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**An Evaluation of Japanese Financial Liberalization:
A Case Study of Corporate Bond Markets**

by

Akiyoshi Horiuchi
University of Tokyo

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1: Introduction

Since the late 1970s, the Japanese financial system has been gradually but steadily liberalized. Japan entered the "era of financial liberalization" in the 1980s. As will be explained to some extent in this paper, the foreign exchange transactions were greatly liberalized, thereby spurring internationalization of Japanese financial markets. Full-scale liberalization of the interest rates used to be covered by the Temporary Law of Interest Rates Adjustment(1947) was started in 1984 when the Japanese government included the deregulation of interest rates in the agenda for the U.S.-Japan Yen-Dollar Committee.¹⁾ Until 1993 almost all bank deposit rates except for small-denominated and demand deposits had been liberalized. In October 1994 the remaining regulations on deposit interest rates were removed except for that on the "current deposits" (*Toza-yokin*).²⁾ The Japanese financial system is financially far more market-oriented than it was in the high growth period from the early 1950s to the beginning of the 1970s, and it seems to be

undeniable that the financial liberalization has improved the efficiency of the Japanese economy.

However, it is noteworthy the Japan's financial liberalization has been characterized by "gradualism." The monetary authorities have been partly sceptical about the efficiency of the market mechanism and partly worrying about anticipated "destructive impacts" of free market mechanisms on status quo in the financial system. Therefore, they have controlled its implementation so as to avoid radical changes in the conventional framework of the financial system, and to preserve the equilibrium attained among various vested interests in the financial sector. For example, despite the apparent process of liberalizing interest rates, most of Japanese financial markets, particularly the bank deposit market, seems to be far from being "contestable," because the regulation of segregating various financial businesses from each other effectively prevents full-scale competition in financial markets. Therefore, the benefits of interest-rate liberalization have not yet been fully realized. The remaining regulation of financial segregation symbolized the gradualism of Japan's financial liberalization.³⁾

This gradualism may have contributed to superficially stabilizing the Japanese financial system as the authorities intended. But it should be noted that this gradualism gives a distorted nature to the financial liberalization. This distortion can be regarded as the cost of the financial liberalization in Japan. In order to evaluate Japan's financial liberalization since the early 1980s, we should not neglect the cost of the gradualism. The purpose of this paper is to investigate the cost by focusing on the process of liberalization in the Japanese corporate bond market.

Japanese corporate finance was dominated by indirect finance centered on

bank-lending for the nearly forty years between the early 1940s and the late 1970s. However, Chart 1 and Table 1 indicate that its structure has undergone remarkable changes since the late 1970s. The most conspicuous change were a steady decrease in major firms' reliance on borrowing from banks, and a corresponding increase in the amount of bond issue. We may say that Japanese corporate finance has been substantially "securitized" during the last decade. In particular, the Japanese major companies issued convertible bonds intensively to raise funds in the latter half of the 1980s. According to Chart 2, almost half of corporate bonds were issued in the form of convertible bonds during the latter half of the 1980s. Thus, the securitization of Japan's corporate finance during the last decade was accompanied with the surge in convertible bond issue.⁴⁾

The policy of liberalizing the corporate bond market accounts for this process of securitization. As will be seen in the following section, Japanese firms have been strictly controlled in issuing corporate bonds since the 1930s. But the internationalization of financial markets exerted great pressure on the domestic bond markets in the early 1980s, thereby promoting liberalization of the markets. The restrictive control of corporate bond issues have been relaxed, and the number of big firms allowed to issue bonds in the domestic markets has been gradually increased.

Thus, the surge in the bond issue in the 1980s may seem to be a natural response of Japanese corporations to liberalization in the bond markets. The standard theory of corporate finance, however, cannot sufficiently account for this phenomenon. In this paper, we propose an hypothesis to explain the surge in convertible bond issue in the late 1980s. The hypothesis relates the active issue of convertible bonds by Japanese firms to a combination of an

imperfect mechanism of corporate governance and the distorted or half-finished nature of liberalizing corporate bond markets.

First, it can be thought that the possibility of issuing convertible bonds mitigated the constraints of bankruptcy for corporate managers, thus encouraging them to issue convertibles. According to our hypothesis, the rapid increase in convertible and warrant bond issue in the late 1980s was related to imperfect corporate governance in Japan.

Secondly, the process of liberalizing the domestic corporate bond market was distorted during the 1980s in the sense that only well-established major companies were allowed to issue convertible and other equity-related bonds. In theory, such instruments are regarded as most useful for small-sized and relatively newly established enterprises, in order to overcome the difficulty of the agency problem due to asymmetric information. However, these firms were effectively excluded from domestic corporate bond markets during the recent gradual process of liberalization. This paper will argue that the distortion due to the gradualism of the liberalization led to the surge in equity-related bond issues by major companies in Japan under conditions of imperfect corporate governance.

The structure of this paper is as follows. In Section 2, we present a rough sketch of the evolution of Japanese corporate bond markets from the early postwar period to the late 1980s. In particular, we explain the process of relaxing eligibility requirements for corporate bond issues, and emphasize its distorted nature. In Section 3, we take up the question as to why equity-related bonds, and convertibles in particular, were issued so actively during the second half of the 1980s. We propose a simple hypothesis of imperfect corporate governance. This hypothesis predicts that managers of

well-established firms will be eager to issue convertibles with a view to extending the opportunity to enjoy perquisites, and that they will increase the volume of convertible issue when the market hold strong expectations of a rise in their firms' stock prices. In the latter half of Section 3, we conduct a statistical investigation as to whether these predictions were actually observable during the late 1980s in Japan base on companies' financial data. We summarize our discussion in Section 4.

2: The liberalization of Japan's corporate bond markets

In this section, we discuss the process of liberalization in corporate bond markets in postwar Japan. We emphasize that the restrictive rules regarding eligibility used to be imposed on firms that wanted to issue bonds in the domestic market until the mid-1980s. Then, we will discuss how the restrictive eligibility requirements have been relaxed in response to a "hollowing" of domestic corporate bond markets.

2.1 The process of controlling corporate bond issue

It is well-known that during the post-World War II years, and particularly during the 1950s and 60s, Japanese corporations depended heavily on borrowing from banks, as Table 1 suggests. In contrast, the relative importance of bond finance for Japanese corporations was rather high in the 1920s and 1930s. According to the "Net Supply of Industrial Funds" data prepared by the Bank of Japan (BOJ), even in 1931 bonds provided 21.7 percent of external corporate funding and bank loans only 15.2 percent.

But in 1933, when Japan's financial system was suffering from serious turmoil caused by international financial disorder, with the support of Ministry of Finance (MOF) and the Industrial Bank of Japan (IBJ), around thirty of the largest private bond underwriting companies and banks established the *kisai kondan kai*, or the Bond Issue Arrangement Committee (BIAC), in order to restore stability and soundness to the securities markets. At the heart of the BIAC were eight private banks, headed by the IBJ. Therefore, the interests of private banks, particularly big banks, were reflected in the working of the BIAC. For example, the bank succeeded in structuring BIAC regulations so that only "trustee banks" were allowed to manage relevant collateral until maturity of a bond, in return for a fee. Thus, although securities companies participated as underwriting members of the BIAC, but only banks could earn the collateral fee. It should also be noted that the BIAC was a semi-public organization where the MOF could exert strong influence on specific processed of decision-making in this Committee. We can safely say that the MOF regulated the Japanese corporate bond markets through the BIAC in tight collaboration with big private banks.⁵³

Precisely, the BIAC was in charge of controlling the straight bond market. The markets of the so-called "equity-related bonds" such as convertible bonds have been controlled not by the BIAC, but by another organization consisting of only underwriting securities companies. However, this organization was also closely monitored by the MOF just like th BIAC, and therefore, the way of controlling convertible bonds issue was quite similar to that of the BIAC. For example, the principle of collateral, which will be explained in the following, was applied not only to the straight bond issue, but also to the convertibles issue, and the eligibility requirements for

convertibles have been determined and adjusted in parallel with those for straight bonds. We will also explain the eligibility requirements for corporate bond issues in detail below.

