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Its Perspective and the Authorities' Roles in Redesigning and Administering the System

Naohiko BABA and Takamasa HISADA

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INSTITUTE FOR MONETARY AND ECONOMIC STUDIES

BANK OF JAPAN

C.P.O. BOX 203 TOKYO
100-8630 JAPAN

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ABSTRACT

This paper discusses Japan's financial system, in particular its perspective and the authorities' roles in redesigning and administering the system. Japan's financial system marked by the "main bank system" depends highly on banks. It is quite different from the U.S. financial system that depends highly on capital markets. We focus on the changes in the financial environment such as the IT innovation, globalization and financial deregulation. We argue that these changes influence the functions and roles of banks and capital markets in favor of capital markets. Many economists now regard the U.S. system as a model to be emulated. We, however, claim that Japan's system is not likely to rapidly shift to the U.S. system in the near future, given the Japan's unique financial structure including the large share of public finance. The Japanese authorities are expected to seek an optimal balance between capital markets and banks with a view to ensuring the efficient and stable functioning of the nation's overall financial system.

Key Words: Japan's financial system, Main bank system, IT innovation, Financial deregulation, Bank supervision, Public finance, Corporate governance.

* Naohiko Baba: Economist, Research Division 1, Institute for Monetary and Economic Studies, (currently Financial Markets Department), Bank of Japan (E-mail: naohiko.baba@boj.or.jp).
**Takamasa Hisada: Chief Manager, Research Division 1, Institute for Monetary and Economic Studies, Bank of Japan (E-mail: takamasa.hisada@boj.or.jp).

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1. Introduction

This paper discusses Japan's financial system, in particular its perspective and the authorities' roles in redesigning and administering the system.

Japan's financial system marked by the "main bank system" depends highly on the banks, where banks and borrowers have close relations in the financial system (hereafter we call a financial system where banks play a dominant role as the "bank-based financial system"). It is quite different from the U.S. financial system that depends highly on capital markets (hereafter we call a financial system where capital markets play a dominant role as the "market-based financial system").

The reputation to Japan's bank-based financial system has been drastically deteriorating. Japan's financial system received universal acclaim, for its vital role in Japan's sustained growth in the 1980s. In the 1990s, however, Japan's financial system came to be viewed as the very source of the nation's prolonged economic stagnation, as it ceased to work properly because of the bad loan problem after the burst of the bubble economy.

In contrast, the reputation to the U.S. market-based financial system has been rising. The U.S. financial system was criticized for its mounting bad loans to the Latin American countries and the domestic real estate sector in the 1980s through the early 1990s. In the later 1990s, however, it turned out to be praised as a driving force of the long-lasted expansion of the U.S. economy with the thrived capital markets.

The on-going and expected changes in the financial environment such as the IT innovation, globalization and financial deregulation appear to exert significant influence on the functions and roles of banks and capital markets in favor of capital markets. As these changes are expected to improve the effectiveness of capital markets by activating the transactions on capital markets. At the same time, these changes are expected to increase the competitive pressure on banks from capital markets and among banks, thus squeeze banks' profits and make it difficult for banks to fulfill their functions as before.

Given the success of the U.S. financial system in the 1990s and expected influence from the changes in the financial environment, many economists now regard the market-based financial system like the U.S. system as a model to be emulated. In Europe, capital markets have been playing an even greater role than before, partly accelerated by the unification of the EU capital markets and the establishment of the European Central Bank (ECB).

Some economists argue that Japan's financial system is going to rapidly shift to the market-based financial system like the U.S. system, since the pressure from the

changing financial environment is expected to enhance the effectiveness of capital markets.

It should be noted, however, that each nation's financial system has own history. Japan' financial system is unique for the underdeveloped capital markets, the large share of public finance, and the Japanese corporate governance, for example. Given this path dependence and expecting how the competitive pressures between banks and markets are likely unfolded, it is rather hasty to conclude that Japan's future financial system is to be the market-based financial system just as the U.S. system.[1]

In fact, the Japanese authorities have already steered their policies toward the greater utilization of capital markets since the launch of the Japanese "Big Bang" initiative in 1996. But so far, they have failed to fundamentally change the bank-dominance in the financial system.

Banks play an indispensable role in mitigating the informational asymmetries between lenders and borrowers by producing information through monitoring activities[2]. . The raison d'être of banks apparently remains, in particular for medium- and small-sized businesses entailing high agency costs.[3]

Moreover, with the growing sophistication and complexity of financial transactions, households and businesses in general are facing rising costs for accessing financial technologies in capital markets. It would add a new role for banks to play in the financial system.

