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An Overview of the Japanese Financial System: A Perspective of the Economic Analysis of Information

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1. Introduction

The Japanese people have been more interested in the study of the financial structure than other peoples. A prevailing perception among the Japanese is that Japan's financial structure is quite different from that of other advanced industrial countries, especially the United States, and that an indirect finance regime, or more specifically bank loans, dominated financial mechanisms. This 'peculiarity' of the Japanese financial system was often denounced as a weak point to be removed as soon as possible.

Most of the extreme views that Japan's financial system was peculiar seem to have disappeared with the progress of economic analysis in the financial system. It is now clear that not only in Japan but also in any other industrialized economies that the indirect finance supported by the banking sector plays the most important role of financial intermediation. Of course, banks are more important in some countries (e.g., Japan) than other countries (e.g., the United States). But, in any case, it is not a matter of substance but a matter of degree.

There still remain, however, something mysterious about specific modes of bank loan transactions. We observe a sort of the long-term relationship between banks and borrowing companies, which is exemplified by the 'main bank' affilia-

tions. Most observers believe that the main bank relationship has played an essential role of supporting Japan's industrial development after World War II by making it possible for major companies to obtain sufficient amount of funds under favorable conditions. In fact, a few hypotheses have been proposed to explain 'the rationality' of this type of long-term relationship. However, because it seems to lack the flexible price mechanism, the main bank relationship is criticized as having introduced inefficiency into the financial system. Some would go so far as to allege that the long-term relationship between banks and major borrowers is a formidable blockage against entry of newcomers into the bank loan market and that it works to suppress effective competition among fund suppliers. At the same time, the long-term relationship may have the rigidity that prevents the development of financial transactions other than bank loans. If the dominant feature of the long-term relationship have hindered the well-balanced development of the market mechanism of financial markets, especially that of the capital market, it implies the Japanese financial system is inefficient, and we should take some measures to remove the hindrance.

Thus, understanding the long-term relationship (i.e., the main bank relationship) in the financial markets is one of the essential clues to interpreting financial mechanisms of the Japanese economy. The purpose of this paper is to provide an overview on the workings of the Japanese financial system by focusing on this long-term relationship. Of course, a number of comprehensive surveys on the Japanese financial system have already been available to us.1) Therefore, it is necessary to point out the uniqueness of this paper in advance in order to justify one more addition to literature.

The following discussions will be unique in that they follow faithfully the economic analysis of information that has been rapidly developing for the last

decade. We will interpret the workings of the long-term relationship between banks and borrowing companies as an efficient means of producing information. In the next section (Section 2), we will introduce a scheme of the market vs. hierarchy solution with a view to differentiate two ways of dealing with the imperfect information in the financial system. This scheme is, in our view, more useful to understanding the nature of financial intermediation than the traditional one introduced by Gurley and Shaw(1960).

In Section 3, we will examine the Japanese main bank relationship mainly based upon the scheme of market vs. hierarchy solution. A few alternative hypotheses concerning the role of the main bank relationship will be discussed respectively. According to our observation, the main bank has been important in the Japanese financial system because it is the most important producer of relevant information within the framework of financial intermediation based on the hierarchy solution.

In Section 4, we will examine the relative importance of the hierarchy solution vis-a-vis the market solution in the Japanese financial system. In Japan, not only bank loans market but also capital markets seem to have been dominated by the hierarchy solution. Specifically, we will discuss how the Bond Issue Committee (BIC) has 'adjusted' the process of issuing corporate bonds. This Committee's activities can be regarded as a form of the hierarchy solution in the process of financial intermediation in the bond market.

We will take up a difficult task of evaluating the efficiency of the Japanese financial system in Section 5. While the financial system characterized by the dominant importance of the hierarchy solution may have had comparative advantage of dealing with the serious degree of informational imperfection immediately after World War II, the dominant influence of the hierarchy

solution has hindered the development of efficient capital markets. We will emphasize that the underdeveloped nature of the capital market will be a serious defect of the Japanese financial system. In the last Section 6, a few summaries and a brief concluding remark will be given.

2. Information Production and the Structure of Financial System

The financial transaction is surrounded with imperfect information in that the lender cannot ascertain the borrower's credibility without expending tremendous resources. Any financial system would have to appropriately cope with the imperfect information if it should attain the efficient allocation of financial resources. We can characterize each financial system by its mode of intermediation to resolve the difficulty of imperfect information. In other words, we can interpret the mechanisms of an economy's financial system and compare them with those of other economies in terms of specific ways of overcoming the difficulty.

The market solution vs. hierarchy solution: Following Oliver Williamson (1975), we can define two ways of coping with the imperfect information; one is the market solution, the other is the solution through hierarchies. The market solution means that both production and distribution of the information totally depend upon market mechanisms. For example, in the United States, a number of rating companies produce the valuable information concerning the credibility of specific fund raisers and sell it to market participants.

It is well known, however, that the information is one of the commodities that are difficult to be traded through markets, because buyers hardly know the quality of specific information before purchasing it, and because producers cannot prevent the information sold to the market from being copied free of charge. The former is the problem of a 'lemon' emphasized by Akerlof(1970), and the latter is the appropriation problem. Because of these problems, imperfect information tends to remain in financial intermediation under the market solution. Therefore, without being reinforced by any other means, the market solution would suffer from both instability and the agency cost caused by the imperfect information.

Under the market solution, some instruments such as various options and complex financial contracts are introduced to resolve agency problems in financial markets. The capital market must be sufficiently dynamic in that investors can easily achieve financial integration by appropriately mixing their holdings of bonds and stocks, and that investors can easily take over existing inefficient companies.2) At the same time, we need to establish some statutory rules concerning the financial information, for example the regulation of disclosure and prohibition of insiders' trading.3) The activity of rating companies effectively supports the rule of disclosure in the United States, because it makes the disclosed information on specific fund raisers more credible than the case where only fund raisers would disseminate information on themselves. These characterize the mechanism of the U.S. financial system, which we can regard as the most conspicuous example of the market solution.

Another solution to the imperfect information is one of hierarchies. This solution depends upon efficient banking system, within which the production of financial information and other intermediating activities such as risk-taking

are integrated. It is easy to see that the integration of the information production and its utilization is an effective means to overcome the difficulties accompanied with trading information in markets. In this case, producers of the information utilize it by themselves, so the 'lemon' problem does not take place. The problem of appropriation can also be avoided here, because the produced information is not sold to other agents through markets. Thus, the hierarchy solution have the advantage of resolving agency problems deriving from the imperfect information. We can recognize that the raison d'etre of financial intermediaries such as banks is the efficient resolution of the difficulties of producing information.

The production of information concerning credibility of borrowers is often accompanied with some forms of 'long-term relationship' between the lender and the borrower. The long-term relationship with specific borrowers, in particular those of companies, helps the lender accumulate relevant information about them. The relationship is also useful for the lender to closely monitor the behavior of borrowers. Banks and other financial institutions tend to intensively depend upon the long-term relationship with their borrowers as an efficient means of producing information. Of course, in the framework of market solution already explained, the long-term relationship may work in a similar way with respect to the production of information. As Hayes et al.(1983) points out, the U.S. investment bank that produces information about fund raisers and signals it to investors often has a long-term relationship with those fund raisers. The relationship is called the 'client relationship'. Here, it should be pointed out that, under the hierarchy solution, banks and other financial institutions that produce information also commit themselves to risk-taking by putting money into their borrowers.4)

Since the hierarchy solution crucially depends upon the long-term relationship between lenders and borrowers, the lenders' risk-taking behavior is connected to the relationship. The lender holds an implicit but tangible capital asset of accumulated information concerning its specific customers. This asset can be accumulated only through financial transaction with their borrowers over a long period of time, and because of its specificity the marketability of the asset is seriously limited. The lender obtains return from the asset of accumulated information only through maintaining the relationship as long as possible. In this sense, the accumulated asset of specific information is the sunk cost for the lender. This implies that the hierarchy solution enforces banks and other financial institutions to have relatively long term perspectives when they decide to what extent they commit themselves to risk-taking.