One of the most important roles of the BIAC was to establish the principle of collateral, which prohibited Japanese firms from issuing corporate bonds without sufficient collateral, usually in the form of real estate or specified government bonds. The organization for convertible bonds issue followed the BIAC to adopt this principle. The principle of collateral persisted until 1979 when Sears Roebuck Tokyo issued uncollateralized bonds. Collateral requirements urged by the powerful private banks after the panic of 1927 thus played a crucial role in destroying the Japanese corporate bond market; by the late 1930s corporations issued virtually no bonds at all. Equity continued, however, to be a major source of corporate finance, consisting over half of corporate funding every year from 1934 through to the onset of the Sino-Japanese War in 1937 (Table 2). It was the sudden expansion of heavy industrial investment demand under the pressure of war with China, and the onset of patriotic savings drives by the banks to provide funds to meet this demand, coupled with the uncertainties a wartime environment created for capital markets, that led to the decline of equity and to heavy corporate reliance on debt.

In spite of radical structural change in the Japanese economy immediately after world War II, the dominant position of the banking sector in corporate finance was kept intact. Article 65 of the Securities Exchange Act, which was instituted in April 1948 following the U.S. Glass-Steagall Act, precluded banks from underwriting bonds for public placement, but it did uphold the principle of collateral for all corporate bond issues. Unlike the U.S. banks, Japanese

banks were not prohibited from being shareholders of their client firms, although the Anti-Trust Law specifies the maximum proportion of each firm's share that banks are allowed to hold.⁶⁹ Thus, Article 65 of the Securities Exchange Act did not decrease the dominant influence of the banking sector in the postwar Japan's financial system. The BIAC, the long-term credit banks, and the extensive legal controls introduced in mobilizing the Japanese financial system for World War II also survived, creating a debt-oriented, bank-dominated financial system with a strong bias toward the status quo. Since the banking sector, which had a vested interest in preserving overwhelming importance of bank loans in financial system, was so influential in arranging corporate bond issues, it seems hardly surprising that the corporate bond markets have been prevented from fully developing in postwar Japan.⁷⁰

2.2 Eligibility requirements for corporate bond issues

The credit allocation through domestic corporate bond markets was based on both principle of collateral and the eligibility requirements for bond issues. The eligibility requirements were basically requirements for sufficient net worth value (book-value), the amount of dividend per share, profit rates (both per share and as a ratio to total capital), and the equity capital ratio (ratio of equity to total assets). Unless they were able to satisfy these requirements, firms were not allowed to issue bonds at all. Table 3 shows an example of the eligibility requirements for convertible bond issues without collateral as of May 1985. These specific requirements were less severe than those in the early 1980s and during the 1970s, and, as will be explained in the following section, they were substantially relaxed during the

second half of the 1980s.

Moreover, the eligibility requirements for bond issuing effectively worked to crowd out small and medium size firms from corporate bond markets, as such firms did not possess sufficiently large net wealth. This mechanism corresponds to the collateral principle in the sense that the possibility of default was constrained a minimum in the bond markets. This regulation may have been effective in stabilizing Japan's bond market. However, it hindered the development of flexible price-mechanism in the corporate bond market, and in turn contributed to strengthening the system of indirect finance based on the banking sector. Even after 1988 when the rating system was introduced into the eligibility requirement, the system appears to have been utilized as a means of excluding firms with a low rating from the bond markets.⁸⁾

2.3 Internationalization and pressures from abroad

The Foreign Exchange and Foreign Trade Control Law (FEFTCL) of 1948 and the Foreign Investment Law of 1950 prohibited in principle all foreign-exchange transactions unless specifically permitted by the government. These laws conferred on regulatory authorities great discretion in mediating between the domestic financial system and its global environment, and provided the basic legislative framework that governed foreign exchange transactions more than a generation, until December 1980.

The December 1980 revisions of the longstanding FEFTCL did not initiate or result in categorical relaxation of Japanese foreign exchange controls. Other incremental steps had been taken previously. Furthermore, important provision for exchange controls to be invoked in times of financial crisis

remained even after the revised FEFTCL came into effect.⁹⁾ But the de facto removal of controls even during normal times helped ratify and accelerate the historical movement of Japanese corporate finance away from the reliance on domestic bank loans that had been the essence of the indirect financing mechanisms of the high growth period.

Most important, the erosion of exchange controls that began during the 1970s and was accelerated by revision of the FEFTCL let Japanese companies to issue straight and convertible bonds overseas, particularly in the Euromarkets. There, the absence of collateral requirements and mandatory prospectus issues, together with broad range of financial instruments, swaps, and exchange-rate hedging mechanisms not available in Japan, made raising funds cheaper and often quicker and more convenient than in Japan itself.

Starting in 1961 with Sumitomo Metals and Kawasaki Steel, Japanese corporations had periodically issued bonds abroad during the high-growth period. But the total amount was small: during the early 1970s the Euromarkets accounted for only 1.7 percent of Japanese corporate financing, although the share had risen by the late 1970s to 19.6 percent, mainly to finance offshore operations. In the early 1980s reliance on offshore finance began to rise even more sharply, primarily through large-scale corporate bond issues in the Euromarkets, with the Japanese surge abroad driven by both expectations of a strong yen (in the case of foreign currency denominated issues) and the more flexible issuing conditions available outside Japan. In 1979 the value of corporate bonds issued by Japanese corporations in the domestic markets totalled over ¥2.4 trillion, more than three times that of offshore issues; but by 1985 total Japanese corporate bond issues offshore had risen by ¥3.3 trillion, more than 25 percent greater than the total for

Japanese corporate issues within Japan itself (Table 4). Total Euromarket financial issues, with terms dictated by markets rather than by bureaucratic fiat, supplied over half of all Japanese corporate bond financing and one-third of total corporate finance, despite the low cost of capital to domestic issuers within Japan.

The higher bond issuance fees compelled Japanese firms to issue bonds abroad in the 1980s, and the de facto buyers of the bonds were mostly Japanese investors, thereby giving rise to a "hollowing" of the domestic corporate bond markets. The MOF have tried to prevent this hollowing by regulating Japanese investors' purchase of the Eurobonds issued by Japanese firms. Specifically, they have been forbidden from buying those corporate bonds in less than three months since the bonds are issued. But this regulation seems to have been ineffective because underwriting securities companies in London could circumvent it by selling the Eurobonds issued by Japanese firms to Japanese investors by subscription. This subscription system has helped the underwriters minimize the cost of mediation between Japanese firms and Japanese investors in the Eurobond markets.

Offshore financing by Japanese corporations exerted pressure to relax issuing restrictions, especially those on collateral requirements (which incidentally did not exist in many of the Euromarkets where Japanese firms were active in raising funds). Banks had long opposed any relaxation of collateral requirements within the domestic bond market, as the stringent rules had allowed them to reap considerable fee income, and more important prevented full-scale development of financing methods substitutable for bank loans. The existence of these fees caused the total bond issuing cost in the

domestic market to be significantly higher than in Euromarkets.¹⁰⁾ Japanese banks began to reassess this situation during the mid 1980s, as the rush offshore caused a cut back in their share of corporate financial business.¹¹⁾

The MOF took important steps toward market orientation in the regulation of corporate bond issue, which made the control-minded policies of the BIAC more difficult. As we saw earlier, collateral had in principle been required for all Japanese corporate bond issues between 1933 and the early 1970s. In December 1972, under the MOF's guidance, underwriting securities companies and trustee banks determined the rules for the so-called "noncollateralized convertibles," and according to this new rule Mitsubishi Trading Company issued noncollateralized convertibles in 1973 for the first time in Japan. In reality, this rule of 1972 did not imply an introduction of full-scale "noncollateralization" into convertible bond issue because issuing firms were still required to hold specific assets as a sort of securities.

