to investigate whether the main-bank shareholding or lending have any influence on bond-issuing behavior of individual firms. We added the relative importance of the main-bank loans MLOAN and the proportion of main-bank shareholdings MSTOCK to the explanatory variables of the Probit Model. We also extended the concept of main-bank relationship to the financial affiliates (*kinyu keiretsu*) by adding the relative importance of borrowing from financial affiliates (including main banks) KLOAN and the proportion of shareholdings by financial affiliates KSTOCK.

We cannot find any significant influence of those main-bank variables on bond-issuing of individual firms. More specifically, we cannot support the hypothesis that increases in the relative importance of main-bank loan and/or in the proportion of main-bank shareholdings tend to suppress bond-issuing by the client firm. The estimated results are summarized in Table 7.

Decline in profit rates after issuing bonds: As has already been



explained, the firms that actively issued equity-related bonds during the latter half of 1980s tended to experience decreases in profit rates after 1988. If the main bank or other financial institutions prevent unwise or too risky investment expenditure (including *zai-tech*) by incumbent managers, however, issuing bonds would not necessarily lead to decline in profit rates. Therefore, we test the hypothesis that profit rates did not decrease after issuing bonds for the firms that enjoyed stable main-bank relationships.

The most simple estimation (1) in Table 8 is to regress the difference of profit rates between the average over three years from 1988 to 1990 and the average during the decade of 1979-1988 XPROF to the amount of bonds issued during the five years from 1984 to 1988 QBOND by the ordinary least square. We can find that QBOND is negatively correlated with XPROF. Thus, the larger amount of bond a firm issued during 1984 to 1988, the firm tended to experience the lower profit rate in the three years after 1988 than the average rate during the decade until 1988.

Then, we add a cross term of the dummy variable MAIN by QBOND to test whether the stable main-bank relationship actually reduced the negative influence of the amount of bonds issued QBOND. If the main-bank relationship disciplines incumbent managers to seek profit-maximization, the coefficient with this cross term MAIN\*QBOND is expected to be positive. According to the estimated result presented in (2) of Table 8, the coefficient is not positive but negative although statistically insignificant. Thus, we cannot find the disciplinary influence of the main-bank relationship in this result.

Furthermore, we add two cross terms BOR\*QBOND and FSTOCK\*QBOND in

order to examine whether characteristics of financial structure represented by dependence of the firm on borrowing BOR and the proportion of shareholdings by financial institutions FSTOCK influenced the negative relation between the profit rate and issuing bonds. If incumbent managers of those firms that depended heavily on borrowing or a majority of whose shares was held by financial institutions including banks were strongly constrained in their ability to deviate from maximization of profits for shareholders, these cross term are expected to have positive coefficients. According to the estimated result (3), the cross term BOR\*QBOND have a significantly positive coefficient, while coefficient of the cross term FSTOCK\*QBOND is statistically insignificant. Thus, this simple test supports the hypothesis that the heavily indebted firms tend to be closely monitored by debt-holders including banks, and consequently avoid the decline in profit rates after issuing bonds.

Table 6, 7, and 8 suggest the following story concerning issuing equity-related bonds by the Japanese firms in the latter half of the 1980s. There were no significant differences in probability of issuing bonds between the heavily indebted firms and those firms less dependent on borrowing. Those firms more dependent on borrowing, however, were more closely monitored by lending financial institutions than those less dependent on borrowing and, in consequence, were forced to choose prudent investment outlets for the funds raised by issuing bonds.

Moreover, the stability of main-bank relationships did not significantly influence behavior of bond-issuing by corporate managers. Neither did the presence of financial institutions as shareholders of corporations control bond-issuing decision making by incumbent managers.

Rather the increasing shareholdings by financial institutions seem to have helped corporate managers to use their discretionary power for other purposes than maximization of profits for shareholders during the latter half of 1980s.

