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Informational Properties  
of the Japanese Financial System

by

Akiyoshi Horiuchi  
University of Tokyo

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## Introduction

The financial transaction is surrounded with imperfect information. For example, suppliers of capital are not sure whether any specific fund raisers are sufficiently trustworthy. Lenders can rationally expect that they will be exploited by borrowers under the asymmetry of information, however, it is difficult for them to directly prevent borrowers' opportunistic behavior. Thus, informational imperfection in general brings inefficiency into the economy --- "the agency problem." Under informational imperfection, social mechanisms must be introduced in order to attain efficient resource allocation. The major role of financial intermediation is reducing the inefficiency of agency problems in financial transactions. Investigation of mechanisms by which financial markets cope with agency problems will help explain the structure and function of financial systems. 1)

The objectives of this paper are first to theoretically analyze financial markets with regards to information flows, and then to clarify the important characteristics of Japan's financial intermediation. Although a number of comprehensive overviews on the Japanese financial system are available, the emphasis on information production in the financial system distinguishes this paper from them. 2)

The following analysis is based upon a comparative analysis of 'market vs. hierarchy solution', categorizing ways of coping with information production in financial markets. How the agency problem in the Japanese financial system has been resolved by 'the main bank relationship' --- a long-term relationship between a bank and a borrowing company --- will be particularly stressed. More

specifically, this paper will examine how the main bank relationship has played an important role in producing financial information and creating the framework of the hierarchy solution. It will be shown that this relationship characterizes Japanese financial mechanisms since World War II.

Then, taking mechanisms of bond markets as an example, the discussion focuses on how the Japanese financial system is dominated by the hierarchy solution and how this dominance has produced a weak point in Japan's financial system. This weak point was produced by inflexibility in the hierarchy solution. Japan seems to have only just begun to break away from the hierarchy solution's negative influence.

The organization of this paper is as follows: Section 1 contrasts the market vs. hierarchy solution, differentiating them by their method of dealing with imperfect information in the financial system. This comparison is useful in understanding the nature of financial intermediation as it relates to Gurley-Shaw's direct vs. indirect finance.

Section 2 examines the Japanese main bank relationship mainly from the perspective of the hierarchy solution theory. A few alternative hypotheses concerning the role of the main bank relationship are also discussed. This section explains how the main bank is important in the Japanese financial system because it is a major producer of relevant information.

Section 3 extends the investigation, examining the influence of governmental control on the hierarchy solution's development in the Japanese financial system. The hierarchy solution, fundamentally, was a spontaneous, natural response of financial markets to conditions existing in Japanese financial markets immediately after World War II. However, some influences due to indirect government intervention in capital markets are also evident. Specifi-

cally, the Bond Issue Committee (BIC) has 'managed' the process of issuing corporate bonds. This committee's activities --- indirectly supported by the government --- are a form of the hierarchy solution in Japanese financial intermediation.

In section 4, the efficiency of the Japanese financial system is evaluated. While the financial system, characterized by the dominance of the hierarchy solution, may have had a comparative advantage in dealing with the serious degree of informational imperfection immediately after World War II, more recently this dominance is hindering the development of efficient capital markets. The problems associated with the underdeveloped nature of capital markets are also discussed. The last section, Section 5 gives a summary and a brief concluding remark.

#### 1. Information Production and the Structure of the Financial System

Because informational imperfection leads to economic inefficiency in the form of agency costs, the financial system must appropriately cope with imperfect information in order to attain efficient allocation of financial resources. Each financial system can be characterized by its mode of resolving imperfect information. In other words, the mechanisms of an economy's financial system can be interpreted and compared with those of other economies in terms of specific ways it overcomes information problems.

Market solution vs. hierarchy solution: Presently, 'direct vs. indirect

finance' introduced by Gurley and Shaw(1960) is the most conventional criterion for classifying financial mechanisms. However, after Williamson (1975), it is possible to introduce alternative theories on specific ways of coping with imperfect information. One is the market solution; another is the solution through hierarchy. The contrast of 'market vs. hierarchy solution' is perfectly compatible with the Gurley-Shaw, however, appears more useful than that of Gurley-Shaw in interpreting and forecasting the evolution of Japan's financial system.

In the market solution, both production and distribution of relevant information are dedicated to market mechanisms in the financial system. The United States' capital market is a good example of market solution, where a number of rating companies produce valuable information concerning the credibility of specific fund raisers and sell it to market participants.

As Arrow(1971, Chapter 6) extensively explains, information is a commodity that is difficult to trade through markets for two reasons. First because it is difficult for buyers to determine the quality of specific information 'lemon' problem emphasized by Akerlof(1970). Second, because it is often difficult for sellers to prevent buyers from reselling or revealing the information to a third party(the appropriation problem). Because of these difficulties, imperfect information tends to remain in processes of financial intermediation under the market solution. Without any other means to reinforce it, the market solution would suffer from both instability and the agency cost caused by informational imperfection. Therefore, the dynamic nature of capital markets is indispensable to overcome these limitations of the market solution.

On the other hand, under the hierarchy solution, production of financial information and other financial intermediation activities are integrated in a

hierarchy structure. In this case, producers of information utilize their own information. This integration makes it possible to evade the 'lemon' problem associated with trading the information in markets. Because the information produced is not sold to other agents, the problem of appropriation can also be avoided. Thus, the hierarchy solution is effective in resolving agency problems derived from imperfect information. The raison d'être of financial intermediaries such as banks lies in the efficient resolution of difficulties with respect to information production.

It also should be pointed out that some forms of the 'long-term relationship' between the lender and the borrower can make the production of information concerning credibility of borrowers more efficient. Long-term relationships with specific borrowers, particularly with companies, helps the lender accumulate relevant information and closely monitor the behavior of borrowers. Thus, banks and other financial institutions depend upon long-term relationships with their borrowers as an efficient means of producing information. 3)

Type of financial intermediation and workings of the financial system: In principle, to determine which financial intermediation is more efficient is almost impossible. It is not difficult, however, to visualize that the workings of financial systems would be substantially different under the market solution system as compared to under the hierarchy solution. The following are some of different influences these two types of intermediation exert on the financial system:

(1) The hierarchy solution depends crucially on the long-term relationship between lenders and borrowers. The lender holds an implicit but tangible capi-

tal asset of accumulated information concerning its specific customers. This asset is accumulated only through transactions with 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 assets of specific information is a sunk cost for the lender. The hierarchy solution thereby forces banks and other financial institutions to take longer term perspectives than are present under the market solution.