Under the hierarchy solution, the relationship between a specific lender and a specific borrower tends to be intimate depending on the past history of their transactions. This means that it is rather difficult for a newcomer to intrude into the market. In short, the sunk cost of the accumulated asset of specific information reduces the degree of contestability of the financial market, thereby reducing the competitiveness of the market.5)

The type of financial intermediation and the workings of financial system: In principle, we cannot say which one of these two type of financial intermediation is more efficient than the other. However, it is not hard to see that the workings of a financial system would be substantially different under the system of market solution than that of a hierarchy solution. The financial system under the market solution would be characterized by rather rigorous statutory regulations concerning information handling by borrowers, the active introduc-

tion of a number of sophisticated financial instruments and contracts, the severe competition among lenders for potential borrowers, and the unstable balance between the dynamic market mechanism and the relatively high degree of imperfect information. On the other hand, the financial system under the hierarchy solution would be characterized by rather stable and long-term relationships between lenders and borrowers, the lack of dynamic introduction of new modes of financial transactions, and relatively high barriers against outsiders' entry into financial markets.

Every financial system resolves the difficulty of imperfect information by these two ways. While some parts of the financial market, say those for small-scale business borrowers and for consumers, seem to depend on the hierarchy solution, other parts, for instance where the government institutions or big business companies are main borrowers, can rather easily adopt the market solution. The relative importance of these two solutions in an economy reflects the degree of seriousness of imperfect information. The more serious the imperfect information, the more important the hierarchy solution will become, because the solution has the comparative advantage of efficiently producing financial information.

Therefore, it would be an exaggeration to say that the U.S. financial system can be totally characterized by the market solution, and that the Japanese system is dominated by the hierarchy solution. However, we cannot deny that the dependence of the financial system on the hierarchy solution is substantially higher in Japan than in the United States. In my view, this relative difference has been connected with the different working of the financial market in both economies. In the following, the working of the Japanese financial system will be investigated in terms of the scheme of resolution of imperfect information.

The main subject of our investigation is the 'main bank relationship', because this relationship seems to be the most conspicuous form of the hierarchy solution in the Japanese financial market. The investigation will help us clearly understand both the present situation and the expected change of the Japanese financial market.

The classification of market vs. hierarchy and Gurley-Shaw's classification of direct vs. indirect finance: We have discussed two ways of coping with imperfect information in the financial system; the market solution and the hierarchy solution. Since it has been conventional to rely on the classification proposed by Gurley and Shaw(1960) in their seminal work when we discuss the financial structure, we may give a few remarks concerning the relationship between Gurley-Shaw's classification of the direct vs. indirect finance and our classification.

As has already been clear, our classification focuses on the issue how the information is dealt with in the process of financial intermediation. On the other hand, Gurley and Shaw emphasizes whether the primary borrower sells his IOU directly to the nonfinancial primary lender or indirectly to the financial intermediary. This Gurley-Shaw's viewpoint may be defect that it confuses functionally different financial transactions, and it mistakenly regards the same kinds of financial intermediation as different.

For example, according to Gurley-Shaw's classification, both trade credit supplied by a trading company to its trading partner and a nonfinancial investor's purchase of government bonds through the brokerage by a securities company is regarded as 'direct financing'. However, in general, the former is crucially dependent on the long-term relationship between the two companies that

work to reduce the degree of imperfect information. The latter case can be regarded as free from the problems of imperfect information, because the government is one of the most creditworthy borrowers in our society. Thus, we should differentiate these two cases, although Gurley-Shaw would regard them belonging to the same kind of finance.

3. The Mechanism of the Main Bank Relationship in Japan.

The main bank relationship is a specific mode of financial transaction that is based on some long-term relationships between borrowers and lenders. According to a number of observers, in Japan, almost all of the big companies have a main bank; i.e., they belong to a financial group (known as '*kinyu keiretsu*') organized by major banks. The big company has been able to depend on the main bank relationship to satisfy its financial necessity. Especially, during the era of high economic growth (i.e., the period of the 1960s and the early 1970s), Japanese companies could heavily borrow from their main banks. At the same time, it is a common view in Japan that the relationship between borrowing companies and their main banks is remarkably stable, and that the traditional price mechanism scarcely works within it.6) In this section, we focus on Japan's main bank relationship, because as many observers have already pointed out, it has characterized the workings of the financial system in Japan.

What should be explained?: There are a few alternative hypotheses provided to explain the main bank relationship. One of the most well known in Japan is the risk-sharing hypothesis that emphasizes the role of main banks as a provider

of insurance to their major customers, i.e., business borrowers.7) Another is the hypothesis of 'the delegated monitor', which emphasizes the main bank's information production and its coordinating activities. However, any hypotheses must explain the following phenomena related to the man bank, if they are to be relevant.

First, as has just mentioned, the main bank relationship is the long-term customer relationship between a specific borrower and a specific bank. There have been some cases in which a company dissolved its long-term relationship a bank, entering long-term relationship with another bank. However, they were relatively rare. Most of the main banks relationships have been maintained for long. Therefore, a relevant hypothesis must explain the implications of the long-term relationship.

Secondly, the main bank plays an important role when its affiliated companies face difficulties. In general, the main bank tends to send its senior staff to companies in trouble to help reorganize management. The main bank takes the initiative to arrange with other lenders a package of program to rescue the borrower. When the company in trouble has substantial influence in the economy, the monetary authorities take an interest in the rescuing program. In this case, the main bank becomes a coordinator between the authorities and the group of lenders.

However, the intervention of the main bank does not necessarily mean saving its affiliates from bankruptcy. In spite of the main bank's activities, its affiliated companies sometimes go bankrupt. In case of bankruptcy, the main bank bears the bankruptcy costs in order to lighten the burden imposed on other lenders that have committed themselves to the failed borrower.8)

Thirdly, major Japanese companies have borrowed a substantial amount of

funds from banks and financial institutions other than their main banks. Table 1 presents the composition of loans borrowed by each of four big companies, i.e., Shin Mitsubishi Heavy Industry, Nihon Kokan, Hitachi and Nissan, at March 1961. These companies' loan from their main banks amount to far less than half of their total borrowing. Table 2 gives more comprehensive statistics. It presents the extent to which the first section companies affiliated with city banks or the long term credit banks on borrowing from their main banks. We can see from this table that, in general, Japan's major companies depend on main bank borrowings for only 30 - 40 % of all borrowings from city and the long-term credit banks.9)

The risk-sharing hypothesis: According to the risk-sharing hypothesis, the borrower can shift some of their business risk to its main bank. It is assumed that this risk-sharing is achieved through the 'implicit contract' between the borrower and its main bank. Some economists claim that Japanese companies can borrow from their main banks at a lower interest rates when the financial market is tightened and therefore money market interest rates are rising. This is a mechanism of the risk-sharing because borrowing companies shift the risk of tight money to their main banks that offer low interest rates. In fact, we can easily see from major companies' annual reports (Yukashoken- Hokokusho) that their main banks do not offer lower interest rates.