## 5. Concluding Remarks

The surge of issuing corporate bonds, most of which were equity-related, during the latter half of 1980s is a puzzle from the viewpoint of the standard theory of corporate finance. This paper interprets this phenomenon as representing the deviation of corporate management from neoclassical profit-maximization. Issuing equity-related bonds was not necessarily profitable for shareholders, but it increased the amount of "free cash flow" for managers. This hypothesis relating issuing equity-related bonds to "free cash flow" seems to be supported by the fact that those firms having actively issued corporate equity-related bonds in the latter half of 1980s tend to have suffered from more drastic decline in profit rates since around 1990 than those having not issued bonds at all.

Based on this interpretation, we tested the relationship between the scope for incumbent managers to deviate from maximizing profits of shareholders and financial backgrounds of corporations such as the existence of stable main-bank relationships. We obtained the following results from our empirical investigation:

(1) The existence of stable main-bank relationship did not suppress issuing bonds by incumbent managers. Specifically, neither dependence of individual firms on borrowing from their main banks nor ratios of

shareholdings by financial institutions significantly explain behavior of issuing bonds by firms.

(2) The decrease in dependence of firms on borrowing from financial institutions since the mid-1970s contributed to widening the scope for corporate managers to seek "free cash flow" by issuing equity-related bonds.

(3) Financial institutions including the main banks gradually increased their shareholdings of client companies. This increase in shareholdings by financial institutions, however, did not narrow the scope for corporate managers to deviate from maximizing profits of shareholders.

The role of the "internal capital market" based on the main bank relationship to mitigate pressure of contest for corporate control is supposed to strengthen incentives for incumbent managers and employees to accumulate capital specific to their own companies. Particularly, as pointed out by Hoshi, Kashyap and Scharfstein(1990), Packer and Ryser(1992), and Sheard(1993), the "internal capital market" provides valuable service of monitoring client firms in financial distress. This role is likely to promote efficiency of the firm as a going-concern.

Our investigation in this paper, however, suggests that the "internal capital market" was not so effective in monitoring management as to prevent behavior of seeking "free cash flow." Rather, it seems to have contributed to strengthening discretion of incumbent managers, and made it possible for them to pursue managerial objectives which were inconsistent with maximizing profits for shareholders.

## Footnotes

\* This is a revised version of the paper presented at the Conference on the Contemporary Japanese Economy organized by Centre for Japanese Economic Studies, Macquarie University, Sydney during August 19 - 20, 1993. The author wish to thank Thomas Cargill, David Lynch, Mitsuaki Okabe, Marc Ryser, and Hiroshi Yoshikawa for their helpful comments. Qing-yuan Sui provided able research assistance in statistical investigations.

- 1) For example, see Aoki(1990 and 1992), Kester(1991), and Sheard(1992).
- 2) This argument may lead to an rather extreme conclusion that the effective workings of the "internal capital market" make the external pressure from open capital markets unnecessary. See Mayer(1993).
- 3) See Aoki(1993) and Sheard(1992).
- 4) See Horiuchi(1993) for an overview of this kind of sceptical argument about efficiency of the Japanese firms management. But this paper does not argue that the "perquisites" by incumbent managers necessarily decrease the competitiveness of their companies. On the contrary, they could survive fierce competition with their rivals, particularly in international markets, because they are to some extent allowed to follow managerial strategies which do not directly increase profits for shareholders.
- 5) See Jensen(1986) as for the definition of "free cash flow."
- 6) There are some analyse that empirically investigate the relationship between financial structure of individual firms and their managerial performance. See, Horiuchi and Okazaki(1993), Hoshi, Kashyap and Scharfstein(1990a, and 1990b), Kaplan and Minton(1993), Kester(1991), Lichtenberg and Pushner(1992), and Prowse(1992). The following analysis in this paper is closely related to them.
- 7) The Bank of Japan(1993) explains that, contrary to the claim by many

managers, the cost of capital associated with issuing equity-related bonds was not low during the late 1980s. The BOJ, however, does not explain why the Japanese managers did not pay attention to "the standard cost of capital."