(2) Under the hierarchy solution, the relationship between a specific lender and a specific borrower--- developed over a long history of past transactions--- is usually very close. Therefore, it is more difficult for a newcomer to intrude into the market than in the case of market solution. The sunk cost related to accumulated information reduces the degree of contestability in financial markets, thereby making the market less competitive. 4)

(3) Under the market solution, instruments such as options and sophisticated financial contracts are introduced to overcome the difficulty of trading information in financial markets. The capital market must be sufficiently dynamic, allowing investors to easily achieve financial integration by appropriately mixing their holdings of bonds and stocks, and permitting investors to take over existing inefficient companies. 5)

In contrast, under a financial system dominated by the hierarchy solution, the bilateral relationship works to resolve agency problems. Therefore, the hierarchy solution is likely to be accompanied with rather stagnant capital markets.

(4) The market solution needs statutory rules concerning financial informa-

tion, for example regulations on disclosure and prohibition of insider trading, in order to prevent the opportunistic from taking advantage of imperfect information. 6) In the United States, the activity of rating companies effectively supports the rule of disclosure because it makes disclosed information on specific fund raisers more credible than in the case where fund raisers disseminate their own relevant information. The hierarchy solution, on the other hand, makes the activity of information production less important.

(5) Every financial system resolves problems of imperfect information by either the hierarchy or market solution. While the hierarchy solution is powerful in some parts of the financial market, for example small-scale business borrowers and consumers, other parts, for instance where government or big business are the main borrowers, the market solution is rather easily adopted. The relative dominance of one of these two solutions in an economy reflects the degree of seriousness in informational imperfection. The more serious the imperfection, the more dominant the hierarchy solution will become because this solution has the comparative advantage of efficiently producing financial information.

It would be an exaggeration to say that the U.S. financial system is totally characterized by the market solution or that the Japanese system is dominated by hierarchy solution. However, it is undeniable that the financial system's dependence on the hierarchy solution is substantially higher in Japan than in the United States. As the above discussion suggests, this difference is related to fundamental differences in the financial markets of both economies.



## 2. The Mechanism of the Main Bank Relationship in Japan

The main bank relationship is a specific mode of financial transaction that is based on a long-term relationship between borrowers and lenders. Almost all Japanese companies have a main bank. Several financial groups known as 'kinyu keiretsu' have been organized by major banks, i.e., big city banks and long-term credit banks. Most big companies belong to one of these. Small and medium-sized companies also have a main bank relationship with local banks and other-financial institutions.

Japanese companies have depended on the main bank relationship to satisfy their financial needs. Especially, during the era of high economic growth (1960s and early 1970s), they were able to borrow heavily from their main banks. It is widely believed in Japan that because the relationship between borrowing companies and their main banks is extremely stable, the orthodox price mechanism does not work efficiently. 7)

There are a few alternative hypotheses proposed to explain the role of the main bank relationship. One of the most well known is the risk-sharing hypothesis which emphasizes the main bank as a provider of insurance to their major customers (i.e., business borrowers). 8) Another is the hypothesis of 'delegated monitor' which emphasizes the main bank's role in information production and coordinating activities. However, to be accepted as relevant, a hypothesis must explain the following phenomena related to the main bank concept.

First, as previously 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

with a bank in favor of another bank's services; however, this is relatively rare. Most main bank relationships have been maintained throughout Japan's economic development period after World War II. Therefore, a relevant hypothesis must explain the implications of this long-term relationship.

Second, the main bank plays an important role when its affiliated companies face difficulties. When an affiliated company is in trouble, it is common for the main bank to send senior staff to help reorganize management. The main bank takes the initiative to arrange with other lenders a bailout package or program to rescue the borrower.

However, intervention by the main bank does not necessarily mean always saving affiliate from bankruptcy. In spite of the main bank's activities, affiliated companies still occasionally go bankrupt. In the case of bankruptcy, however, the main bank bears most of the bankruptcy costs lightening the burden imposed on other lenders that have committed themselves to the failed borrower.

9)

The third phenomenon which must be explained regarding the main bank concept is why major companies have borrowed a substantial amount from banks and financial institutions other than their main banks. For example, at the end of March 1961, Hitachi, one of the biggest makers of electrical appliances in Japan, had borrowings of only ¥13.4 billion from its main bank IBJ, accounting for only 16% of Hitachi's ¥85.3 billion in total borrowing. Hitachi borrowed from thirteen city banks, twenty-five regional banks, six trust banks, seven insurance companies, etc..

As shown in Table 1, Hitachi was not an exception in its borrowing procedures. On average, major companies' --- affiliated with city banks or long-term credit banks --- borrowed from their main bank only 20% or less of their total

borrowings. 10)

Insurance against risk in financial markets: It is widely known that risk-sharing exists in the bank loan market. For example, Stiglitz and Weiss(1981) demonstrate the mechanism of risk transfer from borrowers to lenders under the role of limited liability. This kind of risk-sharing is, however, not unique to Japanese loan markets.

However, the 'risk-sharing hypothesis' taken up in the following paragraphs claims that the main bank relationship in Japan has played a much more substantial role than the Stiglitz-Weiss' model suggests. More specifically, the hypothesis emphasizes that the borrower can shift some of their business risk to its main bank through a kind of insurance contract. 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 even when financial markets are tight and money market rates are rising. If so, this would be a mechanism of risk-sharing because borrowing companies could shift the risk of tight money to their main banks that offer relatively low interest rates. In fact, however, major companies' annual reports (Yukashoken-Hokokusho) clearly show that main banks do not offer lower interest rates than other lenders do.