Moreover, this type of risk-sharing hypothesis cannot explain the characteristics of the main banks' long-term connection, which is the first phenomenon stressed above. In this hypothesis, the risk to be shared between the lender and the borrower is the fluctuations of money market interest rates. Since every agent can ascertain the true state of interest rates quite easily, we can-

not understand why the lender and the borrower should establish the long-term relationship, which can be supposed to be effective in accumulating specific, not general, information concerning the borrower.

Another type of the risk-sharing hypothesis has a little wider scope than the one we have just discussed. This emphasizes that the main bank should provide the borrowing company with insurance against the borrower's bad business performance. According to this hypothesis, when a borrowing company experiences a fall of operating profits, the main bank helps the company stabilize its net profit by offering lower financial costs (including not only loan interest rates, but also various financial expenses such as foreign exchange fees). This risk-sharing requires the bank to obtain specific information concerning the borrowing company, which explains the long-term relationship of the main bank affiliation. The long-term relationship can also be regarded as an efficient way of monitoring borrowers to prevent their moral hazard that financial contracts of risk-sharing is likely to induce.

Obviously, this hypothesis of risk-sharing provides a refutable proposition; i.e., changes in affiliated companies' financial expenses will positively correlate with those in their operating profits. But, this proposition does not seem to be consistent with the data. We have obtained the statistical result that the financial expenses of individual major companies belonging to the chemical industry have not significant positive correlations with their operating profits.10)

We get a rough image of the irrelevancy of the risk-sharing hypothesis from Chart 1. This chart presents operating profits of the major Japanese companies in the manufacturing industry, almost all of which have main banks, and their financial expenses. (Both are denominated by the total value of the assets in

order to eliminate an obstructive time trend.) The financial expense shows the remarkable stability, while the operating profit widely fluctuates. This evidence may be far from decisive in denying this risk-sharing hypothesis, but it is difficult to find any plausible evidences supporting the hypothesis.

The risk-sharing hypothesis obviously depends upon the assumption of the implicit contract between the borrower and its main bank. However, this assumption does not appear to be consistent with the third phenomenon we have discussed. The third phenomenon implies that the amount of funds each company borrows from its main bank is not so large as to give sufficient insurance to the borrower. Even if a company can get any insurance through bilateral contract with the main bank, other banks would not necessarily follow the contract. Then, the borrower could not escape from the uncertainty. In short, the third phenomenon indicates that the main bank is a constituent of cooperative financing for Japan's lending companies. The risk-sharing hypothesis is weak at explaining this phenomenon.

Table 1: Composition of Major Companies' Borrowing as of March 1961 (¥ million)

(a) Shin-Mitsubishi Heavy Industry			
(1) Short-term borrowing: from	Mitsubishi Bank*		7,131 (27.5)
	Other City Banks	[11]	11,570 (44.6)
	Long-term Credit Bank	[1]	547 (2.1)
	Trust Banks	[6]	1,671 (6.4)
	Regional Banks	[27]	4,210 (16.2)
	Insurance Company	[1]	100 (0.4)
	Others	[1]	700 (2.7)
	Total	[48]	25,929(100.0)
(2) Long-term borrowing: from	Mitsubishi Bank*		391 (2.1)
	Other City Banks	[3]	539 (2.9)
	Long-term Credit Bank	[2]	3,641 (19.3)
	Trust Banks	[6]	6,558 (34.8)
	Insurance Companies	[2]	1,250 (6.6)
	Public Fin. Inst.	[2]	6,182 (32.8)
	Local Government	[2]	284 (1.5)
	Total	[18]	18,845(100.0)
(b) Nihon-Kokan (Steel)			
(1) Short-term borrowing: from	Fuji Bank*		3,840 (31.0)
	Other City Banks	[10]	5,590 (45.1)
	Long-term Credit Bank	[1]	225 (1.8)
	Trust Banks	[4]	210 (1.7)
	Regional Banks	[13]	2,475 (20.0)
	Others	[2]	60 (0.5)
	Total	[31]	12,400(100.0)
(2) Long-term borrowing: from	Fuji Bank*		160 (0.6)
	Other City Banks	[3]	280 (1.1)
	Long-term Credit Banks	[2]	11,302 (42.4)
	Trust Banks	[2]	6,636 (24.9)
	Insurance Companies	[2]	7,995 (30.0)
	Total	[10]	26,673(100.0)

Table 1 (continued)

(c) Hitachi			
(1) Short-term borrowing: from	IBJ*		4,290 (8.5)
	City Banks	[13]	38,012 (75.6)
	Regional Banks	[15]	5,790 (11.5)
	Trust Banks	[5]	1,520 (3.0)
	Total	[35]	50,312(100.0)
(2) Long-term borrowing: from	IBJ*		9,144 (26.2)
	City Banks	[11]	928 (2.7)
	Other Long-term C.B.	[1]	760 (2.2)
	Regional Banks	[25]	2,380 (6.8)
	Trust Banks	[6]	12,654 (36.2)
	Insurance Companies	[7]	3,470 (9.9)
	Public Fin. Inst.	[2]	4,560 (13.0)
	Local Government	[9]	1,067 (3.1)
	Total	[62]	34,963(100.0)
(d) Nissan Automobile			
(1) Short-term borrowing: from	IBJ*		1,180 (6.7)
	City Banks	[12]	12,555 (70.9)
	Regional Banks	[3]	1,980 (11.2)
	Trust Banks	[4]	1,700 (9.6)
	Mutual Savings Bank	[1]	300 (1.7)
	Total	[21]	17,715(100.0)
(2) Long-term borrowing: from	IBJ*		2,549 (45.5)
	Trust Banks	[5]	2,874 (51.3)
	Insurance Companies	[2]	18 (0.3)
	Public Fin. Inst.	[1]	110 (2.0)
	Public Corporation	[1]	24 (0.4)
	Local Government	[1]	26 (0.5)
	Total	[11]	5,601(100.0)

Note: Figures in [ ] indicate the number of financial institutions that supply loans to respective companies.
* The main bank of each company.

The hypothesis of the 'delegated monitor': We have critically discussed the risk sharing hypothesis. Although a number of the Japanese economists have favored it, the risk sharing hypothesis does not seem to explain much of the actual workings of the main bank relationship. The hypothesis of the 'delegated monitor' is more promising than that of risk sharing.

According to this hypothesis, the primary role of the main bank is to communicate its assessment of borrowers' credibility to other banks and financial institutions.11) The long-term relationship with its affiliated companies is an efficient way of economizing the cost of gathering specific information about those companies. The main bank is supposed to communicate its information to other banks by making a commitment to affiliates through lendings. The other banks decide their loan strategy to a specific company by interpreting signals conveyed by the behavior of the borrower's main bank. Affiliated borrowers compensate their main bank for its delegated monitor by offering a relatively favorable exchange fee, compensating balances, and so on.

As has been explained at the beginning of this paper, assessing the quality of information poses a big problem for the financial system. In the main bank relationship, the main bank is required to make a commitment to its affiliated borrowers in order to guarantee the quality of information about those companies.12) The relative share of the main to a specific borrower, therefore, tends to be larger than those of other banks.