8) See Brealey and Myers(1991: pp.547-549). If corporate managers and some present shareholders believe that investors overestimate future share prices of their specific companies, they have an incentive to issue equity-related bonds to exploit the asymmetric information between them and outside investors. But, in this situation, to issue equity-related bonds is very likely to signal the overestimation by investors and to lead to correcting prices of securities of those companies. Moreover, this kind of asymmetric information would be less important for those firms that are closely monitored through financial institutions such as their main banks than those that are relatively independent from influence of big institutional investors. Therefore, if this asymmetric information is relevant for the recent surge of equity-related bonds, we could observe that the latter firms were much more active in issuing those bonds than the former firms. As the investigation in Section 4 will shows, we cannot obtain results supporting this argument.

9) Jensen(1986) defines cash flow left after the firm has exhausted its positive net present value projects as "free cash flow."

10) This model assumes that the firm has exhausted its opportunity of issuing equity. This assumption is too restrictive. Actually, issuing equity may be a effective method for managers to increase the amount of "free cash flow." In Japan, we have a very interesting history of self-imposed rules in the stock market concerning returning "premiums"

accrued to the firms issuing equities at market prices to their shareholders. Since, from the viewpoint of neoclassical theory, issuing equities at market prices will not cause "premiums" to anybody at all, the rules seem to be quite a strange matter produced by misunderstanding by related agents such as securities companies. But we may regard the rules about the "premiums" associated with issuing equities at market prices as reflecting interests of investors who want to prevent managers from increasing the amount of "free cash flow."

This paper also assumes that managers do not manipulate dividend policy in order to minimize the amount of outflow of cash in the first period. This assumption may seem to be too restrictive. But we should note the fact that the firm almost always pays a predetermined annual dividend to their shareholders. Some authors go so far as to say that the policy adopted by the Japanese firms of paying predetermined dividends have changed equity into de facto fixed income debentures for shareholders. See Kurasawa(1993).

11) As will be seen in the following, the eligibility rules allows only those firms that are relatively large-scale and have histories of good performance to issue corporate bonds. For the managers of those companies, default costs seem to be extremely high.

12) As for detailed explanation about the eligibility rules of bonds issue, see Committee on the Working of the Bond and Stock Markets(1977).

13) This paper depends on the data base provided by NEEDS.TS.COMPANY. This data base contains statistics of both the total amount of various bonds and convertible bonds issued by individual firms. The statistics of warrant bonds, however, are not available in this data base. Traditionally,

electric companies have been overwhelmingly important issuers of straight bonds in Japan. In contrast, manufacturing firms rarely issued straight bonds until around 1990 when those firms started issuing a large amount of straight bonds because the sharp decline in stock prices made it impossible for them to issue equity-related bonds.

14) See Miwa(1985) and Weinstein and Yafeh(1993) for difficulties with identifying main banks.

15) See, for example, Sumamura(1993).

16) When we utilized the data of the *Keizai Chosa Kai*, the most recent data about the main-bank relationship was that of fiscal year 1988.

17) The data concerning the shareholding by the main bank is not sufficient in the following sense. The data prepared by the *Keizai Chosa Kai* presents a table of top ten largest shareholders of individual firms. Although the main bank is listed in this table in most cases, there are some exceptional cases in which the main bank holds some shares but the number of shares is not sufficient to list the main bank in the table of top ten largest shareholders. In this case, since the percentage of shareholding by the main bank is not available to us, this paper assign 0% to the shareholding of the main bank. Therefore, there are some cases in which this paper underrates the relative share of the main-bank shareholding. But we suppose that the number of such cases is not so large as to distort our statistical analysis.