The key issue for the Japanese authorities is to seek the optimal balance between capital markets and banks with a view to ensuring the efficient and stable functioning of the nation's overall financial system. Given the pressure for change from the financial environment, the optimal balance for Japan's financial system is likely to move toward a greater role of capital markets, but not completely shift to that

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[1] Ueda [1994] notes that the U.S. is the only nation where direct finance is overwhelmingly dominant compared to indirect finance by examining the funding structures in each industrialized nation. One of his conclusions is that the U.S. financial system, rather than the Japanese financial system, can be viewed as unique.

[2] Aoki [1994] classifies banks' monitoring activities into three categories. The first is "*ex ante* monitoring," which is an examination of the profitability and risk of borrowers' projects prior to extending loans. The second is "interim monitoring," which is a supervision to confirm the appropriate implementation of borrowers' projects after loans are extended. The third is "*ex post* monitoring," which is the evaluation of borrowers' projects after they are completed, and includes "support activities" when borrowers fall into financial difficulty.

[3] "Agency costs" result from the "agency problem" whereby the agent's actions commissioned by the principal are not necessarily always desirable from the principal's perspective. Specifically, they comprise the costs for principals in motivating the agents to work for the principals' benefit, as well as the principals' disadvantages resulting directly from the agency problems (for example, see Kurasawa [1989] for more details).

of the U.S. system. In searching for the optimal balance, the authorities should take necessary measures in redesigning and administering the financial system, such as the promotion of the utilization of the market mechanism and the adoption of the regulatory and supervisory policies that secure banks' financial functions.

This paper is organized below. Section 2 first compares Japan's bank-based financial system and the U.S. market-based financial system. Then, it compares the interrelations between banks and markets under both systems. The section also examines how Japan's financial system worked from the emergence through the burst of the bubble economy. Section 3 argues how the changes in the financial environment such as the IT innovation, globalization and financial deregulation influence the financial system. Section 4 introduces the recent theoretical insights regarding the optimal balance between banks and capital markets, and provides a framework for discussing Japan's financial system. Section 5 examines structural factors that influence the competitive pressures on banks, public finance and capital markets in Japan's financial system. Section 6 presents our tentative perspective on Japan's financial system. Section 7 discusses how Japan's financial system should change, and what roles the authorities should play in redesigning and administering the financial system. Last, section 8 concludes the paper.

2. Comparison of Financial Systems: Market-based Financial Systems versus Bank-based Financial Systems

This section compares the Japan's bank-based financial system with the U.S. market-based financial system. We employ two criteria, "efficiency in the allocation of resources" and "system stability," paying attention to the underlying corporate governance structures[4]. We then examine how Japan's financial system has performed from its emergence through to the burst of the bubble economy.

(1) Characteristics of Each Nation's Financial System

First, we review the classification of national financial system provided by Allen and Gale [2000] as a reference.

Allen and Gale [2000] compare the financial systems of the five leading

[4] Other papers examining the characteristics of Japan's financial system from the perspective of corporate governance include Fukao [1999].

industrialized nations (Japan, the U.S., the U.K., France and Germany). They posit the U.S. and Germany at the two poles, in the sense that capital markets play the dominant role in allocating resources in the U.S., while banks play the dominant role in Germany. They place Japan in between these two poles.

As explained in detail below, they note that market-based financial systems emphasize efficiency, while bank-based financial systems emphasize stability. In market-based financial systems, the household sector is more directly exposed to market price fluctuations. This is a distinctive characteristic of these systems. They also note that management discipline and supervision are imposed by market mechanisms such as takeovers in market-based financial systems, and by bank monitoring in bank-based financial systems.

Since financial transactions are conducted based on publicly disclosed information in market-based financial systems, investors tend to lose the incentive to collect private information by their own efforts. It is likely to cause the information "free riders" problem, one of the forms of moral hazard In contrast, in bank-based financial systems banks can create "rent" by producing private information via their monitoring activities, and thus retain the incentive to collect private information.[5]

Allen and Gale [2000] classify financial systems by the degree of development and functioning of capital markets, placing Japan in between the U.S. and Germany.[6] As presented in Figures 1 and 2, however, the U.S. and Japanese systems can be viewed as actually representing opposite poles, based on the shares of loans and equities in total corporate financial liabilities, and on the shares of deposits and equities in household financial assets.[7]

The U.S. market-based financial system has attracted global attention as the

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[5] A "free rider" problem can occur among banks, too. Under the main bank system, borrowers rarely borrow from their main banks alone, but typically raise funds from multiple banks. In such cases, the other lenders often rely on the main banks for information on the borrowers by simply following the main banks' lending decisions as signals. Higano [1995] calls it a "cowbell effect." Nevertheless, some economists such as Sheard [1994] emphasize the reciprocity in the process, in that a bank that follows the behavior of the main bank of a certain borrower often serves as the main bank of other borrowers. In this way, the overall system is designed to prevent free riders.