In March 1979 Sears Ruebuck became Japan's first noncollateralized convertible bond issuer, followed the next month by Matsushita Corporation and twenty-one other firms during 1979-1984. In this time, they were truly noncollateralized. Although in the early 1980s the eligibility requirements for noncollateralized convertible issues were so strict as to permit only a few firms of recognized credibility to issue them, the requirements were steadily relaxed during the latter half of the 1980s. As a result, the number of the firms eligible for noncollateralized convertibles greatly increased. This liberalization surely contributed to the remarkable increase in the volume of convertibles issued in the domestic market during the latter half of the 1980s. As Table 5 indicates, the rapid increase in convertible bond issues during the period in the domestic market was primarily due to the surge in

noncollateralized convertibles.¹²⁾

It is noteworthy, however, that small-scale enterprises were in effect excluded from the convertible bond market even in the late 1980s. The amount of convertibles issued by the firms listed in the over-the-counter market, which are typical of small-scale businesses, was ¥84.5 billion from 1977 to 1989, just less than 0.3 percent of the total amount of convertibles issued in the domestic market during the same period.

3: Convertible bond issues and the structure of corporate governance

As has been explained, the most conspicuous structural change in Japan's corporate finance during the 1980s was the surge in equity-related bond issued and decline in the relative importance of bank borrowing. In particular, Japanese firms actively issued convertible bonds in the late 1980s. The restrictive rules on bond issue managed by the BIAC and the other organization were gradually relaxed during this period, so that it became much easier for well-established firms to have access to the convertible bond market. Therefore, it may seem to be natural for them to have increased the amount of convertibles issued during the late 1980s. For them the convertible bond is a close substitute for bank credit as a means of fund-raising. At least from the viewpoint of standard corporate finance theory however, it is difficult to explain why they preferred issuing convertibles to bank loans, as will be discussed later.

In this section we will propose a hypothesis to explain the surge of convertible bonds in the late 1980s. This hypothesis is related both to a

particular characteristic of liberalization in the corporate bond market and to the mechanism of corporate governance in Japan. As has been explained in the previous section, an important characteristic of liberalization of the Japanese bond markets was that major well-established companies were favorably treated. For those firms' managers, convertible bond issue was not a mean of overcoming the agency problem due to asymmetric information but a means of increasing their perquisite expenditure. This is an essence of the hypothesis advocated in this paper.

3.1 The standard theory of convertible bond issue

The standard theory of corporate finance provides two reasons for convertible bond issue. In either case imperfect information plays an essential role. First, firms' managers of shareholders would issue convertible bonds to signal their incentives to avoid risky projects that may entail large losses for their creditors under the rule of limited liability. Issuing convertible bonds implies that, even if a risky project goes well to realize extraordinary returns, current shareholders must yield most of the returns to investors who hold convertibles. Thus, convertible bonds are regarded effective in mitigating the agency problem existing between shareholders and creditors (debt holders) emphasized by Jensen and Meckling(1976).

Secondly, according to Stein(1992), some firms, particularly medium-quality ones, have incentives to issue convertible bonds to obtain different funding conditions from low-quality firms. The high-quality firm with good prospects of returns are able to issue straight bonds or borrow from banks without endangering default risk. On the other hand, low-quality firms with poor prospects of returns would be forced to issue stocks instead

of straight bonds because the latter incurs serious default risk. As Stein(1992) shows, medium-quality firms with not so bad prospects may be able to differentiate themselves from low-quality firms by issuing convertible bonds in the capital market.

In either of these cases, convertible bonds are instrumental for firms who suffer from the agency problem caused by asymmetric information. Therefore, these theories predict that the firms that are newly established or have not yet achieved excellent performance should be more active in issuing convertible bonds than well-established firms.¹³⁾ According to Brealey and Myers(1991), "convertibles tend to be issued by the smaller and more speculative firms."(p.549)

3.2 Another hypothesis

It is doubtful whether the standard theories of convertible bonds are applicable to Japan's case during the latter half of the 1980s. Although the eligibility requirements for convertible bonds became less and less restrictive during the 1980s, only relatively large-scale firms were allowed to issue convertibles. Overwhelmingly important issuers of convertibles were major companies who were previously established in the Japanese economy. For them, the agency problem due to asymmetric information emphasized by the standard theories seems to be irrelevant.

It may be said that outside investors overrated stock prices of industrial firms during the late 1980s. If managers and current shareholders understood the overvaluation of their stock prices in the capital market, they would have been induced to issue shares and convertible bonds to outsiders exploiting the excess profits due to the asymmetric information. Can this

hypothesis of outsiders' overvaluation be relevant to Japan's capital markets in the latter half of the 1980? If this hypothesis were true, current shareholders (insiders) would reduce their equity positions as much as possible in order to press stocks overrated from their viewpoint to outside investors. In reality, however, the current shareholders did not seem to reduce their equity positions. In particular, in the late 1980s, the Japanese firms did not reduce the share of the internal funds in the total amount of fund-raising.¹⁴⁾ It would be irrational for the current shareholders to increase the amount of retained profits when outsiders overrate their firms' stock value because it means missing a chance to take excess profits by issuing convertibles and stocks to ignorant outside investors. Thus, the relatively high importance of the internal funds in Japanese corporate finance in the late 1980s weakens the hypothesis of outsiders' overvaluation.

Why then were big Japanese companies so eager to issue convertible bonds in the late 1980? Managers of those firms reportedly explained themselves that convertibles were preferable to bank loans and the other fund-raising means because convertibles could be issued at extremely low coupon rates when investors had strong bullish expectations about the firms' stock prices.¹⁵⁾ But this explanation is not convincing from the viewpoint of shareholders of those firms, because low coupon rates on convertible imply high probability that they will be forced to yield part of valuable shares of their firms to investors in the near future. The extraordinarily bullish expectations just like those observed in the stock market during the latter half of the 1980s would not necessarily induce firms to issue convertibles if their concern was purely that of maximizing profits on behalf of their current shareholders.

If managers are not sufficiently constrained by the principle of maximizing shareholders' profits, however, incentives may exist for them to issue convertible bonds and reduce borrowing from banks. In particular, the bullish expectations of stock prices may more strongly induce corporate managers to issue more convertibles than otherwise. We explain this by introducing a simple two-period model.

3.3 A simple model

We assume here that there is no problem of asymmetric information between insiders and outside investors considered, for example, by Jensen and Meckling(1976) and Stein(1992). Therefore, if they are perfectly disciplined to maximize current shareholders' profits, the incumbent managers have no particular reason to prefer convertibles issue to borrowing from banks. Furthermore, the managers are assumed to be constrained by extremely high penalty of bankruptcy. In other words, it is assumed that they want to avoid cases of default at any expense because the bankruptcy incurs a huge amount of not only pecuniary but also psychological costs to them. These assumptions both of no asymmetric information and of constraints of bankruptcy costs on managers are plausible in the case of Japan's well-established firms. The managers of those companies have accumulated intangible assets embodied in themselves whose value will be totally lost should their firms go bankrupt.