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Chart 1: Composition of fund-raising by major companies, F.Y. 1965-1991 (%)

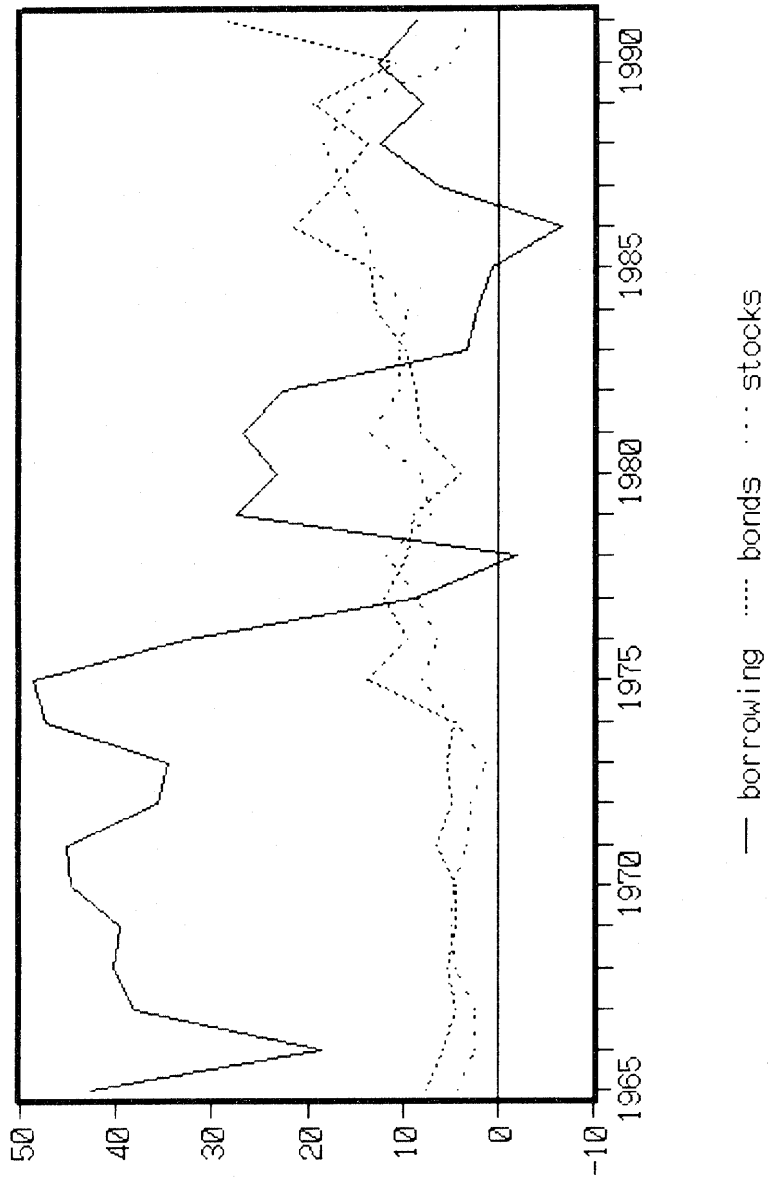


Chart 2: Corporate bonds issued by Japanese firms, 1980-91 (¥100billion)