Moreover, this type of risk-sharing hypothesis cannot explain main banks' long-term relationships with affiliated companies. According to this hypothesis, the risk to be shared between the lender and the borrower is that of fluctuations in money market interest rates. However, since the state of interest rates is quite easily confirmed by either party---information regarding money market interest rates is public information---why should the lender and

the borrower establish a long-term relationship which is effective only in obtaining specific, not general, information?

There are a number of articles that theoretically explain the existence of credit rationing, especially during a period of tight money policy. 11) According to these articles, the price mechanism does not work in credit markets under informational imperfection. The availability of credit being determined through rationing, borrowers cannot obtain as much amount of credit as they want at market rate of interests. Thus not the level of interest rate but the availability of credit is important to borrowers. From this argument, a hypothesis may be derived that the main bank is important to affiliated companies because they can depend on the availability of credit from the main bank even in a period of tight money. This hypothesis can be regarded as a variant of the risk-sharing hypothesis explained above.

Unfortunately, this variant is not supported by the aggregated data. Chart 1 shows the relationship between major companies' dependence on main bank borrowings and the money market interest rate during the period of 1965-86. The ratio of the amount borrowed by five major banks' affiliates from their main banks to their total borrowings is also depicted in the chart. The hypothesis explained above suggests that the ratio of main bank dependence would positively correlate with the degree of tightness in financial markets as represented by the level of interbank money market rates (i.e., the call rate). However, a significant positive correlation of main bank dependence with the call rate is not evident. 12) Although more detailed analyses utilizing disaggregated data are necessary to reach a definite conclusion, the aggregated statistics reject this version of risk-sharing hypothesis.

Risk-sharing between the main bank and specific companies: Another type of risk-sharing hypothesis has a little wider scope than the hypotheses just discussed. This hypothesis emphasizes that the main bank should provide the borrowing company with insurance against its own poor 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, explaining the long-term relationship of main bank affiliations. Long-term relationships are also an effective method for monitoring borrowers, preventing their opportunistic behavior likely to be induced by financial contracts of risk-sharing.

One refutable proposition derived from this risk-sharing hypothesis is that changes in affiliated companies' financial expenses will positively correlate with those in their operating profits. This proposition does not seem to be consistent with available data. Statistical data has shown that in major companies belonging to the chemical industry, financial expenses have no significant positive correlations with operating profits. 13)

The irrelevancy of the risk-sharing hypothesis is again evident in data from Chart 2. This chart presents operating profits of the major Japanese manufacturing companies, almost all of which have main banks, and their financial expenses. (Both are denominated by the total value of assets in order to eliminate an obstructive time trend.) Financial expenses show remarkable stability, while the operating profits fluctuate widely. In other words, financial expense does not seem to absorb the risk arising from changes in

operating profits. This evidence may not be decisive in proving the risk-sharing hypothesis ineffective, but it does show the hypothesis has many problems.

The risk-sharing hypothesis obviously depends upon the assumption of an implicit contract between the borrower and its main bank. However, this assumption does not appear to be consistent with the third phenomenon mentioned at the beginning of this section. The third phenomenon implies that the amount of funds each company borrows from its main bank is not large enough to give sufficient insurance to the borrower. Even if a company receives insurance through bilateral contracts with the main bank, other banks would not follow the contract. Therefore, the borrower could not escape from uncertainty. In short, the third phenomenon implies that the main bank is a constituent of cooperative financing for Japan's companies. The risk-sharing hypothesis, however, gives little firm evidence to back this theory.

Hypothesis of 'delegated monitor': The above discussion critically evaluated a few variants of the risk-sharing hypothesis. Although a number of Japanese economists have favored it, the risk-sharing hypotheses do not accurately explain the actual workings of the main bank relationship. On the other hand, the 'delegated monitor' hypothesis is more promising.

The 'delegated monitor' hypothesis states that the primary role of the main bank is to communicate its assessment of a borrowers' credibility to other banks and financial institutions. 14) The long-term relationship with its affiliated companies is an efficient method for the main bank to reduce the cost of gathering specific information. By making lending commitments to affiliates, the main bank communicates information to other banks. Other banks decide their loan

strategy to a specific company by interpreting signals conveyed by the behavior of a borrower's main bank. Affiliated borrowers compensate their main bank by offering relatively favorable exchange fees, compensating balances, etc..

Before proceeding, the special role of banks should be pointed out. In Japan, many financial institutions other than banks have also been concentrating on business loans---the most conspicuous example being the life insurance companies. But, life insurance companies have rarely taken on the responsibility of main bank. Why is this so? The answer is banks have an advantage over other financial institutions in that they can closely monitor borrowers by watching changes in their transaction accounts. In short, the bank has a comparative advantage of being delegated monitor because it is permitted to provide payment services to customers. 15)

As was explained at the beginning of Section 1, assessing the quality of information poses a big problem for the financial system. In the main bank relationship, the main bank --- in order to guarantee the quality of information about affiliates --- is required to invest its own money, in the form of lendings, to its affiliated companies. 16) The relative share of the main bank's lending to a specific borrower, therefore, tends to be larger than those of other banks.

There are two reasons why the main bank tends to rescue troubled affiliated companies. First, the main bank must make this endeavor in order to retain its reputation as a reliable producer of information. If a company in trouble goes bankrupt, causing losses to other lenders, it will seriously damage the credibility of the main bank acting as a delegated monitor. Thus, under the delegated monitor hypothesis, it is quite natural for the main bank to try to rescue its affiliated company.

Second, as has already been argued, the main bank has accumulated an intangible asset 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. The borrower's bankruptcy will give rise to costs that include not only various expenses associated with formal court bankruptcy proceedings but also the loss of resources caused by the disappearance of different intangible assets specific to the failing company. The main bank's bailing out activity is instrumental in mitigating bankruptcy costs, a type of agency cost.

However, this does not mean that the main bank always --- at any cost --- rescues its affiliated borrowers. The main bank compares the benefits and costs of bailing out a borrower in trouble. In some cases, because of window-dressing and misleading accounting practices, even the main bank cannot get accurate information concerning affiliates in trouble. In these cases, before the main bank is able to take appropriate measures, the cost of rescuing already becomes infeasible. The main bank will then step back becoming just one of many lenders. Some companies will then be reorganized according to the Law of Corporate Reorganization and others will be totally dissolved. The major part of costs associated with a borrower's bankruptcy will be borne by the main bank, because by doing so it limits the damage to its reputation as a information producer.