The firm is assumed to have an investment opportunity whose net present value is positive. The amount of funds required to be raised externally to proceed with this investment opportunity is given at I . When this investment is carried out, the value of the firm will in the next period be X_H at

probability P , and X_L ($X_H > X_L$) at probability $(1-P)$. We assume that manager of the firm could enjoy perquisite or a "pet" investment represented by Z in addition to the normal investment I . The managers raise $I + Z$ either by borrowing from banks or issuing convertible bonds. For simplicity, we assume all agents are risk-neutral, and the equilibrium interest rate is zero.¹⁶⁾

The case of borrowing from banks: When the firm borrows from a bank, the maximum amount of fund will be given by X_L because of the assumption of prohibitive bankruptcy costs. Thus,

$$1 + Z \leq X_L. \quad (1)$$

The present value of the firm's stock V is given by the following equation:

$$\begin{aligned} V &= P(X_H - I - Z) + (1 - P)(X_L - I - Z) \\ &= PX_H + (1 - P)X_L - I - Z \\ &= V_0 - Z, \end{aligned}$$

where V_0 is the firm's share value when the managers do not take any perquisite at all. We assume an efficient capital market here, so that managers' expenditure on perquisite Z leads to a decline in the firm's value V .

The case of convertible bonds issue: To raise funds $I + Z$, the firm could issue convertible bonds whose total face value is F . The bonds will be converted into 100 percent of the firm's shares in the future when its stock value turns out to X_H . But when the stock value is X_L in the second period, they will not be converted into shares so that the managers will have to repay F to bond-holders. The constraint of bankruptcy costs assumed above requires that F is not larger than X_L ; i.e.,

$$F \leq X_L.$$

The present value of the convertible bond $I + Z$ is

$$I + Z = PCX_H + (1 - P)F.$$

Therefore, the maximum amount of $(I + Z)$ is given by the following condition.

$$\begin{aligned} I + Z &\leq PCX_H + (1 - P)X_L \\ &= X_L + P(CX_H - X_L) \end{aligned} \quad (2)$$

As theoretical consistency requires $CX_H > X_L$, the maximum of $(I + Z)$ can be larger than X_L when the firm issues convertibles. The assumption of an efficient capital market ensures that the present stock value of the firm V is equal to $V_D - Z$.

If the firm is allowed to freely change the conversion ratio C , it can increase the maximum amount of perquisite expenditure Z by offering higher ratio C to investors. But the present rule of issuing convertibles prevents managers from manipulating C in Japan. Under the present institutional framework, we can assume this conversion ratio to be exogenously given.¹⁷⁾

By comparing (1) and (2), we can see that the managers can increase the amount expenditure on the "pet" investment Z by issuing convertibles. An increase in Z will lead to capital loss of the firm's current shareholders. Therefore, if shareholders are able to instill sufficient discipline upon managers so as to maintain profit-maximization as their only goal, there is no particular incentive for managers to issue convertibles. If incumbent managers are to some extent free from the discipline of maximizing shareholders' profits, however, they have incentives to increase the expenditure Z by issuing convertibles at the expense of present shareholders. In this primitive model, investors' bullish expectations are presented by either higher value of P or X_H . Thus, equation (2) shows when

investors have more bullish expectations of the firm's value just like during the late 1980s, the managers' incentives for issuing convertibles become stronger, other things being constant.

Our model assumes imperfect corporate governance in Japan in the sense that the corporate managers have latitude more or less to direct firms' resources to satisfy their own (and probably employees') preferences for perquisite expenditure. Based on this assumption, we can explain the surge in convertibles issue during the latter half of the 1980s. The liberalization of convertible bond market started in the early 1980s weakened severity of bankruptcy constraints for corporate managers and thereby increased their perquisite expenditure. The sharp rise in stock prices during the second half of the 1980s produced optimistic expectations of future stock prices which helped managers expand the latitude of perquisite as equation (2) suggests. In contrast with this, since 1990, when pessimistic expectations have prevailed in the stock market, Japanese firms lost their enthusiasm for issuing convertibles. The amount of convertible bond issue has substantially decreased since 1990 as Chart 2 shows.¹⁸⁾

3.4 Evidence supporting the hypothesis

We can derive two propositions from our hypothesis of imperfect corporate governance. The first proposition is that the active issue of convertibles by a firm tends to increase its perquisite expenditure, thereby deteriorating the firms' performance from their shareholders' viewpoint. The second is that the more optimistic the stock market is, the more strongly stimulated managers to issue convertibles to increase perquisite expenditure. In the following, we consider statistical evidence as to whether these propositions

are true.

Responses of stock prices to convertibles issues: The most straightforward statistical test of the first proposition is to examine responses of individual firms' stock prices to issue of convertible bonds. This is an event study. According to our hypothesis of imperfect corporate governance, to issue the convertible bond signals the managers' intent to increase perquisite expenditure to the stock market. Thus, provided that the stock market is efficient, the stock price would negatively respond to the announcement of issuing convertible bonds. On the other hand, under the standard theory of corporate finance, to issue convertibles is a good news for outside investors who are suffering from imperfect information about corporate management. Therefore, stock prices would positively respond to the announcement of issuing convertibles.

We test the response of stock prices to issue of convertible bonds in the Japan's domestic market from 1985 to 1991. Specifically, we examine changes in the rate of return on shareholding for issuing firms compared with the average rate of return in their peer firms' stocks. If the issue of convertibles is a bad news for outside shareholders, the announcement of convertible issue will decrease the stock price and thereby reducing its rate of return.

It is essential for our test requires to identify when the news of convertible issues is made public by an issuing firm. When managers of a firm wants to issue a convertible bond, they must submit an application to an underwriting securities company at latest four months before the date when they schedule to issue the bond. The underwriter introduces the application

to the regular meeting organized by major underwriters to examine the feasibility of the proposed issue. After the regular meeting has decided that the proposed issue is feasible, the firm's board of directors officially determines to issue convertible with specific issuing conditions and releases the decision to press. At the same time, the firm is required to submit the securities registration statement to the MOF following the stipulation of the Securities Exchange Act.

Although the length of the time-lag between the press release and the day when convertible bonds are actually issued is variable case by case, usually it is several weeks. We can identify the precise date of announcement of individual issues by consulting news papers. We pick up cases of convertible bond issues given to the press from January to December of 1988 when Japanese firms most actively issued convertibles. The number of sample firms thus collected is a little less than three hundred. We had to exclude the firms not listed in the Tokyo Stock Exchange from our sample because the data of holding period return of their stocks is not available to us. The total number of sample firms is 262, of which 188 cases are issuing in the domestic market and 74 are issuing in foreign markets.

If the issue of convertible is bad (good) news for investors, the press release of the plan of issuing the bonds will decrease (increase) the firm's stock price immediately, and the holding period rate of return on the stock will be lower (higher) than those of peer firms during the specific month. The holding period rate of return $R_i(t)$ of a firm "i" in the month t when the firm announced the plan of issuing convertibles and the industrial average of holding period return $R_i(t)$ can be obtained from Japan Securities Research Institute. Table 7 summarizes the average $\sum_i [R_i(t) - R_i(t)]/n$ of estimated

responses in holding period return of issuing firms' stocks, where n is the size of sample. Our concern is whether the average is significantly negative as the hypothesis of the imperfect corporate governance predicts. If this hypothesis is true, the holding period returns of issuing firms' stocks are on average lower than the industrial averages around three months preceding their issues of convertibles.

The result in Table 7 is, unfortunately, ambiguous. In total, the average of holding period returns compared with industrial average is slightly negative. But it is not statistically significant at all. In the case of foreign issues, the stock prices seem to show a little stronger negative response to the announcement. But it is not significant either.