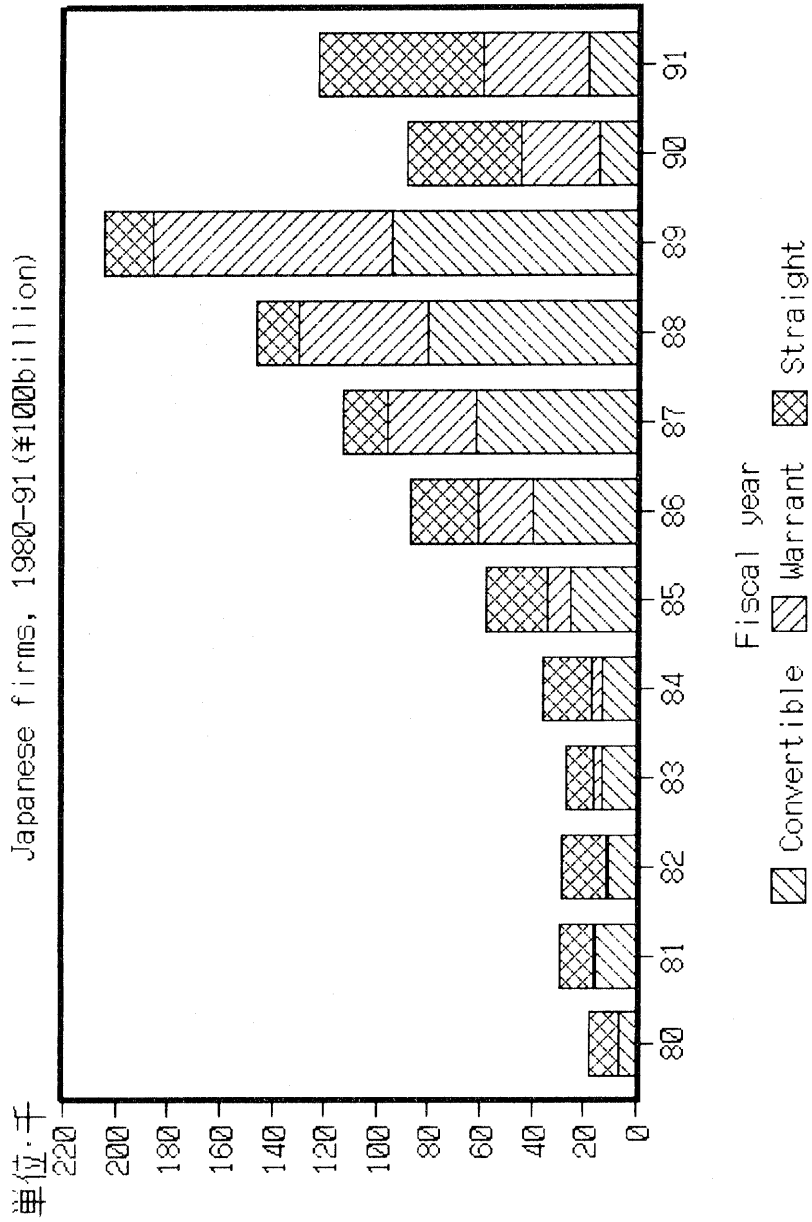


Chart 3: Profit rates before and after issuing bonds

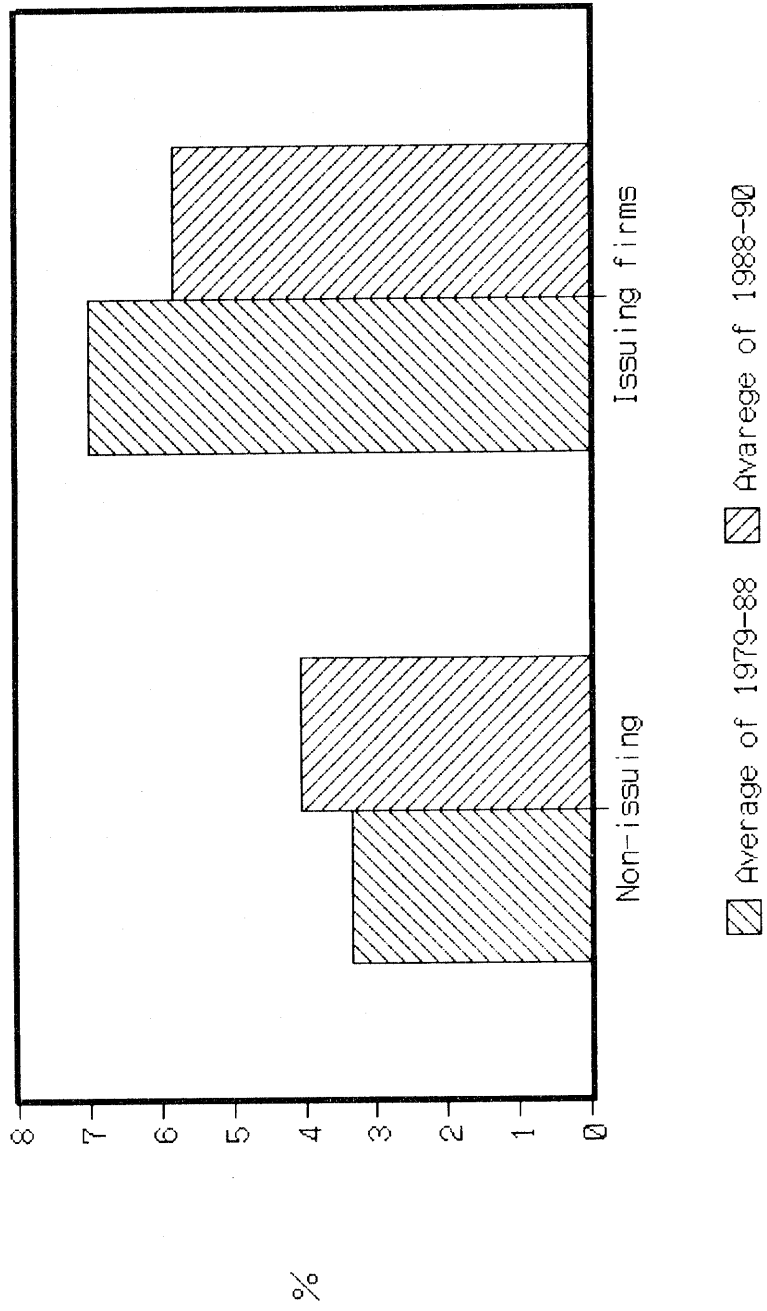


Table 1: Performance of "bond-issuing" and "non-issuing" firms

	"Bond-issuing firms"	"Non-issuing firms"
Number of firms	180	165
Total asset(¥ mill) End of F.Y.1985	40,159 (3,263)	17,374 (1,394)
Investment(%)		
1975-1984 average	5.60 ( 0.22)	4.66 ( 0.26)
1984-1988 average	6.43 ( 0.26)	4.91 ( 0.28)
Total borrowing(%)		
1975-1984 average	24.10 ( 1.08)	29.46 ( 1.26)
1984-1988 average	16.74 ( 1.08)	28.32 ( 1.39)
The proportion of financial institutions shareholdings(%)		
1975-1984 average	24.29 ( 0.93)	17.25 ( 0.95)
1984-1988 average	29.32 ( 0.97)	19.46 ( 0.94)
Current profit rate(%)		
1975-1984 average	6.29 ( 0.39)	3.10 ( 0.42)
1988-1990 average	5.79 ( 0.31)	3.81 ( 0.45)
Bond-issuing(%)		
1986-1990 average	5.77 ( 0.33)	---- ( --- )

Note: Investment, total borrowing, current profit, and bond-issuing are all denominated by the total amount of assets (book value) at the end of previous year. The proportion of financial institutions shareholdings is the relative share held by financial institutions of the total number of equities issued by each firm. Figures in parentheses indicate standard errors.

Table 2: The firms with stable main-bank relationship and the other firms