There are two reasons why the main bank tends to take various means to rescue its affiliated companies in trouble, the second phenomenon we have already discussed. First, the main bank must make this endeavor in order to retain its reputation of a reliable producer of information. If a company in trouble goes bankrupt, it will seriously damage the credibility of the main

Table 2: Changes in the Importance of Main Banks (%)

Name of Banks	1962	1967	1972	1977	1983
Dai-ichi Kangyo	36.5	44.7	29.9	27.1	26.1
Mitsui	28.4	25.6	24.2	21.9	19.7
Mitsubishi	41.4	32.0	31.0	29.4	28.0
Sanwa	40.0	31.7	32.0	31.9	28.1
Sumitomo	40.8	35.1	30.3	28.3	26.5
Fuji	36.8	34.8	32.9	27.4	24.5
Tokai	41.5	40.7	37.4	40.5	31.8
Daiwa	55.5	56.9	40.4	40.2	34.4
Kyowa	39.4	55.7	62.3	49.6	33.6
Taiyo-Kobe	54.7	55.3	37.6	45.8	37.7
Saitama	---	---	44.4	52.1	47.6
Hokkaido Dev.Bank	47.7	53.7	40.2	18.3	22.6
Tokyo	60.2	45.9	33.6	35.8	33.5
IBJ	39.7	42.9	38.2	40.3	37.5
JLCB	55.7	40.4	45.2	64.9	62.7
Nihon Saiken	---	82.9	82.4	49.6	---

Source: Economic Research Association, Analysis of Major Financial Institutions' Investment and Finance, various issues.

Note: The figure refers to the ratio of a major (1st section) company's dependence on main bank borrowings of all borrowings from the city banks and the long-term credit banks. In general, the major company borrows from other banks and financial institutions than those banks. Therefore, its actual dependence on the main bank is lower than the figure indicates.

bank acting as a delegated monitor. Thus, under the hypothesis of the delegated monitor, it is quite natural for the main bank to be eager to rescue the affiliated company.

Secondly, as has already been argued, the main bank has accumulated intangible capital specific to its relationship with affiliated borrowers. This intangible capital asset will be totally lost if a specific company disappears as a result of bankruptcy. Therefore, the main bank has more incentive to rescue affiliated companies than other banks.

Of course, this does not mean that the main bank always rescues its affiliated borrowers at any cost. The main bank compares the benefits and costs of bailing out a borrower in trouble. If the main bank estimates the costs to be larger than the benefits expected to be brought forth by the continuation of the long-term relationship, it will not rescue the borrower. In this case, the main part of the costs associated with borrowers' bankruptcy will be borne by the main bank, because by doing so it can limit the harm to its reputation as an information producer.

This role of the main bank may seem like too much risk-taking by banks. However, the degree of risk the main bank must take has been limited by the rule of 'collateral requirements'. In Japan, it has been common to require either personal or physical collateral in order to assure the quality of the loan assets.13) Of course, it is not easy to assess the market value of collaterals, and costly for lenders to manage them. Moreover, it is said that banks sometimes change the degree of severity of collateral requirements in response to financial market conditions as a way of adjusting the 'effective' loan rates on borrowing companies. Therefore, the rule of collateral requirements in Japan has not been perfect in guarding lenders' interests against borrowers' failure.

However, it is certain that the rule has restricted the extent to which borrowers could transfer the risk to lenders.14) Thus, the traditional rule of collateral requirements has helped the main bank take the responsibility explained in the second phenomenon.

4. The Relative Importance of the Hierarchy Solution in Japan.

A rough comparison between the United States and Japan: We have discussed the mechanism of financial intermediation of the hierarchy solution type, which is exemplified by the Japan's main bank relationship. It has been emphasized that this type of financial intermediation can be regarded as an efficient system for producing the information necessary for various financial transactions. If this is true, then similar relationships must be universally observed in every financial system. In Japan, and in other economy the exchange of information between lenders and borrowers is indispensable. Actually, some observers point out the existence of the long-term relationship (or relationship banking)in the United States.15)

A number of the U.S. investment banks also have established long-term customer relationships with big companies, which are called the 'client relationship'. The client relationship indicates that each major company in the U.S. tends to steadily rely on financial arrangements supplied by a specific investment bank in raising funds in capital markets.16) It would be possible to explain this long-term relationship between the investment bank and its customers by our hypothesis of the delegated monitor. However, as has been emphasized in the theoretical analysis, taking risk positions by itself is not a

primary task for the investment bank. The financial transactions intermediated by the investment bank is characterized by the separation of information production from risk taking activities. In short, the investment bank in the United States is a major player in the financial system characterized by the market solution.

In order to make a rough comparison of the share of market versus hierarchy solution, we compare the structure of corporate business fund raising in Japan with the United States in Chart 2. In this chart, the fund raising by corporate businesses is divided into two parts; i.e., the fund raising of 'the market solution type' and that of 'the hierarchy solution type'. The former consists of the raising by equity stocks, various corporate bonds, and commercial papers. The latter consists of various borrowings from banks, other private financial institutions, public agencies, and trade credits.17)

According to Chart 2, it is quite obvious that United States corporations have depended far more on the financial intermediation of the market solution type than Japan's corporations have done in the process of fund raising. In the United States, the financial intermediation through the market solution is at times nearly equal to that achieved through the hierarchy solution. It is also noteworthy that the relative share of the market solution vis-a-vis the hierarchy solution shows a wide fluctuation in the U.S., implicitly indicating instability of the financial system characterized by the market solution. On the other hand, in Japan, the corporate finance is dominated by the financial intermediation through the hierarchy solution, the core of which the main bank relationship constitutes. The relative importance of the market solution in the financial intermediation has been consistently at low a level, although it has shown an upward tendency since around the mid 1980s. Thus, the financial inter-

mediation of the hierarchy type has been overwhelmingly prevailing in the Japan's financial system.

The specific nature of Japan's financial system, i.e., the dominant importance of the indirect financing, was consistent with rapid economic growth. Some scholars go so far as to say that the government skillfully utilized this financial system to attain the fund allocation suitable for rapid industrial development.18) Here, indirect finance is synonymous with the financial intermediation of the hierarchy solution. Therefore, according to Chart 2, the financial intermediation of the market solution was not so important during the early period of high growth era. As the Japanese economy continued to grow rapidly, the relative importance of the market solution in the financial system declined gradually. Thus, the dominance of financial intermediation of the hierarchy solution seems to have been a result of the high economic growth. This is opposite to the conventional wisdom just mentioned.

The evolution of the hierarchy solution: It is widely known that the financial system in postwar Japan has been characterized by the financial intermediation of the hierarchy type solution. We can see it indirectly from Chart 2. Was this nature a result of the spontaneous evolution of the financial system? Or, was it a result of the deliberate regulation by the Japanese government?

In 1944, just before the end of World War II, the Japanese government ordered around 700 big companies to choose their 'main banks'. The government assigned a specific bank to each company. Perhaps, this order was for the purpose of making the war-time fund allocation more controllable. Some claim that it was the origin of the postwar main bank system. If this is true, the foundation of the Japanese main bank system would have been laid by government regulations.

We should, however, note that the government assignment of specific banks was based on the degree of the intimate relationships each company had established between individual banks. So, it is highly probable that the government ratified de facto main bank relationships that had already been spontaneously established.

The evolution of the main bank system should be regarded as a spontaneous response of financial market to the economic situations immediately after World War II. The economic situation was full of uncertainty. Every company had to start again in business without certain prospect of success. The degree of imperfect information between lenders and borrowers was high. At the same time, since the average financial asset holdings of the personal sector, which was the main supplier of domestic saving, remained at a very low level, the transaction cost was so high that the personal sector could not afford rather sophisticated forms of financial transaction that the efficient 'market solution' would have necessitated. Moreover, from the standard of financial sophistication at that time, various financial instruments and contracting forms would have been necessary to support the efficiency of the market solution. These financial instruments were too complex to be introduced into the Japanese markets. Thus, the hierarchy solution was more efficient than the market solution in those situations. The Japanese economy could not do anything but choose the financial intermediation of the hierarchy solution.