Therefore, our event study does not give a clear-cut support to the hypothesis of imperfect corporate governance. The standard hypothesis of convertible bond issues, which expects the positive response of stock prices to the announcement, is not supported either. However, we need a caveat. The validity of our event study crucially depends on the presumption that the stock market is efficient in Japan. This presumption is problematic. We have not yet reached any unambiguous conclusion concerning the efficiency of the Japanese stock market.¹⁹⁾ However, in my understanding, there are a lot of casual evidence which casts doubts on the validity of the efficiency hypothesis in Japan. Therefore, we should refrain from deriving a definite conclusion based on the event study summarized in Table 7.

Profitability after CB issues and the influence of stock price increases on CB issue: In the following, we examine the relevancy of the hypothesis of imperfect corporate governance by statistical methods alternative to the

event study we explained above. Specifically, based on the panel data from mid 1980s to the early 1990s, we test whether the firms that issued convertible bonds systematically experienced deterioration of their profit rate after issuing of convertibles compared with peer-firms in the same industries. The sample is 509 Japanese firms. They are major firms and until the late 1980s they had been eligible for issuing convertibles without collateral. In other words, they had been given the widest range of options in their fund-raising until the late 1980s. The dependent variable ($PRG(t)$) is the profit rate of each firm compared with the average profit rate of peer-firms belonging to the same industry. Independent variables are the lagged profit rate compared with the industrial average ($PRG(t-1)$), and the amount of convertibles issued each year divided by the total asset with suitable lags ($CB(t-i)$; $i=1, \dots, 4$). The sample period is the seven years from 1985 to 1991.

The result of panel data estimation is summarized in Table 8. The result clearly shows that an increase in convertible issues significantly decreased the profit rate of issuing firms with two or three years lag. This suggests that managers of major companies tend to issue convertibles in order to pursue their own objectives other than profit-maximization on behalf of current shareholders.

The second proposition derived from our model is that an increase in expected stock prices will induce incumbent managers to issue convertibles because it mitigates the constraint of bankruptcy for them. We examine whether this prediction was true during the late 1980s. We choose the amount of convertibles issued each year divided by the total asset as a dependent variable ($CB(t)$). Independent variables are lagged variables $CB(t-1)$,

CB(t-2), lagged stock prices ST(t-1), ST(t-2), and lagged profit rate PR(t-1) and PR(t-2). We introduce lagged variables CB(t-1), and CB(t-2) because rules concerning convertibles issue in Japan have greatly influenced the pattern of issuing behavior of individual firms.²⁰⁾ The lagged stock prices are introduced on the assumption that the lagged stock prices essentially determined investor expectations of the stock prices. We are particularly interested in statistical significance of these lagged stock prices in the following investigation. We choose the Tobit model to test the proposition, because frequency with which the dependent variable CB(t) takes zero is rather high — nearly 80 percent of dependent variable are zero. The estimated result is summarized in Table 9.

The result shows that a higher level of stock prices induced the firms to issue a larger amount of convertible bonds in the following year. Since we may suppose that an increase in stock prices positively influences the market expectations of the stock prices, the result suggests that the higher level of expected prices stimulated convertibles issue during the late 1980s. The result in Table 9, thus, supports our hypothesis that the bullish expectations in the stock market will induce corporate managers to issue convertible bonds. This suggests that the corporate governance has been inefficient in Japan from the view point of shareholders.

3.5 A discussion

We can summarize our investigation concerning the relationship between the surge of convertible bonds issue and liberalization in the bond market during the 1980s in Japan. The liberalization stimulated Japanese firms to issue a large amount of convertible bonds, thereby reducing their reliance on

bank loans. Although this impact of liberalization in the bond market seems to have been remarkable, it is rather doubtful whether the impact was genuinely productive. Convertible bonds and other equity-related bonds such as warrant bonds are instrumental for firms facing serious agency problems because they have just started their business or because they have not yet achieved excellent performance and more important because they do not enjoy favorable treatment from the long-term relationship with their main banks. In theory, such bonds would not be so attractive for the firms that have established themselves in the Japanese economy because they are not confronted with the agency problems caused by asymmetric information.

The liberalization in the Japanese corporate bond market has allowed more and more firms to utilize convertibles and warrants as a means of fund-raising. But the eligibility requirements confined the possibility of utilizing those instruments to relatively large-scale and well-established firms during the 1980s. The requirement excluded those firms that most needed the instruments from the corporate bond market. For example, the firms registered in the over-the-counter market, most of which were promising small and medium-sized companies, are not allowed to issue warrants at all, and find stricter constraints imposed on them when issuing convertibles as compared to well-established ones.

It should be noted that those small-scale firms have been relatively independent from the traditional main bank relationship which is supposed to weaken the pressure from capital markets on incumbent managers. They could not have afforded to abuse the freedom of issuing convertible bonds for the purpose of increasing perquisite expenditure instead of reducing the agency costs as suggested by the standard theory.

Therefore, the liberalization in corporate bond markets brought forth only superficial consequences in the 1980s. Most manager in the Japan's big companies enthusiastically welcomed the liberalization because it widened the possibility of increasing their perquisite expenditure by mitigating the constraint of bankruptcy. Our statistical examination confirms that the surge of issuing convertibles tended to be associated with increases in the perquisite expenditure during the latter half of the 1980s in Japan.

We may conclude that financial liberalization in Japan's corporate bond markets has been conducted in a distorted manner. The process indicates how timid or distrustful the related parties including monetary authorities are about the productivity of the full-scale market mechanism of the corporate bond market. They should acknowledge that the firms with significant possibility of default could be efficiently treated in the market. In other words, the corporate bond markets would not play a meaningful role when only blue chip firms without any risk of default are permitted to issue various instruments. There remain serious obstacles for small-scale and venture businesses in the Japanese corporate bond markets. The surge of issuing convertibles in the late 1980s and its aftermath of deteriorating performance of issuing companies in the early 1990s suggest the remaining weakness of Japanese capital markets.

4: Concluding Remarks

In this paper, we investigated the process of liberalization in the Japanese bond markets during the 1980s and its consequence in the late 1980s. The

domestic bond market has been greatly liberalized since the early 1980s, mainly because of the pressure from abroad associated with internationalization of financial markets. But the process of liberalization was distorted and imperfect in the sense that only well-established firms were permitted rather wide opportunities in choosing various bonds as a means of fund-raising, and small-sized and relatively newly established were not allowed to get access to such instruments. In theory firms of the latter type would have had genuine need for convertibles and other equity-related bonds. The consequence of the "distorted" liberalization was an increase in perquisite expenditure by well-established firms because convertible bonds mitigated the constraint of bankruptcy they had been confronted with during the high growth era.

This conclusion of this paper gives us two lessons. First, Japan should more boldly accept the market-oriented consequence of financial liberalization. Many Japanese, particularly the Japanese monetary authorities, are still sceptical about the efficiency of market-mechanisms in the financial system, and have an irresolute attitude toward full-scale liberalization. There appears to be a somewhat self-congratulatory attitude in their belief that their "careful" and conservative policy of liberalizing the financial system in Japan ("gradualism" in this paper) has contributed to stability in spite of drastic structural change since the mid 1970s. But we should pay enough attention to the negative effects of their conservative policy, such as those we have emphasized in this paper.