	The firms with stable main bank	The other firms
Number of firms	165	180
Total assets(¥ mill.) ( End of F.Y.1985 )	28,237(2.353)	30,172(3,001)
Total debts (¥ mill.) ( End of F.Y.1985 )	16,993(1,205)	17,089(1.538)
Investment per total asset(%)		
F.Y.1965 ~ 1974	7.88(0.30)	8.10(0.31)
F.Y.1975 ~ 1984	4.94(0.23)	5.35(0.25)
F.Y.1981 ~ 1990	5.83(0.22)	6.03(0.28)
F.Y.1986 ~ 1990	5.89(0.26)	5.99(0.32)
Current profit per total asset(%)		
F.Y.1965 ~ 1974	5.67(0.48)	7.67(0.45)
F.Y.1975 ~ 1984	4.15(0.42)	5.34(0.41)
F.Y.1981 ~ 1990	4.13(0.36)	5.13(0.36)
F.Y.1986 ~ 1990	3.98(0.34)	5.00(0.39)
Long-term borrowing per total asset(%)		
F.Y.1965 ~ 1974	7.68(0.31)	7.51(0.34)
F.Y.1975 ~ 1984	4.24(0.24)	4.60(0.30)
F.Y.1981 ~ 1990	2.91(0.23)	3.48(0.27)
F.Y.1986 ~ 1990	2.81(0.30)	3.31(0.31)
Proportion of shareholdings by financial institutions(%)		
F.Y.1975 ~ 1984	22.31(1.00)	19.59(0.94)
F.Y.1981 ~ 1990	25.92(1.02)	23.18(0.99)
F.Y.1986 ~ 1990	27.66(1.05)	25.07(1.07)
Bonds issued per total asset(%)		
F.Y.1965 ~ 1974	0.05(0.01)	0.05(0.01)
F.Y.1975 ~ 1984	0.56(0.09)	0.64(0.11)
F.Y.1981 ~ 1990	2.20(0.21)	2.09(0.24)
F.Y.1986 ~ 1990	3.20(0.32)	2.84(0.33)
Total borrowing per total asset(%)		
F.Y.1965 ~ 1974	31.55(0.94)	28.84(0.99)
F.Y.1975 ~ 1984	28.28(1.12)	25.16(1.22)
F.Y.1981 ~ 1990	22.89(1.20)	21.52(1.23)
F.Y.1986 ~ 1990	21.28(1.28)	20.62(1.33)