What about roles of the government?: We pointed out that various economic conditions can be regarded as responsible for the evolution of financial intermediation based on the hierarchy solution during the high growth era. However, other factors might have something to do with the dominance of the hierarchy

solution. Especially, we should not fail to consider specific roles of the government in this context.

In our view, the stance of the government seems to have been strangely confused with respect to the financial policy. On the one hand, the Japanese government (and the Bank of Japan) was quite uneasy about the workings of the financial system. Especially, obsessed with the idea that the Japanese financial system was so dependent on the bank loan system that it tended to show instability causing serious macroeconomic problems, the Japanese authorities often stressed the necessity of promoting the development of capital markets in order to 'normalize' the financial system.19)

During the 1950s and the first half of the 1960s, Japan often experienced serious difficulty in the balance of payment deficit under the regime of fixed exchange rates. The difficulty seemed to be caused by financial gluts. These gluts were always accompanied by sharp increases in the bank loans to nonfinancial companies. Therefore, the specific characteristics of Japan's financial system at that time tended to be blamed rather simple-mindedly for financial instability. According to them, Japanese companies were too eager to expand with borrowed funds.

At any rate, in the government's opinion in the latter half of 1950s, the Japanese corporations should have been concerned with strengthening their financial basis. More specifically, they should have raised more funds in the capital market; i.e., they should have depended more on the financial intermediation of the market solution type. In those days, the structure of corporate financing in the United States, which obviously depended on fund raising in the capital market, was mentioned as an ideal to be followed by the Japanese corporations.

However, as has already been discussed in the theoretical analysis, there would have been sophisticated mechanisms of information transaction, if the Japanese financial system had had truly efficient capital market. The Japanese government did not seem to understand this principle. The actual stance of their financial policy tended to weaken the efficiency of 'market solution' in the capital market. For example, the amendment of the Securities and Exchange Law in 1953 deleted some important clauses related with the prohibition of insider-trading and the regulation of disclosure.20) The insufficiency of the regulation of disclosure was uncovered by the bankruptcy of Sanyo Special Steel in 1965, which made related parties find a new meaning in the disclosure and led to some revision of the Law with respect to the disclosure. On the other hand, the dangerous effect of insider trading had never been seriously considered in Japan until late 1987, when the collapse of stock prices revealed some possibility of unfair insider-trading in the Japanese stock exchange markets.

The Bond Issue Committee --- a semi-public organization: What about the financial intermediation of the Japanese bond market? In my view, the mechanism of bond-issuing in Japan is substantially different from that in the United States. The Japanese bond market has been governed not by the market solution, but by the hierarchy solution. This is clearly indicated by workings of the Bond Issue Committee (BIC, kisai kai), an organization peculiar to the Japanese financial system which is constituted by major banks and big securities companies. This BIC has rigorously controlled corporate bond issues in intimate consultation with public authorities.

More specifically, a company that wants to issue corporate bonds must sub-

mit its plan of bond issuing to the BIC under the arrangement by both an underwriting securities company and a major bank that plays a role of the trustee (jutaku ginko). The BIC investigates the plan and discussions in it substantially determine the issue terms such as the subscribers' yield and requirement of collaterals. Until 1974, the BIC had gone so far as to determine specific amounts of bond issue by respective companies. Since the BIC always take the opinions of the public authorities into account, the latter seems to be quite influential to workings of the committee. Therefore, we can regard the BIC as a semi-public organization.21)

The process of adjustment by the BIC is characterized as follows. First, the BIC sets up a set of uniform standards (tekisai kijun) mainly based upon companies' balance sheets. Those companies that cannot satisfy the standards are not permitted to issue their bonds.22) From the viewpoint of fund raisers, especially those of medium sized but rapidly growing companies, these standards are too restrictive. It has often been alleged that the most promising companies are crowded out from the bond market because of the tekisai kijun. Obviously in the Japanese bond market, the specialist who produce and disseminate the relevant information on fund raisers was needless because of this too restrictive tekisai kijun. The market has not been able to flexibly determine the issue terms of each bond by depending on the produced information. This was a sort of the financial intermediation of the hierarchy solution.

Secondly, major banks have been deeply involved in the BIC's adjustment process mainly in the capacity of fund raisers' main bank. The main bank almost always undertakes the role of a trustee (jutaku ginko) when affiliated companies issue bonds. The bank as a trustee both arranges the sale of bonds and is the agent for creditors of issuing companies. In effect, the trustee bank (i.e.,

the main bank) has taken over the default risk associated with issued bonds from other creditors. As has already been explained, the rule of collateral requirements has been helpful to the trustee bank when it has to deal with the bankruptcy of issuing companies.

It should be noted that the trustee bank has been able to earn a handsome amount of commission from the business of trusteeship. Therefore, since the trustee bank has been regarded as an indispensable constituent of the BIC's adjustment process, major banks have a vested interest in keeping both the system of the BIC and the rule of collateral requirements.23)

5. An Evaluation of the Japanese Financial System

Thus, the financial intermediation of the Japanese bond market has fundamentally depended on the mechanism of the hierarchy solution. The rule of collateral requirements made the importance of the regulation on disclosure ambiguous. The restrictive tekisai kijun is alleged to have deprived the underwriting securities company of the incentive of investigating the credibility of the company that wants to issue cooperate bonds. The system of rating by rating companies has not developed because both workings of the BIC and tekisai kijun set up by it made the rating system needless. A few rating companies were established as late as 1985. The BIC's tekisai kijun had not started to take those companies' rating into account until 1987.

Two alternatives of evaluation: There can be two alternative views of the less developed situation of the Japanese capital market, which we have inves-

tigated so far. One is that the less developed capital market does not mean the Japanese financial system is inefficient. Rather, it implies the remarkable efficiency of the Japanese financial system based on the intermediation of hierarchy solution. According to this evaluation, the financial intermediation of hierarchy solution has been both so efficient and so pervasive that there scarcely remains room for the intermediation of the market solution to play an effective role.

Another evaluation is that the overwhelmingly dominant hierarchy solution in the capital market has prevented the well balanced development of financial intermediation based on the market solution in Japan. According to this second evaluation, the underdevelopment of capital markets indicate a distorted nature of the Japanese financial system.

The Japanese capital market --- a weak point of the financial system: At present, it is impossible to determine which of these two alternatives is more relevant. However, it should be pointed out that some nonfinancial companies have long been complaining about the restrictiveness of adjustment mechanism of the BIC. Moreover, the recent composition of Japanese companies fund-raising between domestic and foreign capital markets seems to imply the inefficiency of Japan's capital market. Chart 3 and Table 3 present the amount and composition of funds Japanese companies raised both in domestic and foreign capital markets (specifically in various corporate bonds and stock markets). Chart 3 indicates that the total amount Japanese companies raised in the capital market exceeded ¥5 trillion in 1984 and reached around ¥10 trillion in 1986. But, as much as half of the funds were raised in foreign capital markets.24)

For example, the amount of convertible bonds issued by the Japanese com-

panies in foreign markets was larger than those issued in the domestic market during the 1970s and the early 1980s. Since 1984, the Japanese companies have issued more straight bonds in foreign markets (including the Euro bond market) than in domestic markets. While the warrant bond has scarcely been issued in the domestic markets, the Japanese companies have actively been issuing it in foreign capital markets. (Table 3)

Of course, most of the bonds issued in foreign market are denominated in foreign currencies. However, it is reported that Japanese companies almost always convert them into yen denominated bonds by means of the currency swap. In general, the convertible bonds issued in the European markets are converted very quickly there, and the investor sells them on the Tokyo Stock Exchange. So, the Japanese companies tend to regard issuing convertible bonds in Europe as an equivalent of issuing stocks in Japan.