Rule of 'collateral requirements': The roles the 'delegated monitor' hypothesis assigned to the main bank may seem too risky for banks. In reality, however, the main bank's commitment to its affiliates is relatively limited and



widely diversified. In addition, the degree of risk has also been limited by the traditional rule of 'collateral requirements.' In Japan, it has been common to require either personal or physical collateral in order to assure the quality of loan assets. 17)

Collateral requirements have often been utilized as an adjustment factor. Banks have changed the severity of collateral requirements in response to changes in financial market conditions as a way of adjusting their 'effective' loan rates. While the collateral requirements rule in Japan is not completely effective in guarding lenders' interest against borrowers' failure, it cannot be denied that the rule has restricted the extent to which borrowers could transfer the risk to lenders. The traditional rule of collateral requirements has helped the main bank take on the responsibility of 'delegated monitor'. 18)

### 3. The Hierarchy Solution in Japan: From a Wider Perspective

The investigation in the last section emphasized informational properties of the Japanese main bank system. This system is regarded as a hierarchical form for resolving agency problems caused by informational imperfection, and is characteristic of the postwar financial system in Japan. But, was this a natural, spontaneous evolution in the financial system? Or, was it a result of deliberate control by the government? The discussion in this section will focus on this question, and then will proceed to explain how the hierarchy solution has prevailed in the Japanese capital market.

Beginning of the present main bank system: 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. This order was to make 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 has been laid by government regulations. One should note, however, that the government assignment of specific banks was based on the degree of relation each company had established with individual banks. So, it is highly probable that the government ratified de facto main bank relationships that had already naturally been established.

Hierarchy solution as a spontaneous response: In general, the evolution of the main bank system should be regarded as a spontaneous response of financial markets to the economic conditions immediately after World War II. The economic situation was full of uncertainty. Since every company had to start business over with no certainty of success, the degree of informational imperfection between lenders and borrowers was unusually high.

At the same time, since the average financial asset holdings of the personal sector, which was the main supplier of domestic savings, remained at a very low level, the personal sector could not enjoy economies of scale associated with financial transactions. In other words, transaction costs were so high that the personal sector could not afford to have widely diversified portfolios. Households concentrated their savings into highly divisible, liquid and safe assets; i.e., bank deposits and postal saving deposits.

As was explained in Section 1, various financial instruments and contracting forms are necessary to support the efficiency of the market solution. These

financial instruments were too complex to be introduced and widely utilized by general investors in the Japanese financial markets. Thus, there existed a very wide gap between ultimate lenders and ultimate borrowers to be bridged by means of the hierarchy solution. Consequently, the Japanese economy had no choice but financial intermediation by the hierarchy solution.

What about the role of government?: Although it is widely believed that the Japanese government has skillfully promoted economic growth by controlling financial allocation, it is very difficult to evaluate the effectiveness of governmental intervention in Japanese financial markets. 19) The government did directly controlled the allocation of funds among various industries to help promote economic recovery after World War II; however, most of the direct control measures were abolished by the late 1950s. At the early stage of high growth era, the government adopted a strategy of controlling the financial system by indirect measures, which consisted of various informal moral suasion given to major financial institutions, in particular big city banks. 20) This strategy presupposed the existence of the stable function of the hierarchy solution and of the cooperation among private agents (especially between banks and major borrowing companies). The Japanese government did not directly promote the development of the hierarchy solution in the financial markets. Rather, the government made use of the spontaneous evolution of the hierarchy solution to manipulate financial allocation to promote economic growth. 21)

It is impossible for this paper to provide a full-scale analyses of the governmental indirect control. However, in the remaining part of this section, an example of adjustment mechanism of bond issuing will be discussed. This example will show the dominance feature of the hierarchy solution prevailing in

the corporate bond market. In addition, the influence of indirect control by the government on the financial system will be covered.

Bond Issue Committee -- a semi-public organization: The mechanism of bond issuing in Japan is substantially different from that of 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 of major banks and big securities companies unique to the Japanese financial system. Working closely with public authorities, the BIC has rigorously controlled corporate bond issues.

More specifically, a company that wants to issue corporate bonds must, first satisfy a set of uniform standards (tekisai kijun) concerning its balance sheet. Those corporations that clear the tekisai kijun can submit a bond issuing plan to the BIC under an arrangement with both an underwriting securities company and a major bank that plays the role of the trustee (jutaku ginko). The BIC investigates the submitted plan and then determines the issuing terms such as the subscribers' yield and requirement of collateral. Until 1974, the BIC had gone so far as to determine the specific amount of bonds that could be issued by respective companies. Since the BIC always takes the public authorities opinion into account, it can be regarded as a semi-public organization. 22)

The tekisai kijun comprises mainly of conditions regarding the borrowing companies' balance sheet. 23) From the viewpoint of fund raisers, these standards are too restrictive. For example, tekisai kijun's requirement for minimum amount of net wealth is restrictive to small-scale companies with promising investment projects. In effect, small firms can not obtain access to the bond-

issuing market because of strict standards. On the other hand, big companies --- even if they belong to rather stagnant industries --- have easy access to the bond-issuing market. Of course, generally speaking, it is not easy for small firms or newcomers to publicly issue bonds because of informational problems already discussed in this paper. The tekisai kijun, however, is so restrictive that both small firms and promising companies without suitable collaterals are unduely refused in the bond-issuing market.

In fact, it is alleged that tekisai kijun deprives underwriting securities companies of incentive to investigate the credibility of the company desiring to issue corporate bonds. Specialists who produce and disseminate relevant information on fund raisers are useless because of these overly restrictive standards. Thus, in Japan, the development of rating systems similar to the U.S. has been hindered. The market is unable to flexibly determine the issuing terms of each bond depending on information produced by rating companies. 24)

Major banks have been deeply involved in the the BIC's adjustment process primarily in the capacity of the fund raisers' main bank. The main bank almost always undertakes the role of a trustee (jutaku ginko) when affiliated companies issue bonds. As a trustee the bank both arranges the sale of bonds and is the agent for creditors of issuing companies. In effect, the trustee bank takes over the default risk associated with issuing bonds from other creditors. As previously explained, the collateral requirements rule is helpful to the trustee bank when dealing with the issuing companies' bankruptcy.