[6] Allen and Gale [2000] claim that the recent trend is toward market-based financial systems. They note the cost of government market intervention and the greater efficiency in the allocation of resources under the market mechanism. Nevertheless, as explained below, this dichotomous framework is too simplified to adequately examine the actual conditions of present financial systems.

[7] The scales of European capital markets are expanding with the introduction of the euro and the integration of the EU financial market in 1999. Significant changes are emerging in European financial systems.

system that led and supported the continued expansion of the U.S. economy from the early 1990s. Nevertheless, given the market imperfections resulting from informational asymmetries, transaction costs, incomplete contracts and moral hazards, we should not hastily conclude that financial systems entrusting everything to the market mechanism are always desirable.

According to the theory of institutional complementarity[8], the optimal financial systems cannot be judged solely by the financial systems themselves. Rather, the financial system should be evaluated in the context of the overall economic system, which comprises various sub-systems such as corporate governance structures and labor systems. In addition, given the path dependence[9], it is entirely possible that Japan's bank-based financial system will not immediately converge to a market-based financial system.

All these factors indicate that the argument by Stiglitz [2000], which affirms that equity markets do a better job of risk sharing than bond markets or loans[10], may well remain valid in the future for most nations aside from the U.S. Nevertheless, relatively little new capital is raised through equity, and few countries have stock markets with diversified share ownership.

(2) Comparison of Market-based Financial Systems and Bank-based Financial Systems

We now evaluate market-based and bank-based financial systems in terms of efficiency and stability.

A. Evaluation in Terms of Efficiency

Regarding the efficiency of resource allocation, we should note that in

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[8] "Institutional complementarity" is a relationship whereby the existence and functioning of each of the sub-systems that constitute a given economic system strengthen the functioning of other sub-systems (for details, see Aoki and Okuno [1996], etc.). In the case of Japan's economic system, for example, the financial system and the labor system characterized by the lifetime employment system are understood to be mutually complementary (for example, see Osano [1996]).

[9] The present U.S. financial system has developed as result of a series of policies adopted after the Great Depression and financial crisis in the 1930s (e.g., the prohibition of the banks' interstate operations by the McFadden Act, the division of commercial and investment banking by the Glass-Steagall Act, and competition policy based on anti-trust laws).

[10] Allen and Gale [2000] classify risk sharing into two categories: cross-sectional risk sharing and inter-temporal risk sharing. They argue that the former is efficiently provided by capital markets via arbitrage trading based on publicly disclosed information, while the latter is efficiently provided by banks and other financial intermediaries.

market-based financial systems, the evaluation of a project (the borrower's quality) is aggregated into the price information that is visible to all market participants. On the other hand, in bank-based financial systems such evaluation is based on private information produced by individual monitoring activity. The efficiency of market-based financial systems highly depends on the reliability of the price information that determines resource allocation.

Thus, for market-based financial systems to work efficiently, their legal systems (anti-trust laws, etc.), tax systems (transaction taxes, withholding taxes, etc.), accounting systems (the introduction of mark to market accounting, etc.), settlement systems, customary business practices and other institutional factors must all work toward satisfying the following conditions.

* High-quality across-the-board disclosure[11] on an ideally real-time basis.
* An environment wherein corporate management is checked via potential takeovers and other market mechanisms.[12]
* Sufficient market transaction volume, minimal distortions in price formation, and a framework whereby prices are set via the best collective judgement of individual market participants.

Moreover, the existence of diverse and multi-level market participants including individual and institutional investors, corporate and other borrowers, investment banks (securities houses), credit rating firms and investment advisors is important.

On the other hand, in bank-based financial systems, overall efficiency depends on the banks' risk management capabilities (i.e. cross-sectional and inter-temporal risk sharing) through monitoring activities. In cases with high levels of informational asymmetries, such as loans to individuals and to small and medium-sized businesses, monitoring by specialized institutions is particularly effective, as markets cannot work efficiently due to insufficient public information on borrowers.

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[11] The main objectives of disclosure are (i) to provide sufficient and accurate information so that investors can make appropriate investment decisions, and (ii) to impose discipline on corporate managers. The former is understood as a prerequisite for investors to act under self-responsibility. The latter is necessary since without suitable disclosure corporate managers are likely to fall into a moral hazard.