Second, the present situation of corporate governance in Japan is deserving of further careful investigation. In this paper we discussed that the nature of governance, which is imperfect from the shareholders'

viewpoint, has resulted in inefficient expenditure by corporations in the late 1980s. Many people might claim that the present structure of corporate governance actually stimulated rapid industrial development of the Japanese economy. The mutual shareholding among major corporations has protected incumbent managers from capital market pressures, thereby promoting managers' decision-making on long-term perspective. At the same time, the main bank relationship between banks and borrower firms is regarded as efficiently monitoring and disciplining managers to pursue efficient management in place of capital markets.²¹⁾

However, our recent experience indicates that we have not yet established the perfect structure of corporate governance in Japan. During the high growth era, the primary objective of corporate managers was to exploit the abundant opportunity of rapid growth. The Japanese corporate structure which give wide discretionary power to incumbent managers and current employees did not lead to serious losses for the other stake-holders mainly because the rapid growth of corporations covered up the potential conflict of interests between different stake-holders. When an industry is confronted with severe structural changes, however, the Japanese way of promoting wide discretion of incumbent managers and employees may have the weak point of delaying the restructuring of corporations. As Boot(1992) exemplifies, insiders of corporations tend to resist fundamental structural changes in order to preserve their own vested interests.

Full-scale financial liberalization is expected to strengthen the capital market monitoring of corporate management, thereby building up an efficient mechanism of corporate in Japan, which is somewhat different from the traditional one dominating Japan's corporate sector for more than four

decades. Thus, we should be much more positive in liberalizing the Japanese capital markets.

Footnotes

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1. See Frankel(1984) for detailed explanation of the agreement of Yen/Dollar Committee. The primary objective of this committee was to realign the Japanese yen which was regarded substantially undervalued. But, as Frankel points out, it was ambiguous whether the policy of liberalizing Japanese financial markets and other "strikingly policies" included in the agreement were effective in amending the undervalued Japanese yen.

2. As for the recent process of interest deregulation, see Federation of Bankers Associations of Japan (1994: pp.86-94).

3. The Financial System Reform Law of 1992 enforced in April 1993 allows financial institutions to compete in each other's spheres via subsidiaries. However, the entry of various financial institutions into other spheres has been controlled by the Ministry of Finance. The Ministry of Finance determines which financial institutions are allowed to entry into other spheres at what time.

4. Hoshi(1993) shows that Japan's major firms tended to decrease borrowing from banks by issuing convertible bonds during the 1980s.

5. The BIAC group met monthly throughout the high-growth period to

determine the volume of new private-sector debt issues, the firms that would be permitted to issue, and the specific terms of each issue. During the forced "low-interest-rate" period from about 1955 to 1970, the IBJ was in a most strategic position, given its status as the only permanent, nonrotating private-sector member of the BIAC. But, as Calder(1993) describes in great detail, the IBJ's role was not the "top-down" sort of allocation but more one of mediator. The convention of the BIAC was to react to specific requests to issue rather than to formulate general guidelines, where the IBJ organized a case-by-case consensus on these requests by private firms.

6. At present, this maximum proportion is 5 percent. In case of Japan's large companies, banks can be one of the largest shareholders of those companies by holding just a few percent of their shares.

7. During the high growth period, the underdeveloped nature of corporate bond markets did not seem to obstacle rapid industrial development. The intimate relationship developed between banks and borrower firms worked sufficiently well help industrial sectors finance their large investment expenditures. See, for example, Hoshi, Kashyap, and Scharfstein(1991), Prowse(1990). But, as this paper insists, the immature corporate bond markets has become a weak point in the mechanism of corporate governance when the banking sector has lost its dominance in the financial system.

8. In 1990 the system of eligibility requirements was radically changed in that in traditional requirements such as minimum net wealth were all abolished and instead the system of rating was introduced. Specifically, the firms with rating BBB can issue straight bonds for public placement. Those with rating more than A can issue straight bonds without collateral.

9. See MOF, *Annual Report of the Bureau of International Finance*, 1993,

p.139.

10. As Takeda and Turner (1992: pp.77-78) point out, bond issuance fees were significantly higher in the Japanese domestic market than in Euromarkets mainly because banks intensively intervene in the process of bond issues in the domestic market.

11. The hollowing of domestic corporate bond markets does not seem to have been mitigated in spite of the liberalization in domestic markets. According to Table 6, the relative importance of corporate bonds issued by Japanese firms abroad has increased since 1990. The MOF reportedly introduced the regulation of forbidding securities companies subscription sale of Eurobonds issued by Japanese firms to domestic investors in March 1993 in order to stop the hollowing phenomenon.

12. In January 1985 TDK undertook the first unsecured straight bond issue in the Domestic market since 1932; by February 1987 more than 350 other firms had also been authorized to do so. In 1985 MOF's Securities Exchange Council proposed the eventual abolition of the collateral rule, a change facilitating the flow of capital toward consumer- and service-oriented firms at the expense of by-now capital-rich heavy industry.

13. Hitachi issued U.S. dollar-denominated convertible bonds in September 1962. At that time Hitachi could not choose a straight bond because the company was not well known among U.S. investors. This case can be clearly understood from the viewpoint of the standard theory.

14. The importance of internal funds (i.e., depreciation and retained profits) was very low in the high growth period in Japan. The proportion of internal funds in the total amount of funds raise by major companies was 30.2 percent and 42.4 percent respectively in the 1960s and 70s. However, internal funds

have relatively increased since the early 1970s. From 1980 to 1984, the average proportion of internal funds was 56.4 percent. From 1985 to 1989, the proportion did not significantly decreased, remaining at 53.6 percent. (Source; The Bank of Japan)

15. For example, it was widely known that many Japanese firms could issue convertible bonds in Switzerland at zero coupon rates in 1989.

16. In practice, it is difficult to identify the perquisite expenditure by incumbent managers. But, for example, we may regard various investment expenditure in order to preserve and/or increase job opportunities for present employees as the typical perquisite expenditure. Many Japanese firms engaged in financial investment called "zai-tech" during the late 1980s. Those financial activities may also be the perquisite because they were associated with undue increase in the risk from the viewpoint of shareholders.

17. The ratio C is equal to the face value F of the convertible bond divided by the conversion price. In Japan the conversion price is determined at $(1+S)(\text{the standardized stock price})(\text{the number of stock})$, where S is institutionally determined by self-regulation among securities companies. The standardized stock price of an issuing firm is determined as an average of the firm's stock price over several days immediately before the issuing data. Thus, the conversion ratio C given by the following formula can be regarded as a constant.

$$C = F / [(1+S)(\text{the standardized stock price})(\text{the number of stock})]$$

18. As has been explained in the previous section, the eligibility requirement for domestic convertible bond issues has been substantially mitigated since the late 1980s. This mitigation has extended opportunities for small-scale

businesses to issue convertible bonds. Thus, the number of firms listed in the over-the-counter market which issued convertibles increases in the early 1990s.

19. See, for example, Hoshi(1987).

20. Since 1973, the self-regulatory rule determined by the group of underwriting securities companies has restricted the length of intervals when issuing convertibles so that the firms are in effect required to take an interval of at least one year to reissue convertibles.

21. See, for example, Aoki and Sheard(1992). There are some empirical studies which show evidence supporting the hypothesis that Japanese corporate governance led to efficient management particularly through monitoring and disciplining by "the main bank relationship." See Hoshi, Kashyap, and Scharfstein(1990a), (1990b), (1991), Lichtenberg and Pushner(1992), Morck and Nakamura(1992), and Prowse(1990). Most of their analyses are confined to the period until the late 1980s. If they considered the structural changes in the Japanese industry from the late 1980s to the early 1990s, they might have obtained more pessimistic results on the efficiency of current Japanese corporate governance.