It should be noted that the trustee bank has been able to earn handsome commissions from the business of trusteeship. Since the trustee bank is regarded as indispensable to the BIC's adjustment process, major banks have a vested interest in preserving both the system of the BIC and the rule of col-

#### 4. A Weak Point of the Japanese Financial System

As described in the previous sections, the financial intermediation in the Japanese bond market is fundamentally dependent on the hierarchy solution. There are two alternative views of this feature in the financial system. One is that a less developed market solution does not mean inefficiency. Rather, it implies the remarkable efficiency of the financial intermediation based on the hierarchy solution. According to this view, the hierarchy solution has been both extremely efficient and pervasive, thus leaving little room for the market solution to play an effective role.

An alternative view is that the hierarchy solution's overwhelming domination of capital markets has prevented the well balanced development of financial intermediation in Japan. According to this second view, the underdevelopment of capital markets is considered an abnormality of the Japanese financial system.

Fund raising by Japanese companies in foreign capital markets: It is difficult to decide which of these two alternatives is more relevant. However, it should be pointed out that some nonfinancial companies have long complained about the restrictive adjustment mechanisms of the BIC. Moreover, the recent surge of fund-raising by Japanese companies in foreign capital markets seems to imply that Japan's capital market is inefficient. Chart 3 and Table 2 present the amount and composition of funds Japanese companies raised both in domestic

and foreign capital markets (specifically in corporate bond and stock markets). Chart 3 indicates that the total amount raised by Japanese companies in the capital market exceeded ¥5 trillion in 1984 and reached around ¥14 trillion in 1987 (excluding private placements in the domestic market).

While growth in capital markets was tremendous, as much as half of the funds were raised abroad. Particularly notable is the fact that the amount of convertible bonds issued by the Japanese companies in foreign markets during the 1970s and the early 1980s was larger than those issued in the domestic market. 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 domestic markets, Japanese companies have been actively issuing it in foreign capital markets. (Table 2)

It is true that most bonds issued in foreign markets are denominated in foreign currencies; however, Japanese companies almost always convert them into yen denominated bonds by means of currency swaps. Usually, convertible bonds issued in the European markets are quickly converted and then sold on the Tokyo Stock Exchange. Japanese companies regard issuing convertible bonds in Europe as the equivalent of issuing stocks in Japan. Thus, instead of utilizing domestic capital markets, this roundabout method of raising funds in foreign capital markets is common.

The main bank relationship also is important in accommodating Japanese fund raisers with services such as currency swap, guarantees and so forth. 26) Table 3 emphasizes the importance of the main bank relationship with regard to 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 it is uncertain if the issuing company had a main bank, main banks or banks of parent companies guaranteed around three fourths of the guaranteed straight bond issued in 1986. This trend is also present in the case of warrant bond issues (see Table 3).

It is noteworthy that a bank --- guaranteeing a specific company --- usually sells a substantial part of the guarantee to a number of other financial institutions. For international bonds issued by its affiliates, the main bank forms a team of banks to jointly guarantee the issue. Thus, the main bank relationship is working even in the case of Japanese companies' fund raising in foreign markets.

A weak point: Because of their good long standing performance, most large Japanese 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 in the past. Large corporations are eager to diversify financing methods. However, because the rigidity of the hierarchy solution prevents the domestic financial markets from flexibly responding to their demand, a substantial part of fund raising activity has shifted from domestic to foreign capital markets. 28) Both Table 2 and 3 present this discrepancy between fund raisers' demand and rigidity of the Japanese financial system.

Concerned parties in both public and private sectors are worrying that the continuous exodus of major Japanese companies from domestic into foreign capital markets will further decrease efficiency in the domestic financial system. The necessity for reorganizing bond issuing mechanisms has become apparent. The restrictive tekisai kijun, with respect to convertible bonds, has steadily been amended since 1984. This amendment process seems to have succeeded in prevent-



ing domestic companies from deserting the domestic convertible bond market. According to Table 3, since 1984, the amount of convertible bonds issued by Japanese companies in the domestic market has dramatically increased, exceeding the amount issued abroad.

## 5. Concluding Remarks

This paper surveyed the mechanism of the Japanese financial system with regard to economics of information focusing on mechanisms for evading informational imperfection in financial markets. Two alternatives of financial intermediation to overcome imperfect information --- the market solution and the hierarchy solution --- were emphasized. The market solution is characterized by the way in which information relevant to financial transactions is produced and disseminated through the market. The hierarchy solution deals with financial information through a hierarchy of financial institutions supported by long-term relationships with major borrowers. The most conspicuous example of this relationship in Japan is the main bank relationship.

The main bank relationship was analyzed in order to understand the uniqueness of the Japanese financial system. Two alternative hypotheses were introduced to explain workings of the main bank relationship; i.e., risk-sharing hypothesis and the delegated monitor theory. Although a decisive empirical analysis remains to be done, the data presented in this paper tended to reject the risk-sharing hypothesis, a popular hypothesis among scholars in Japan. Basic characteristics of the main bank relationship seem to be better

explained by the delegated monitor theory, according to which the major role of the main bank is to produce relevant information on affiliated companies and to coordinate cooperative loan activities.

Next, it was emphasized that not only the bank loan market but also the capital markets in Japan have been dominated by the financial intermediation of the hierarchy solution. Since the hierarchy solution depends on the long-term relationship between lenders and borrowers, the process of financial intermediation tends to be more stable than that of the market solution. On the other hand, the hierarchy solution is stagnant because parties lack the incentive to introduce various kinds of financial instruments and contracts that financial intermediation under the market solution require.

Although this characteristic of the financial system was a rational response to serious information problems existing in the Japanese financial markets immediately after World War II, the rapid industrial development 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 efficient capital markets in Japan. Well managed companies have begun to go abroad to obtain relatively cheap capital funds, exerting strong pressure on the traditional procedure of adjustment in the domestic capital market.