[12] Equity markets, particularly in the U.S., have successfully provided corporate discipline. Ueda [1994] explains this mechanism as follows. "Suppose that a business' profits and share price stagnate due to inefficient management. The investor can obtain capital gains by taking over the business, improving the management efficiency, achieving higher share prices, and then selling his shares. Conversely, managers of existing businesses always strive to maintain efficient management to avert takeovers. Thus the possibility of a buyout works toward ensuring efficient management in accordance with the stockholders' interests."

Bank-based financial systems work most effectively when the banks maintain profitability and sound management.[13]We should note, however, that when banks' profit bases are protected by regulations, the incentive for banks to improve their efficiencies is lost, and a moral hazard emerges easily. Consequently, how the authorities regulate and supervise the banks is a very important factor for the overall efficiency of bank-based financial systems.

B. Evaluation in Terms of Stability

Next we examine financial systems in terms of stability.

In market-based financial systems, when market prices fluctuate excessively due to exogenous shocks, businesses and households are directly affected by price fluctuations. Because they are forced to react immediately to such excess fluctuations, market-based financial systems may be characterized as systems where a large burden is placed on the abilities of central banks and other authorities to control market volatility.

In bank-based financial systems, when temporary shocks including changes in monetary policy occur, banks absorb the shocks in the first place before partly passing them on to businesses and households. Therefore, the extent to which businesses and households are exposed to such shocks is relatively small.[14] In other words, bank-based financial systems are based on stable long-term relations among banks, corporations and households, which enable them to mutually achieve maximum long-term benefits. In contrast, in market-based financial systems, each market participant strives to maximize his own short-term benefits.

The prerequisites for bank-based financial systems to work effectively are sufficient bank profits for maintaining sound management, as well as the absence of any large and persistent shocks or structural changes that would destroy the long-term relations between banks and businesses. To prevent systemic risk, a robust safety net and the setting of external discipline are also important. However, the markets (investors) do not fully play their role in checking the management of Japanese banks because of cross-shareholdings, primarily between banks and businesses that belong to the same *keiretsu* corporate groupings (Horiuchi [1998]). Thus, the authorities need to

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[13] For example, the disposal of banks' bad loans is essential for bank-based financial systems to achieve the optimal allocation of resources. To that end, the banks need to have sufficient reserves to absorb losses themselves (revenues, equity capital, etc.).

[14] When shocks are large and persistent, they sometimes cannot be absorbed even by bank-based financial systems. For example, the series of bank crises in Japan in recent years resulted from the inability of the banking system to absorb large-scale and persistent asset price decline shocks following the burst of the bubble economy.

complement the role of disciplining banks.

As explained above, market-based and bank-based financial systems differ in various aspects of the system architecture including their corporate governance structures. Each system has its own benefits and costs in terms of efficiency and stability. Moreover, the conditions to maximize the net benefits differ for each system. They include the required social system design and policy implementation by the authorities, for example.

(3) Interaction Between Capital Markets and Banks

In considering the future image of Japan's financial system, it is evidently inappropriate to view the options as simply an either-or choice between a market-based or bank-based financial system. Capital markets and banks have their own raison d'être within financial systems, and it is essential to determine the best mix of capital markets and banks to ensure the efficient and stable functioning of the financial systems.

While capital markets are suited to standardized large-lot financial transactions, such as the trading of corporate bonds, they lack flexibility. Meanwhile, in some respects banks are better able to handle small-lot financial transactions, such as individual transactions entailing a high degree of informational asymmetries.

IT innovation and the developments in financial engineering have created sophisticated financial products that were previously inconceivable. Financial institutions must facilitate customers' market access for the efficient market trading of such products. Allen and Santomero [1997] state that IT innovation has resulted in the development of more sophisticated financial services and products, and that the "participation costs" customers incur in appropriately utilizing these products have also been rising. For examples, banks sell derivatives to customers over the counter, while adjusting their overall positions in markets. For this reason, almost all of the direct participants in the derivatives market are banks and other financial intermediaries. In this manner, by acting as intermediaries between customers and markets, banks contribute to improving financial system efficiency.

(4) The Emergence and Burst of the Bubble Economy, and Japan's Financial System

A. The Bubble Economy and Japanese Banks' Behavior

Let us now examine how the emergence and burst of the bubble economy and

the consequent bad loan problem have influenced Japanese banks' behavior, with a view to revealing the inadequacies in the design and administration of Japan's financial system.