References

- Aoki, Masahiko, Hugh Patrick, and Paul Sheard, 1994, The Japanese main bank system: An introductory overview, in Aoki, Masahiko and Hugh Patrick (eds.), *The Japanese Main Bank System: Its Relevancy for Developing and Transforming Economies*, Oxford University Press, forthcoming.
- Boot, Arnoud W., 1992, Why hag on to losers?: Divestitures and takeovers, *Journal of Finance* 47, 1401-1423.
- Brealey, Richard A., and Stewart C. Myers, 1991, *Principles of Corporate Finance*, 4th edition, McGraw Hill, Inc.
- Brennan, M. and A. Kraus, 1987, Efficient financing under Asymmetric information, *Journal of Finance* 42, 1225-1243.
- Federation of Bankers Associations of Japan, *The Banking Systems in Japan*, Federation of Bankers Association (Zenginkyo) 1994.
- Frankel, Jeffrey A., 1984, *The Yen/Dollar Agreement: Liberalizing Japanese Capital Market*, Policy Analysis in International Economics 9, Institute for International Economics.
- Hoshi, Takeo, 1987, Stock market rationality and price volatility: Tests using Japanese data, *Journal of the Japanese and International Economies* 1, 441-462.
- Hoshi, Takeo, 1993, Financial deregulation and corporate financing in Japan, mimeo, Graduate School of International Relations and Pacific Studies.
- Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1990a, Bank monitoring and investment: Evidence from the changing structure of

- Japanese corporate banking relationship, in R. Glenn Hubbard (ed.), *Asymmetric Information, Investment and Capital Markets*, University of Chicago Press, 105–126.
- Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1990b, The role of banks in reducing the costs of financial distress in Japan, *Journal of Financial Economics* 27, 67–88.
- Hoshi, Takeo, Anil Kashyap, and David Scharfstein, 1991, Corporate structure, liquidity and investment: Evidence from Japanese panel data, *Quarterly Journal of Economics* 106, 33–60.
- Horiuchi, Akiyoshi, 1989, Informational properties of the Japanese financial system, *Japan and World Economy* 1, 255–278.
- Horiuchi, Akiyoshi, 1993, Financial structure and managerial discretion in the Japanese firm: An implication of the surge of equity-related bonds, University of Tokyo Working Paper.
- Jensen, Michael, 1986, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, 323–329
- Jensen, Michael, and William Meckling, 1976, Theory of the firm: Managerial behavior, agency costs and ownership structure, *Journal of Financial Economics* 3, 302–360.
- Lichtenberg, Frank R., and George M. Pushner, 1992, Ownership structure and corporate performance in Japan, National Bureau of Economic Research Working Paper No.4092.
- Myers, Stewart, and Nicholas Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187–221.
- Morck, Randall, and Masao Nakamura, 1992, Banks and corporate control in

Japan, mimeograph, Faculty of Business, University of Alberta.

Prowse, Stephen D, 1990, Institutional investment patterns and corporate financial behavior in the U.S. and Japan, *Journal of Financial Economics* 27, 43-66.

Stein, Jeremy C., 1992, Convertible bonds as backdoor equity financing, *Journal of Financial Economics* 32, 3-21.

Takeda, Masahiko, and Philip Turner, 1992, *The Liberalization of Japan's Financial Markets: Some Major Themes*, BIS Economic Paper No.34.

Titmman, Sheridan, and Roberto Wessels, 1988, The determinants of capital structure choice, *Journal of Finance* 43(1), 1-19.

Table 1: Component of fund-raising by "major companies" in Japan
(average percent)

Period	Stocks	Bonds	Loans	Internal funds	Others	Total
1961-1970	6.1	5.6	37.7	32.4	18.4	100.0
1971-1975	4.0	7.0	42.6	33.8	12.6	100.0
1976-1980	8.0	8.1	20.9	50.7	12.4	100.0
1981-1985	11.4	10.5	11.7	61.2	5.3	100.0
1986-1992	11.6	17.6	8.4	51.0	11.4	100.0

Note: "Major companies" are around 600 firms chose from the group of listed companies whose book value of equity capital are more than ¥1.0 billion. Financial institutions are not included in the "major companies."

Source: The Bank of Japan.

Table 2: composition of the industrial funds
(average percent)

Period	Stocks	Bonds	Loans	Total
1931-1940	49.1	6.9	44.0(43.3)	100.0
1941-1950	13.3	3.7	83.1(72.5)	100.0
1951-1960	14.2	4.4	81.4(72.7)	100.0
1961-1970	9.4	3.5	87.1(78.9)	100.0
1971-1975	5.7	3.9	90.4(81.7)	100.0
1976-1980	7.1	4.3	88.7(75.2)	100.0
1981-1985	7.7	3.5	88.8(80.4)	100.0

Note: Figures in parentheses indicates component ratios of loans from private financial institutions. This table covers the net supply of external funds to all industrial firms in Japan. Therefore, this does not show very clearly the structural changes occurred in the major companies financing since the mid 1970s. Compare this table with Table 1.

Source: The Bank of Japan, *Economic Statistics Annual*. The BOJ stopped publishing this data in 1986.

Table 3: An example of eligibility requirements for convertible bonds

(As of May 1985)

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- (A) The book value of net wealth must be more than ¥10.0 billion.
 - (B) The amount of dividend must be no less than ¥5.0 per share.
 - (C) The after-tax profit per share must be either no less than ¥7.0 or the current profit must be positive immediately before the year and the after-tax profit per share must be expected to be no less than ¥7.00 in the coming year.
 - (D) The value of net wealth must be more than 1.2 times as much as equity capital.
 - (E) The equity capital ratio must be more than 15 percent.
 - (F) The profit rate per total capital must be more than 4 percent.
-
-

Note: The firm have to satisfy (A),(B),(C), and more than one among (D) to (F) before being permitted to issue convertible bonds with collateral. The eligibility requirements for issuing convertible bonds without collateral were much stricter than these. For example, the firms with less than ¥33.0 billion net wealth were not permitted to issue convertibles without collateral at all as of 1985.

Source: Nomura Research Institute.

Table 4: "Hollowing" of the domestic corporate bond market

Fiscal year	Total amount of corporate bonds issued by Japanese firms (A: ¥ billion)	Issued abroad (B: ¥ billion)	B/A (%)
1977	1,781	378	21.2
1978	2,253	563	26.1
1979	2,403	751	31.3
1980	1,791	701	39.1
1981	2,945	1,130	38.4
1982	2,887	1,375	47.6
1983	3,479	1,918	55.1
1984	5,130	2,795	54.5
1985	5,838	3,254	55.7
1986	8,670	4,118	47.5
1987	11,310	5,340	47.2
1988	14,635	6,891	47.1
1989	20,412	11,129	54.5
1990	8,809	5,437	61.7
1991	12,280	8,193	66.7
1992	10,396	6,001	57.7

Note: The corporate bonds include straight, convertible and warrant bonds.

Source: Association of Securities Underwriters.

Table 5: Convertible bonds issued by Japanese firms
in the domestic market. (¥ billion)

Fiscal year	Noncollateralized	With reservation of assets	With collateral	Total
1970	-(-)	-(-)	108(19)	108(19)
1971	-(-)	-(-)	62(10)	62(10)
1972	-(-)	85(6)	169(43)	254(49)
1973	-(-)	185(18)	210(63)	395(81)
1974	-(-)	117(13)	163(41)	279(54)
1975	-(-)	171(12)	160(29)	330(41)
1976	-(-)	0(0)	56(14)	56(14)
1977	-(-)	35(3)	128(23)	163(26)
1978	-(-)	145(5)	232(22)	377(27)
1979	50(1)	150(7)	154(23)	354(31)
1980	0(0)	40(1)	57(11)	97(12)
1981	60(1)	208(15)	258(36)	526(52)
1982	45(1)	182(12)	191(33)	418(46)
1983	50(2)	604(29)	208(36)	861(67)
1984	856(34)	364(31)	382(60)	1,611(125)
1985	665(29)	376(29)	545(84)	1,586(142)
1986	2,342(95)	291(18)	836(91)	3,468(204)
1987	4,322(204)	228(21)	505(77)	5,055(302)
1988	6,335(252)	136(17)	524(64)	6,995(333)
1989	7,022(245)	128(13)	490(37)	7,640(295)
1990	853(40)	20(3)	39(4)	911(47)
1991	1,151(69)	71(13)	57(4)	1,279(86)
1992	534(30)	27(7)	14(2)	575(39)

Note: Figures in parentheses present the number of convertible bonds issues.