(Note) Figures in parentheses indicate standard errors.  
 (Source) NEED.TS.COMPANY



Table 3: The bond-issuing firms and the amount of bonds issued ( 1986-90 )

	The firms with stable main bank ( 165 )	The other firms ( 180 )
The number of firms issuing bonds	93	87
The average amount of issued bonds per asset	5.68 % ( 0.41 )	5.87 % ( 0.52 )
The number of firms issuing convertibles bonds	55	57
The average amount of issued C.B. per assets	4.99 % ( 0.36 )	5.35 % ( 0.61 )

(Note) Figures in parentheses indicate standard errors.

Table 4: Statistics of the firms with stable main bank( average %)

	1965 - 74	1975 - 84	1984 - 88	1986-90
Total borrowing	31.55 (0.94)	28.28 (1.12)	23.06 (1.30)	21.28 (1.28)
Borrowing from main banks	27.80 (1.47)	26.35 (1.45)	28.24 (1.53)	
Borrowing from financial affiliates	40.27 (1.24)	37.98 (1.29)	38.41 (1.49)	
Proportion of shares held by main banks	3.17 (0.23)	4.24 (1.44)	3.88 (0.15)	
Proportion of shares held by finan. affiliates	15.66 (1.42)	18.95 (1.44)	18.73 (1.40)	
Proportion of shares held by financial insti.	N.A. N.A.	22.31 (1.00)	25.93 (1.02)	27.66 (1.05)

(Note) Total borrowing, borrowing from main banks, borrowing from financial affiliates are all percentages denominated by the total assets (book value). Figures in parentheses indicate standard errors.  
(Source) NEEDS.TS. COMPANY and Keizai Chosa Kai, *Keiretsu no Kenkyu*.

Table 5: Distribution of the firms with stable main-bank relationships

Ratios of borrowing from m.b.	Proportions of share held by main banks				
	~ 1.0 %	1.0 ~ 3.0	3.0 ~ 5.0	5.0 % ~	sub-total
~ 10 %	1 5	1	4	5	2 5
10 ~ 30 %	1 0	2 0	3 2	2 5	8 7
30 ~ 50 %	1	4	1 0	2 2	3 7
50 % ~	1	1	8	6	1 6
Sub-total	2 7	2 6	5 4	5 8	1 6 5

(Source) *Keizai Chosa Kai*.