The Japanese financial system is currently in the process of structural change, the financial intermediation of the market solution is expanding relative to that of the hierarchy solution. A major shift took place in November 1987, when nonfinancial companies succeeded in introducing a new financing instrument --- commercial paper --- which may become a substantial competitor for short-term bank loans, though at present issuing of commercial paper is still

controlled by the BIC's tekisai kijun. In addition, the Bank for International Settlements' agreement on strengthening the risk-capital adequacy requirement, reached 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. A number of economist forecast that banks will be induced to 'securitize' their loan assets in order to abide by 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 traditional financial intermediation is still based on the strong long-term relationship between the lender and the borrower--- a relationship not easily broken. Also, as yet no credible information producers other than the main bank have been established in the Japanese financial markets.

## Footnotes

\* This paper is a revised version of Horiuchi(1988). The author is very grateful for valuable comments on an earlier draft to Kazumi Asako, Ernest Bloch, Richard Levich, Yoshio Suzuki, and Richard Zeckhauser. Also, the advice given by a referee of this journal was particularly helpful in improving the paper. Any remaining errors are of course the author's sole responsibility.

- 1) Pratt and Zeckhauser(1985) give a comprehensive overview of agency problems.
- 2) For example, Suzuki(1980), Sakakibara, et al.(1982), Cargill (1985), and Hamada and Horiuchi(1987).
- 3) 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 banks that produce information about fund raisers and signal it to investors often have a long-term relationship with their customers, called the 'client relationship.' Under the hierarchy solution, banks and other financial institutions that produce information also commit themselves to risk-taking by investing money into their borrowers. Thus, separating the production of information from other intermediating activities will bring forth the financial intermediation of the market solution. The 'securitization' rapidly developing in the United States and international financial markets has an aspect of unbundling traditional banking activities in the sense that banks sell loan assets originated by themselves to other investors. This securitization can be regarded as a transfer of the financial intermediation from the hierarchy to the market solution. See

Cumming (1987).

- 4) See Baumol, et al.(1982) for the concept of contestability.
- 5) For example, see Barnea, et al.(1985, pp.61-111). The leveraged buyouts raging in the U.S. capital market may be an effective way of corporate restructuring to evade the agency problem. See Jensen (1986).
- 6) In this paper, we take the position that regulation is essential to efficient working capital markets is explained. Exactly just how effective securities regulation on disclosure is in enhancing the efficiency of financial markets is a controversial issue. See a survey by Friend(1984).
- 7) Despite the common view to the contrary, the Japanese main bank seems to be more flexible than generally believed. However, compared with the flexibility of the 'client relationship' in the U.S. investment banking industry, as researched by Hayes et al.(1983), the Japanese main bank relationship is much more rigid than the client relationship. See Horiuchi et al.(1988).
- 8) For the risk-sharing hypothesis, see Fried and Howitt(1980), Nakatani (1984) and Osano and Tsutsui(1985).
- 9) See Sheard(1986) for an interesting case study of the main bank's methods for handling affiliates in trouble.
- 10) These figures perhaps understate the relative importance of the main bank, because they do not include figures for bond financing. As explained in late in this paper, leading companies could raise funds by issuing their own bonds. The main bank, however, was important not only as a coordinator of bond financing, but also as a buyer of issued corporate bonds. Thus, some leading companies were dependent on their main banks when issuing bonds.
- 11) See, for instance, Jaffee and Russell(1976), Stiglitz and Weiss(1981), and Williamson(1986).

12) The following regression equation was applied to aggregated data from the period 1965-86;

$$M(t) = \text{const.} + a M(t-1) + b R(t),$$

where  $M(t)$  and  $R(t)$  indicate the first section companies' dependency on main bank borrowings at the end of year  $t$  and the average level of the call rate during year  $t$  respectively. The lagged variable  $M(t-1)$  was introduced in order to take the difficulty of instantaneous adjustment of borrowing level into account. The variant of the risk-sharing hypothesis suppose the coefficient  $b$  to be positive. But, the estimated results denied this supposition not only in the case of all companies belonging to the first section of Tokyo Stock Exchange, but also with other affiliated companies of the five major banks taken up in Chart 1.

13) See Horiuchi et al. (1988, pp.172-6)

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

15) See Fama(1985), he insists that inside information from an ongoing deposit history is especially valuable for banks in making and monitoring short-term loans.

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

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

18) Since the rule of collateral requirements limits the degree of risk transfer from borrowers to banks, it has a negative implication against the risk-sharing hypothesis of the main bank relationship. Because, limiting the risk transfer gives lenders a disincentive to collect any relevant information about

the borrowers' credibility, the rule of collateral requirements also seems to have a negative implication against the delegated monitor hypothesis. In this context, the role of collateral requirements requires another investigation.

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

20) Hamada and Horiuchi(1987) makes a critical review of the evolution of governmental control on financial allocation in Postwar Japan.

21) It should be pointed out that, at the early stage of high growth era, the Japanese government and the Bank of Japan were quite uneasy about a financial system dominated by the hierarchy solution. They often claimed developing full-fledged open capital markets was a necessity. See Horiuchi (1987, pp.24-6), an earlier version of this paper.

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

23) The tekisai kijun includes requirements on the minimum amount of net wealth, the minimum level of capital-asset ratio, the minimum ratio of return to total capital, the minimum amount of dividend per share etc.

24) Rating companies were not established until as late as 1985. The BIC's tekisai kijun did not start taking these companies ratings into account until 1987.

25) In 1972, Mitsubishi Trading Company and Komatu Seisakusho expressed their wish to issue a convertible bond without collateral (mutanpo tenkan shasai), but due to strong opposition from major banks the two companies were unsuccessful.