This indicates that instead of utilizing rather restrictive and inefficient domestic capital market, Japanese companies take a roundabout way of raising funds in foreign capital markets. In addition, Japanese banks quite actively accommodate Japanese fund raisers with services of currency swap, guarantees and so forth.25) Also here, the main bank relationship seems to be important. Table 4 presents the importance of the main bank relationship in the context of bond financing in foreign capital markets. This table indicates the total number of cases in which Japanese companies issue either straight bonds or warrant bonds in foreign markets and classifies conditions of guarantee. According to this table, excluding those cases where we cannot make sure if the issuing company has any main banks or not, either main banks or banks of parent companies guaranteed around three fourths of the guaranteed straight bond issued in 1986. This is similar to the case of the warrant bond issue.(Table 4) Thus, the main

bank relationship seems to work even in the case of Japanese companies' fund raising in foreign markets.

A Summary: Both Table 3 and 4 imply that the inefficiency of the domestic capital market has profoundly influenced the Japanese companies' behavior of fund raising. The hierarchy solution of the domestic financial intermediation cannot compensate for the inefficiency. Here appears a weak point of the financial system. It is due to the rigidity of the hierarchy solution characterizing the Japanese financial system.

Because of their good performance of long standing, most of the Japanese big companies have established their reputation in financial markets. They are now in a position to demand more flexible access to financial markets than they have enjoyed so far. Especially, they have been eager to diversify financing methods. However, their demand have been satisfied only partially and gradually because the inertia of hierarchy solution prevents the domestic financial markets from flexibly responding to the demand. Thus, a substantial part of their fund raising has been shifted from domestic to foreign capital markets. 26)

Table 3: Composition of Japanese Companies' Fund Raising in Domestic and Foreign Capital Markets (%)

Fiscal year	Total		Convertible		Straight	
	domestic	foreign	domestic	foreign	domestic	foreign
1977	82.9	17.1	6.4	8.7	48.7	6.1
1978	82.0	18.0	8.7	13.5	41.1	4.1
1979	75.1	24.9	11.5	18.3	42.2	6.1
1980	73.6	26.4	3.2	16.9	32.5	6.0
1981	71.9	28.1	10.5	20.6	25.3	1.1
1982	63.7	36.3	10.5	15.9	26.4	17.2
1983	54.5	45.5	19.5	27.1	15.4	9.3
1984	52.7	47.3	27.0	20.7	12.1	18.9
1985	49.7	50.3	24.4	14.6	14.5	22.1
1986	54.3	45.7	36.3	5.1	10.3	19.6

Warrant		Stock	
domestic	foreign	domestic	foreign
--	--	27.8	2.3
--	--	32.3	0.4
--	--	21.5	0.5
--	--	37.9	3.5
0.4	0.9	35.7	5.7
1.2	1.7	25.6	1.6
0.4	7.4	19.2	1.8
0.1	7.3	13.6	0.8
0.8	13.6	10.0	0.2
1.1	21.0	6.6	0.0

Source: Nomura Research Institution.

Table 4: Japanese Companies' Foreign Bonds and the Guarantee in FY 1986.

	Number of cases	(%)
(a) Straight bonds	--- 231	(100.0)
With guarantee	--- 158	(68.4)
Banks' financial subsidiaries	--- 30	(13.0)
Guaranteed by main banks	--- 64	(27.7)
Guaranteed by banks other than main banks	--- 15	(6.5)
Guaranteed by nonfinancial companies	--- 3	(1.3)
The case of absence of main banks(1)	--- 14	(6.1)
Unidentified case(2)	--- 32	(13.9)
Without guarantee	--- 73	(31.6)
(b) Warrant bonds	--- 245	(100.0)
With guarantee	--- 215	(87.8)
Guaranteed by main banks	--- 136	(55.5)
Guaranteed by banks other than main banks	--- 43	(17.6)
Guaranteed by nonfinancial companies	--- 1	(0.4)
The case of absence of main banks(1)	--- 23	(9.4)
Unidentified case(2)	--- 12	(5.9)
Without guarantee	--- 30	(12.2)

Source: Nomura Research Institution.
Notes: (1)'The case of absence of main banks' is one in which the issuing companies does not have a specific main bank. (2)The 'unidentified case' is one in which we cannot identify the main bank of the issuing company.

6. Concluding Remarks

This paper surveyed the mechanism of the Japanese financial system from the viewpoint of economic analyses of the information. We emphasized two alternatives of financial intermediation to overcome the imperfect information in financial markets; i.e., the market solution and the hierarchy solution. The former is characterized by the way in which the information relevant to financial transactions is produced and disseminated through markets. The latter deals with the financial information through somewhat complicated relationships between banks and borrowers. One of the most conspicuous example of the relationships is the main bank relationship in Japan.

We analyzed the main bank relationship in order to understand the peculiarity of the Japanese financial system. Two alternative hypotheses were introduced to explain workings of the main bank relationship; i.e, the hypothesis of risk-sharing and the theory of the delegated monitor. Although the decisive empirical analysis remains to be done in the future, some casual observations rejected the risk-sharing hypothesis, which has found favor with a number of scholars in Japan. Rather, basic characteristics of the workings of the main bank relationship seem to be well explained by the hypothesis of the delegated monitor, according to which the major role of the main bank is to produce relevant information on affiliated companies and to coordinate a cooperative loan to those companies.

Then, we emphasized that not only the bank loan market but also the capital markets have been dominated by the financial intermediation of the hierarchy solution in Japan. Since the hierarchy solution depends on the long-term relationship between lenders and borrowers, the process of financial intermedia-

tion dependent on it tend to be more stable than that arranged by the market solution. At the same time, the process will be stagnant because parties in the hierarchy solution lack the incentive to introduce various kinds of financial instruments and contracts that the financial intermediation of the market solution would require.

Although this characteristic of the financial system was a result of the rational responses of the Japanese financial markets to the serious imperfection of information immediately after World War II, the rapid development of the Japanese economy gradually revealed the rigidity of the hierarchy solution. It was pointed out that the influence of the hierarchy solution seems to have suppressed full-scale development of the efficient capital market in Japan. Those companies that have achieved good business performance have begun to go abroad to obtain relatively cheap capital funds, exerting remarkable pressure on the traditional procedure of adjustment in the domestic capital market.

It may be said that the Japanese financial system is in the process of structural change in that the financial intermediation of the market solution is expanding relative to that of the hierarchy solution. Especially, in November 1987, nonfinancial companies succeeded in introducing a new financing instrument, i.e., the commercial paper, which can be a substantial competitor for short-term bank loans, though at present issuing commercial paper depends upon the tekisai kijun laid down by the BIC. At the same time, the BIS agreement on strengthening the risk-capital adequacy requirement, which was attained at the end of 1987, will exert profound influence on the banking industry, because the requirements will make it more costly for banks to expand their assets and liabilities than before. A number of economist forecast that banks will be induced to 'securitize' their loan assets in order to abide by the capital

adequacy requirements. These factors are expected to reduce the dominant share of the hierarchy solution in the Japanese financial system. However, the process of transformation will be rather gradual because the traditional financial intermediation has been based on the long-term relationship between the lender and the borrower which is not easy to change, and because no credible information producers other than the main bank have been established in the Japanese financial markets.

Footnotes

1) For example, Suzuki(1980), Sakakibara, Feldman, and Harada(1982), Cargill (1985), and Hamada and Horiuchi(1987).

2) It is well known that the imperfect information gives rise to various costs called 'agency costs' in the capital market. The capital market has introduced a number of mechanisms by which some of the agency costs can be avoided. See Barnea, Haygen and Senbet(1985).