Table 6: Estimated Probit Model

	All sampled firms (sample size=345)			
	( 1 )	( 2 )	( 3 )	( 4 )
Constant	-0.917 ( -3.55)	-0.991 ( -3.76)	-0.754 ( -5.99)	-0.881 ( -6.01)
ASSET	$0.152 \times 10^{-4}$ ( 4.06)	$0.150 \times 10^{-4}$ ( 4.06)	$0.162 \times 10^{-4}$ ( 4.52)	$0.157 \times 10^{-4}$ ( 4.44)
PROF	$0.462 \times 10^{-1}$ ( 2.75)	$0.484 \times 10^{-1}$ ( 2.86)	$0.390 \times 10^{-1}$ ( 2.77)	$0.423 \times 10^{-1}$ ( 2.97)
BOR	$0.225 \times 10^{-2}$ ( 0.39)	$0.187 \times 10^{-2}$ ( 0.32)		
FSTOCK	$0.150 \times 10^{-1}$ ( 2.42)	$0.136 \times 10^{-1}$ ( 2.17)		
XBOR			$-0.791 \times 10^{-2}$ ( -1.98)	$-0.780 \times 10^{-2}$ ( -1.94)
XFSTOCK			$0.275 \times 10^{-1}$ ( 2.37)	$0.274 \times 10^{-1}$ ( 2.34)
MAIN		0.220 ( 1.49)		0.256 ( 1.74)
SSR	70.00	69.26	68.54	67.84
R <sup>2</sup>	0.188	0.196	0.205	0.213

(Notes) ASSET : Total asset as of end of F.Y.1985(¥ million), PROF : Average profit rate during F.Y.1975 — 84(per total asset, %), BOR : Average of borrowing per total assets during F.Y.1975 — 84(%), FSTOCK : Average proportion of shareholdings by financial institutions during F.Y.1975 — 84(%), XBOR : Changes in BOR from F.Y.1976 to F.Y.1985, XFSTOCK : Changes in FSTOCK from F.Y.1976 to F.Y.1985, MAIN : Dummy for the firms with stable main-bank relationships. Figures in parentheses indicate t-value.

Table 7: Estimated Probit Model for the firms  
with stable main-bank relationships

	Sample size = 165			
	Dependent variable BOND			
	( 1 )	( 2 )	( 3 )	( 4 )
Constant	-0.393 ( -2.46)	-0.419 ( -1.13)	-0.283 ( -1.11)	0.052 ( 0.16)
ASSET	$0.127 \cdot 10^{-4}$ ( 2.79)	$0.113 \cdot 10^{-4}$ ( 2.40)	$0.124 \cdot 10^{-4}$ ( 2.69)	$0.113 \cdot 10^{-4}$ ( 2.44)
PROF	$0.550 \cdot 10^{-1}$ ( 2.81)	$0.488 \cdot 10^{-1}$ ( 2.26)	$0.553 \cdot 10^{-1}$ ( 2.82)	$0.546 \cdot 10^{-1}$ ( 2.78)
BOR		$-0.443 \cdot 10^{-2}$ ( -0.54)		
FSTOCK		$0.977 \cdot 10^{-2}$ ( 1.18)		
MLOAN			$-0.485 \cdot 10^{-2}$ ( -0.83)	
MSTOCK			$0.614 \cdot 10^{-2}$ ( 0.16)	
KLOAN				$-0.946 \cdot 10^{-2}$ ( -1.47)
KSTOCK				$-0.249 \cdot 10^{-2}$ ( -0.45)
SSR	34.49	34.19	34.32	33.95
R <sup>2</sup>	0.152	0.159	0.157	0.165

(Notes) See notes of Table 6.

Table 8: Profit rates and bond-issuing ( OLS )

	Sample size = 345		
	Dependent variable XPROF		
	(1)	(2)	(3)
Constant	0.275 (1.02)	0.282 (1.04)	0.281 (1.04)
QBOND	-0.174 (-2.97)	-0.161 (-2.30)	-0.384 (-1.83)
MAIN*QBOND		-0.331*10 <sup>-1</sup> (-0.33)	-0.878*10 <sup>-1</sup> (-0.85)
BOR*QBOND			0.113*10 <sup>-1</sup> (2.61)
FSTOCK*BONDA			-0.465*10 <sup>-4</sup> (-0.01)
SSR	6156.3	6154.4	6027.3
R <sup>2</sup>	0.022	0.020	0.034
F	8.840	4.462	4.057

(Notes) XPROF is defined by subtracting average profit rate during the decade of 1979-1988 from the three years average of profit rate during 1988-1990. As for the definitions of MAIN, BOR, and FSTOCK, see notes of Table 6. Figures in parentheses indicate t-value.