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

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Table 1: Changes in the Importance of Main bank (%)

Name of Banks	1962	1967	1972	1977	1982	1986
Dai-ichi Kangyo	--	--	12.4	12.3	12.9	14.4
Mitsui	16.0	13.6	10.9	9.4	8.3	8.4
Mitsubishi	21.2	14.7	12.9	12.4	11.9	12.1
Sanwa	23.4	15.8	13.6	13.7	12.8	13.5
Sumitomo	21.6	17.2	13.7	11.9	11.6	12.7
Fuji	21.7	17.9	15.1	12.7	11.6	13.0
Tokai	30.5	19.1	16.9	16.3	13.6	13.6
Daiwa	38.1	40.3	20.6	18.3	16.7	16.8
Kyowa	26.0	31.9	55.8	31.6	25.6	27.6
Taiyo-Kobe	--	--	28.8	26.1	26.0	26.5
Saitama	--	--	24.8	25.4	30.1	27.0
Hokkaido Dev. Bank	21.7	34.8	16.4	10.9	16.8	14.4
Tokyo	47.5	35.3	27.4	20.6	18.2	19.5
IBJ	16.1	17.1	14.0	16.0	15.0	14.8
JLCB	21.5	24.8	24.3	36.6	39.1	39.1
Nihon Saiken	n.a.	25.9	55.8	36.3	--	31.5

Notes: These figures refer to the percentage that major (listed in the first section of Tokyo Stock Exchange) companies depend on main bank borrowings relative to their total borrowings.

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

Table 2: 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
1987	59.0	41.0	37.0	7.9	6.7	7.4

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
--	25.4	15.3	0.0

Source: Nomura Research Institution.

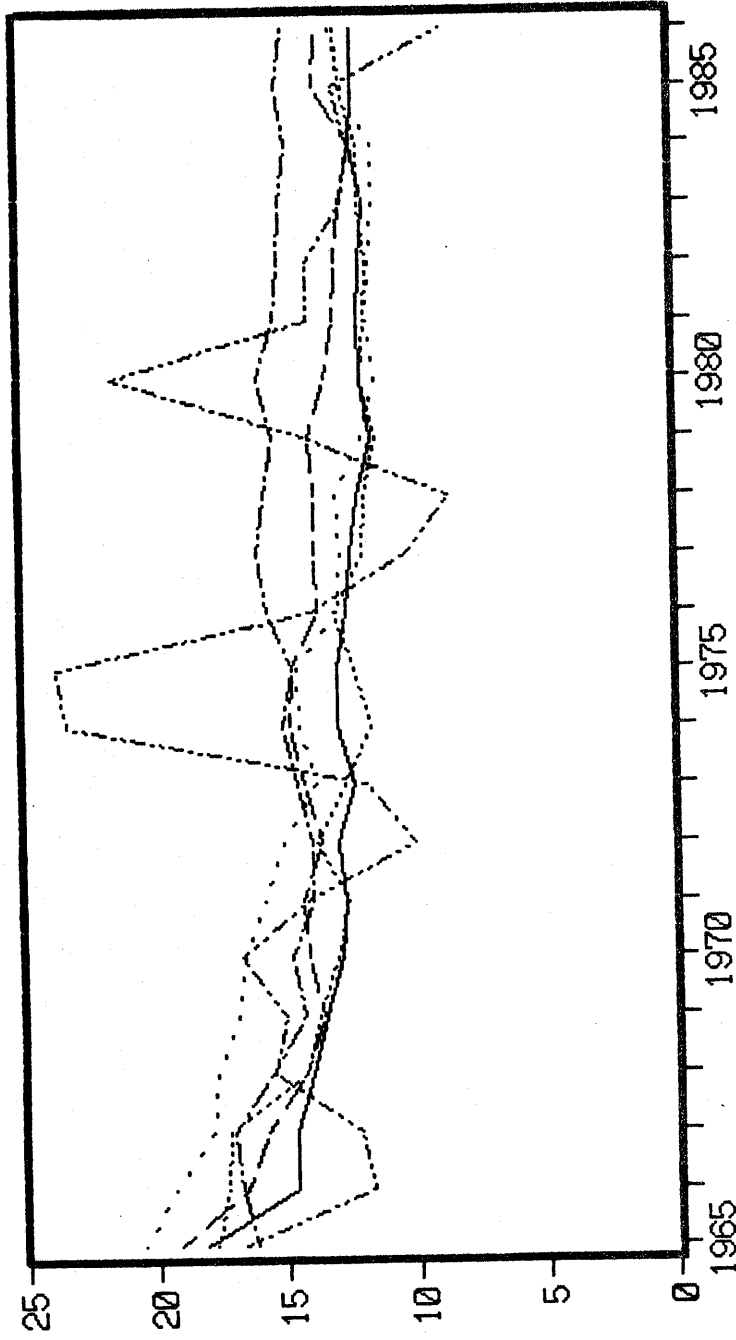
Table 3: Japanese Companies' Foreign Bonds and the Guarantee in FY 1986.

	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.