3) Strictly, how effective the securities regulation is in enhancing the efficiency of financial markets has been a controversial issue. See a survey by Friend(1984). In this paper, we take up the position that the securities regulation is essential to efficient workings of capital markets.

4) Unbundling the production of information and other intermediating activities that are integrated under the hierarchy solution will bring forth the financial intermediation of the market solution. The 'securitization', which has been rapidly developing in the United States and international financial markets, has an aspect of unbundling traditional banking activities in the sense that banks sell loans assets originated by themselves to other investors. Thus, the securitization can be regarded as a transfer of the financial intermediation from the hierarchy to the market solution.

5) See Baumol(1982) for the concept of contestability.

6) We may stress the fact that the Japanese main bank has been changeable, because it is a conventional view that the main bank relationship is quite rigid. However, compared it with the changeability of the 'client relationship' in the U.S. investment banking industry researched by Hayes et al.(1983), we can conclude that the main bank relationship is much more rigid than the client relationship. See Horiuchi et al(1988).

7) As for the risk-sharing hypothesis, see Fried and Howitt(1980), Nakatani (1984) and Osano and Tsutsui(1985).

8) See Sheard(1986) for an interesting case study of the main bank's activities in the case of its affiliates' difficulties.

9) These figures perhaps underrate the relative importance of the main bank, because they do not include the bond financing. As will be explained in the following, leading companies could raise funds by issuing their bonds. The main bank was important not only as a coordinator of the bond financing, but also as a buyer of issued corporate bonds. Thus, some leading companies were dependent on their main banks when issuing bonds.

10) See Horiuchi et al.(1988).

11) The hypothesis of the 'delegated monitor' is formally explained by Diamond(1984).

12) In general, by committing their own resources to a specific project, the agents can inform good quality of the project to outsiders. For example, see Leland-Pyle(1977) and Campbell-Kracaw(1980).

13) See, for example, Bank of Japan(1987; p.177).

14) Since the rule of collateral requirements limits the degree of risk transfer from borrowers to banks when borrowing companies go bankrupt, it has a negative implication against the risk-sharing hypothesis of the main bank relationship. However, limiting the risk transfer would give lenders a disincentive to collect any relevant information about the borrowers' credibility. So, the rule of collateral requirements seems to have a negative implication also against the hypothesis of the delegated monitor. The role of collateral requirements in this context yet remains to be investigated.

15) For example, see Crum-Meerschwam(1985). Cumming(1987) explains mechanisms of the hierarchy solution in the U.S. banking industry in terms of the 'bank relationship', which appears to be quite similar to the Japanese main bank relationship. According to her explanation, the bank can be viewed as writing various options for its loan customer under the commercial lending relationship. This is a variant of the risk-sharing hypothesis. Comparing the U.S. 'bank relationship' with the Japanese main bank relationship may be an interesting study to be dome in the future.

16) See Hayes et al.(1983).

17) Unfortunately, this classification does not closely correspond to our definitions of the market solution and the hierarchy solution, because in Japan fund raising through corporate bonds has been characteristic more of the hierarchy solution than of the market solution. We shall discuss this point in this paper.

18) See, for instance, Eccleston(1986) and articles cited therein.

19) The necessity of increasing the relative importance of the capital market was claimed in the form of slogan; i.e. the slogan of the 'normalization of the Japanese financial system'(kinyu-seijo-ka).

20) For example, since this amendment those who issue bonds with collateral have been exempted from the regulation of disclosure.

21) Strictly speaking, the BIC does not deal with convertible bonds and yen-denominated foreign bonds, most of which are 'samurai bonds.' They are issued according to self-regulated roles established by a number of major securities companies.

22) The tekisai kijun includes the minimum amount of net wealth, the minimum level of capital-asset ratio, the minimum level of return per total capital, the minimum amount of dividend per share and so on.

23) For instance, when Mitsubishi Trading Company and Komatu Seisakusho expressed their wish to issue the convertible bond without collateral (mutanpo tenkan shasai) in 1972, the group of major banks so strongly opposed it that the two companies' wish was not attained.

24) According to the Japan Economic Journal, the Japanese companies issued various corporate bonds by almost ¥12 trillion during 1987(fiscal year), of which bonds issued in foreign capital markets account for 49.8%. (Japan Economic Journal, May 10, 1988)

25) This may partly account for the 'overpresence' of Japanese financial institutions, which foreigners often criticize.

26) Most of Japanese parties concerned are worrying that the continuous movement of major Japanese companies into foreign capital markets will lessen the efficiency of domestic capital markets still more. They strongly feel the necessity of reorganizing issuing mechanisms in bond markets. The restrictive tekisai kijun with respect to the convertible bond has already been amended in 1987. The amendment seems to have succeeded in preventing domestic companies from evacuating from the domestic market of convertible bonds, because the amount of the convertible bonds issued by Japanese companies in domestic market has been over the amount issued abroad since 1984. See Table 3.