Source: Nomura Research Institute.

Table 6: The process of liberalizing the noncollateralized convertibles.
Changes in the eligibility requirement of minimum value of the
net wealth and the number of eligible firms.

Date	The minimum value of net wealth	Changes in the number of eligible firms
March 1979 ¹⁾	¥150 billion	2
January 1983	¥110 billion	11 → 25
April 1984	¥55 billion	26 → 97
July 1985	¥33 billion	111 → 175
February 1987	¥20 billion ²⁾	180 → 330 ⁴⁾
November 1988	¥20 billion ³⁾	130 → 500 ⁴⁾

- Notes: (1) The eligibility requirements for noncollateralized convertible bonds were first determined in March 1979.
- (2) The rating criterion was introduced. The firm A or higher rated became eligible irrespective of the minimum net wealth value and other requirements. The firms with rating BBB or higher were eligible if their net wealth were no less than ¥55.0 billion.
- (3) The firms with rating BBB became eligible if their net wealth were no less than ¥33.0 billion.
- (4) They are presented in round numbers.

Source: *The MOF, Annual Report of Securities Bureau.*

Table 7: Relative rate of return on the stocks when the firm determined to issue convertible bonds, compare with the industrial average (%), January to December of 1988.

	Number of firms	Average	Standard errors
Domestic issues	188	0.24	0.48
Foreign issues	74	-0.88	0.81
Total	262	-0.07	0.41

(Note) The basic date is the holding period return (from the end of the previous month to the end of the current month) on the stock, when issuing firms announced their issuing plans, minus the average of the industries' holding period return. The sample consists of all firms which released the plan of issuing convertibles from January to December 1988. Our sample excludes those firms which were listed in neither in the the Tokyo Stock Exchange, because the data of their holding period return were not available in our data source. There were some cases in which a firm issued a few convertible bonds on the same day to raise a large amount of fund. In this table, we do not treat the multiple issues separately. Therefore, the number of issuing firms in this table is smaller than the number of issues recorded in Table 5.

(Source) Nomura Research Institute, Handbook of Japanese Bonds (*Koshasai Yoran*), and Japan Securities Research Institute, Rates of Return on Common Stocks (*Kabushiki-toshi Shuekiritu*).

Table 8: Profit rates and convertible bond issue, 1985-1991.

Panel data estimation (random effects method)

Dependent variable: PRG(t)	
PRG(t-1)	0.60100 (50.19)
CB(t)	-0.00379 (-0.49)
CB(t-1)	-0.01362 (-1.81)
CB(t-2)	-0.03833 (-4.79)
CB(t-3)	-0.03616 (-4.16)
CB(t-4)	-0.01777 (-1.86)
Const.	0.00725 (11.17)
Mean of dependent variable	0.00821
Sum of squared residuals	1.55409
Std. error of regression	0.02258
Adjusted R-squared	0.3126

Notes: PRG(t): the operating profit rate (per total asset) of each firm minus the average profit rate of the industry.
 CB(t): the amount of convertible bonds issued by each firm divided by the total asset.
 Figures in parentheses indicate t-value.
 Source: NIKKEI NEEDS. TS. COMPANY

Table 9: Stock prices and convertible bond issue, 1985-1991.

Tobit estimation

Dependent variable: CB(t)

Const.	-0.19034 (-15.73)	
CB(t-1)	-0.16596 (-2.11)	
CB(t-2)	0.32382 (4.20)	
ST(t-1)	0.02374 (3.35)	
ST(t-2)	0.00170 (0.26)	
PR(t-1)	0.96481 (5.83)	
PR(t-2)	-0.48500 (-2.05)	
Log of likelihood function		-735.923
Percent of positive observations		0.20236

Notes: ST(t): stock price at end of year t, standardized by setting stock prices at 1991 year end 100.0.

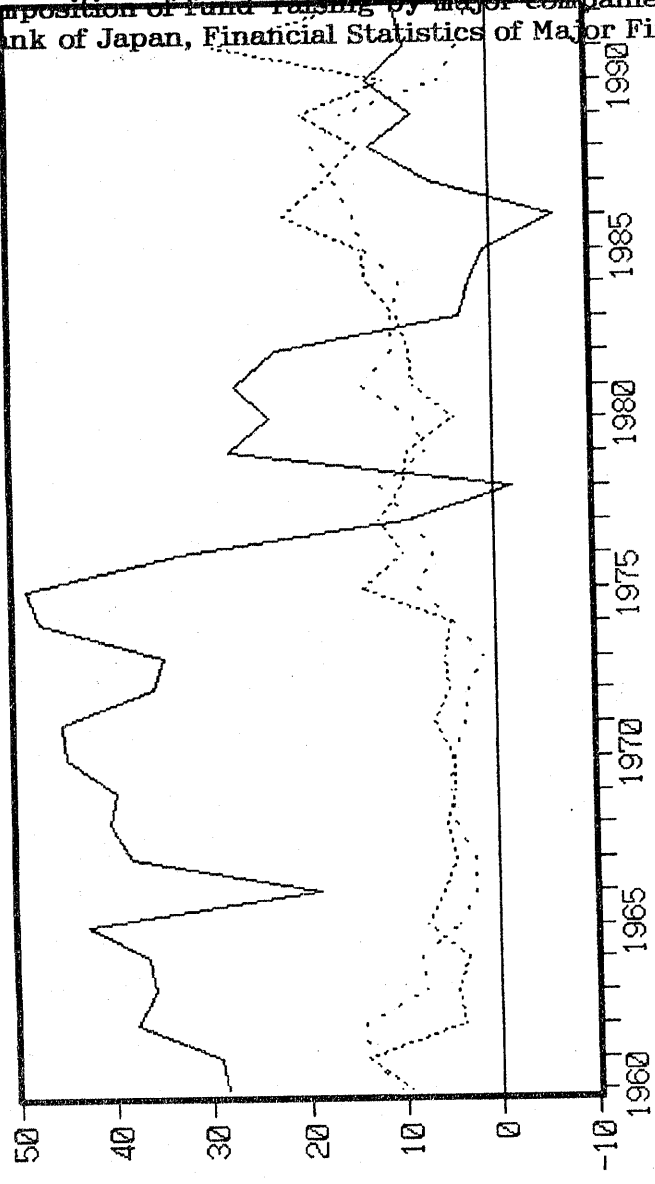
PR(t): profit rate per total asset in year t.

Figures in parentheses present t-value.

Source: *NIKKEI NEEDS. TS. COMPANY*

Chart 1: Composition of fund raising by major companies, F.Y.1969-1992
 (Source) Bank of Japan, Financial Statistics of Major Firms (Shuyo Kigyo Keiei Bunseki)

Chart 1: Composition of fund-raising
 by major companies, F.Y.1969-1992



Fiscal year
 — Borrowing ····· Bonds ····· Stocks

Chart 2: Corporate bonds issued by Japanese firms, F.Y.1979-1992
 (Source) Nomura Research Institute, Hand-Book of Japan's Bond Markets
 (Koshasai Yoran)