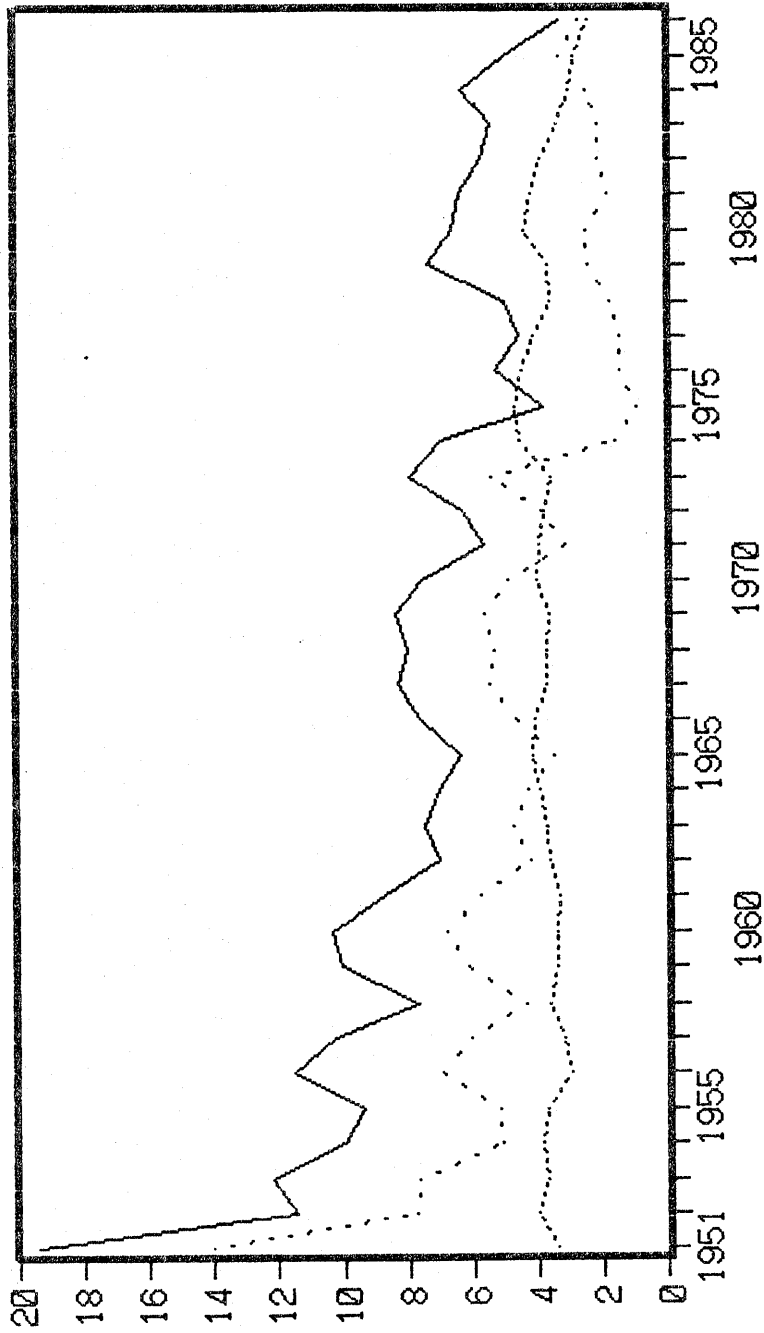
Notes: (1)'The case of absence of main banks' is one in which the issuing company does not have a specific main bank. (2)The 'unidentified case' is one in which the main bank of the issuing company cannot be identified.

Chart 1: Affiliates' Dependency on Borrowing from Main Bank: 1965-86



Note) — Mitsubishi ..... Sumitomo ... Fuji -- Sanwa --- IBJ ---- Call rate  
 Sources) Bank of Japan, Economic Statistic Annual, various issues, and Economic Research Association, Analysis of Major Financial Institutions' Investment and Finance, various issues.

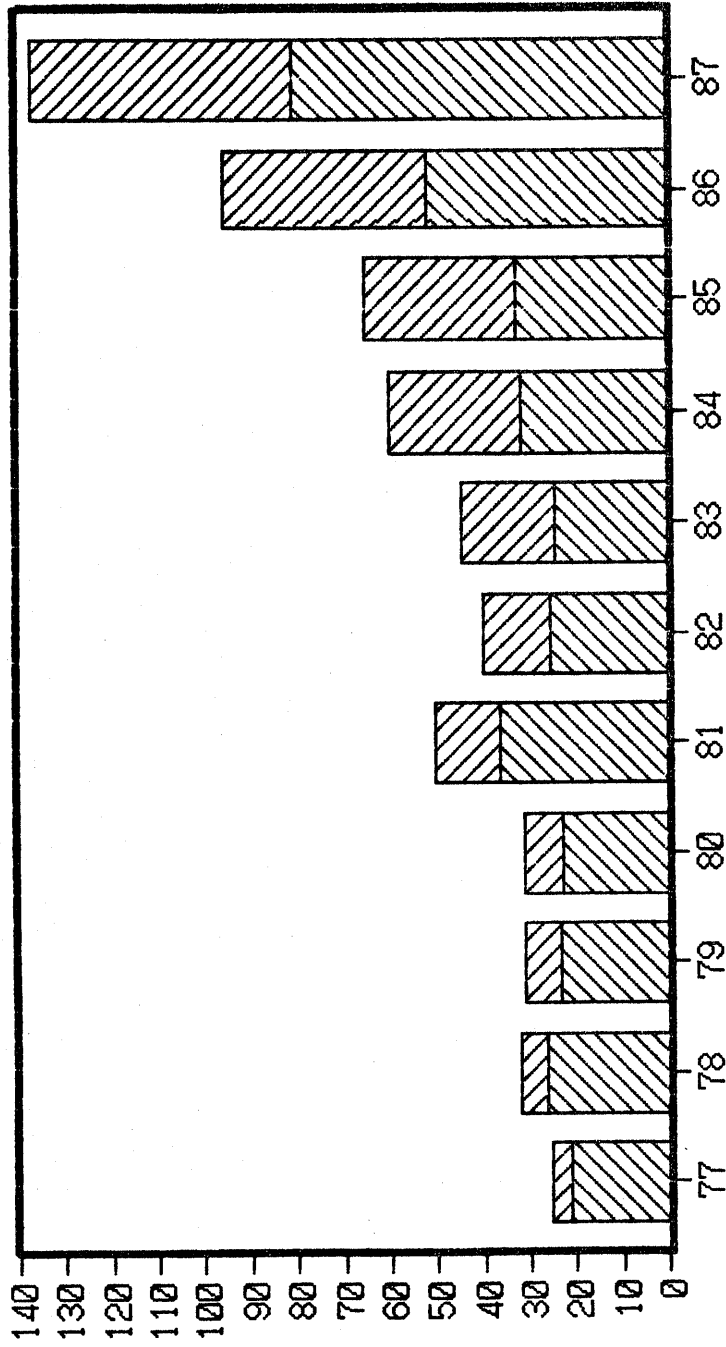
Chart 2: Profits and Financial Expenses  
of Major Companies in Manufacturing (%)





Note) — Oper. Profit/Assets ..... Finan. Exp./Assets ... Net Profit/Assets

Source) Bank of Japan, Analysis of Financial Statements of Main Industrial Corporations in Japan, various issues.

Chart 3: Japanese Companies' Fund Raising in Capital Markets



Note)  domestic markets  foreign markets

Source)

Nomura Research Institute, Handbook on Bond Markets (Koshasai-Yoran), 1988.