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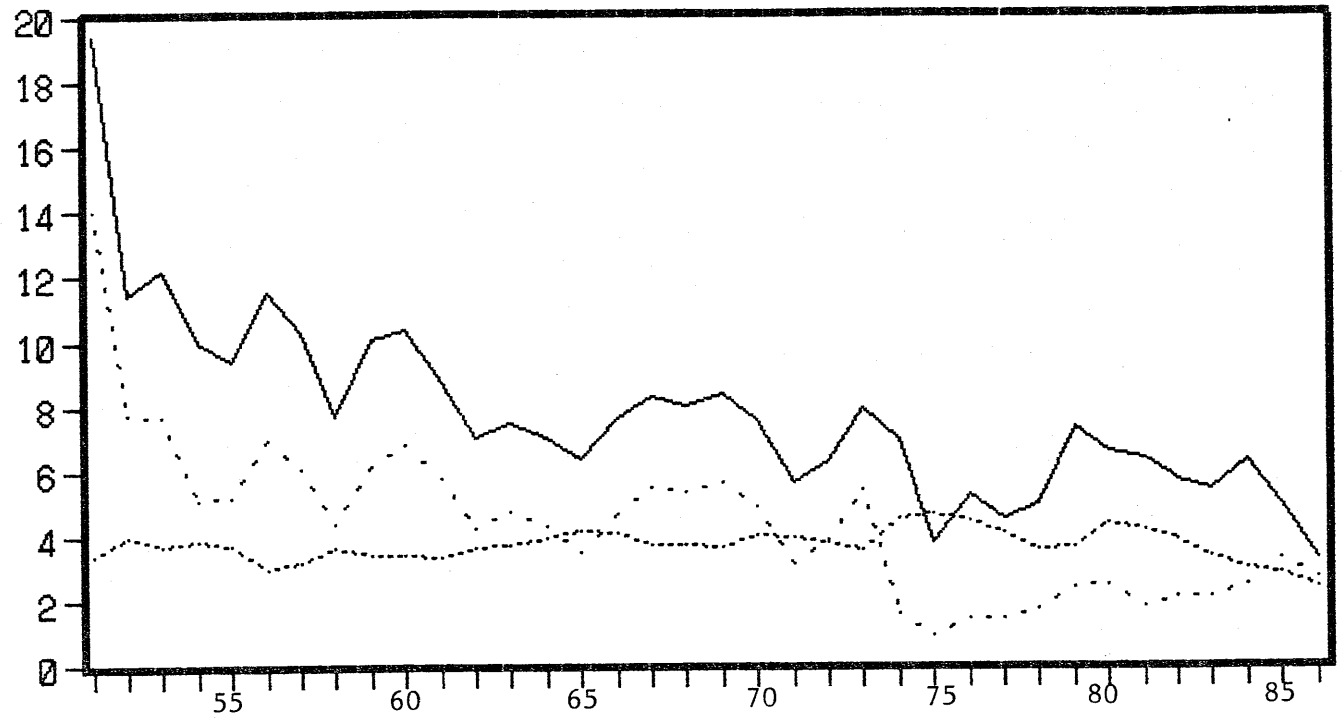
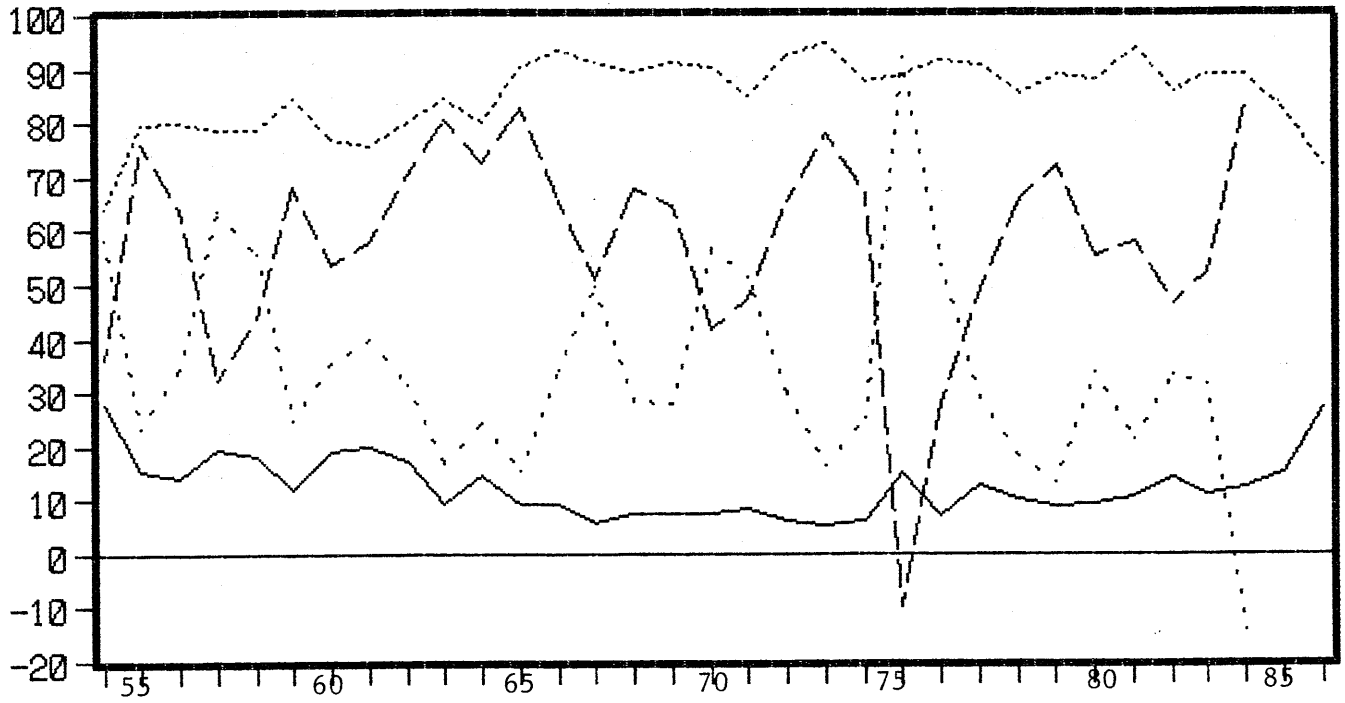
Chart 1: Profits and Financial Expenses
of Major Companies in Manufacturing(%)



Note) — Oper. Profit/Assets ····· Finan. Exp./Assets ··· Net Profits/Assets
Source) Bank of Japan, Analysis of Financial Statements of Main Industrial Corporations in Japan, various issues.

Chart 2: Market vs. Hierarchy in the Financial System in JP and US

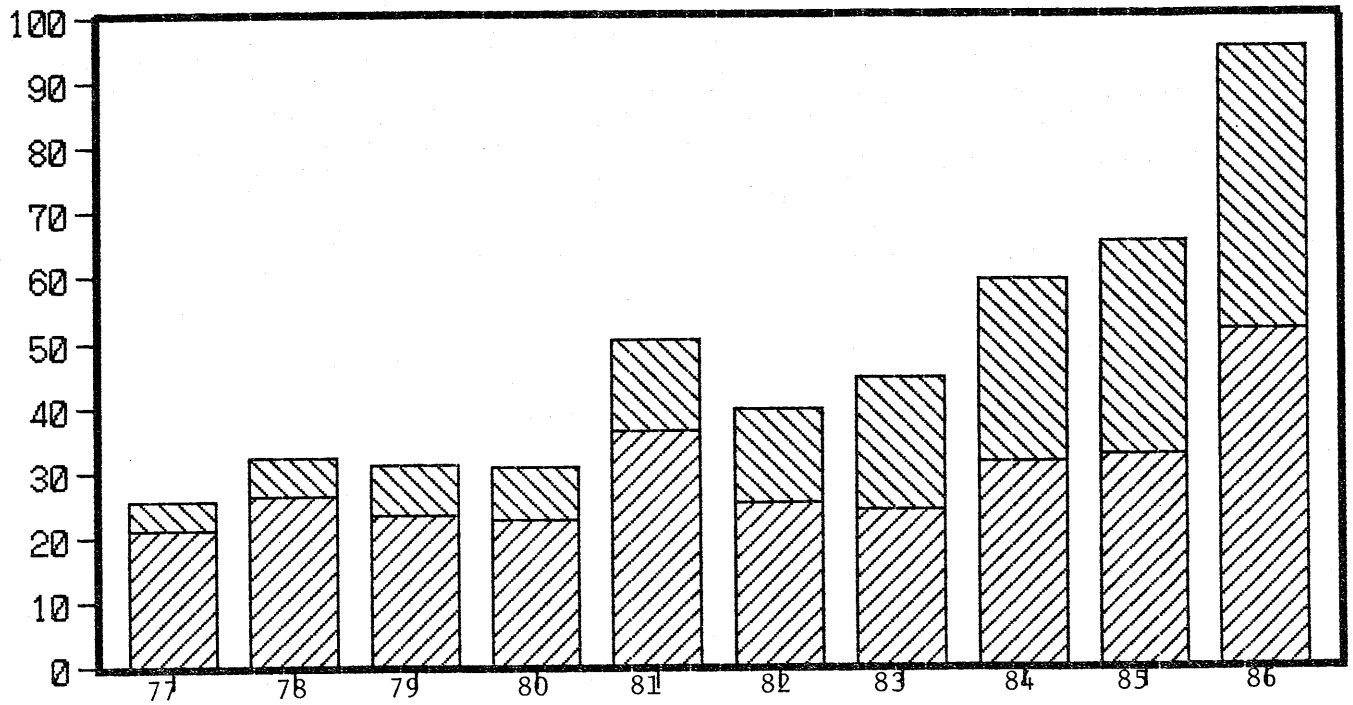


— Capital Markets(JP) ····· Loans(JP) ··· Capital Markets(US) -- Loans(US)

Note)

Sources) Board of Governors of the Federal Reserve System, Flow of Funds Accounts, First Quarter 1985, June 1985. Bank of Japan, Flow of Funds Accounts in Japan, various issues.

Chart 3: Japanese Companies' Fund Raising (¥100 billion)



Note)

Source) Nomura Research Institute, Handbook on Bond Markets (Koshasai-Yoran), 1987.