As noted above, the first prerequisite for bank-based financial systems to work effectively is appropriate bank monitoring of borrowers. When the bubble was inflating, however, the banks' awareness of the necessity for appropriate monitoring, especially for real estate related loans, declined due to the surge in the market value of real estate collateral.

In order for banks to fulfill the function of inter-temporal risk sharing through monitoring activities, sufficient rents and sound management must be maintained. Unfortunately, the burst of the bubble economy left banks with massive bad loans and corporate borrowers with large debt-overhangs, which worked toward weakening the banks' financial standing[15] together with a recession in the overall economy. The land collateral and portfolio investments purchased on the banks' own accounts contributed to strengthening their financial standing when asset prices were rising. But they completely ceased functioning as a safety valve when asset prices turned to a declining trend. Moreover, banks subsequently extended additional loans to assist ailing businesses that suffered from the burst of the bubble economy. These additional loans, in conjunction with the prolonged recession and the continued decline in asset prices, resulted in a further increase in bad loans. That amplified the negative impacts from the burst of the bubble economy on the banking system and on the economy overall.

The increase in the volume of bad loans held by Japanese banks may be regarded as demonstrating how the banks worked as a shock absorber, effectively buffering businesses from the negative impacts from the burst of the bubble economy in the short-term. The critical problem is that by absorbing the shocks and then unnecessarily postponing the final disposal of the bad loans, the banks have sharply increased the total cumulative costs. Employing the real options theory, Baba [2001] demonstrates that when banks foresee a rise in the asset prices of land and other collateral, they recognize greater *ex ante* value from postponing the disposal of bad loans than from immediately writing them off. With hindsight, however, the cumulative social *ex post* costs ballooned because of the continued decline in land

[15] Banks fulfill the function of inter-temporal risk sharing by accumulating internal reserves during economic booms and then using them to rescue businesses suffering from deteriorating performance and to dispose loans to failed businesses during economic downturns (see Allen and Gale [2000], Footnote 10).

prices, contrary to the *ex ante* expectations. The pressure for the banks to dispose of these bad loans now appears to be curtailing banks' risk-taking capabilities. In order to revive and improve the functioning of Japan's bank-based financial system, the highest priority should be placed on the rapid restoration of the banks' risk-taking capabilities through an early resolution of the bad loan problem.

B. System Design and Administration Issues

Another reason why Japan's financial system fell into a serious paralysis following the burst of the bubble economy was the failure to prepare the sub-systems that should have secured the stability of the overall financial system. Specifically, a sufficient safety net, including a system for processing bank bankruptcies, was simply not in place. Throughout the high-growth era, sufficient bank profits were ensured under the protective financial administration policies marked by the Convoy System[16], and thus the banks could dispose of small business bankruptcies within their current profits. The authorities did not recognize the need for installing any safety net to dispose of bad loans exceeding the banks' profits.[17]

It is also likely that the authorities' bank supervision, which is important for securing financial system stability, was insufficient. The authorities were expected to impose discipline on banks with high agency costs. It was an implicit but critical prerequisite for designing and administering Japan's financial system. Some argue that the essence of the bubble economy was an upward shift of all axes, and thus, the responsibility cannot solely be placed on the authorities. But the bank's loose lending stance during the bubble era and the insufficient risk management system revealed after the burst of the bubble confirm that the authorities should have imposed stricter discipline on banks.

It is also true that the authorities' administration under the Convoy System failed to provide positive incentives for banks to develop new financial products and services utilizing the fruits of IT innovation and developments in financial engineering. Furthermore, the deposit insurance system that charged uniform deposit insurance premiums regardless of the contents of bank assets or the number of depositors weakened the discipline imposed on banks' management by investors and depositors.

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[16] For details regarding banking industry rents under the Convoy System, see Shimizu and Horiuchi [1997].

[17] Preparing a comprehensive system for processing bank bankruptcies at the early stage of the hardships would have sent a signal to markets about the seriousness of the bad loan problem, which would have amplified market participants' anxieties regarding Japan's banking sector.

3. Influences on the Financial System from Changes in the Financial Environment (Pressure for Change)

To improve the overall functioning of Japan's financial system, it is essential to change the system design toward restoring and improving the effectiveness of the banking system. While the measures taken to date are still insufficient, many improvements have been realized over the past decade.

On the other hand, we should not underestimate the pressures on the financial system for fundamental change. These pressures come from changes in the financial environment including IT innovation, globalization, and the relaxation and abolition of financial regulations. As detailed below, these pressures for change are working toward increasing the relative effectiveness of capital markets while lessening that of banks. In other words, regardless of the consequences of the bad loan problem, some of the basic conditions required for the effective and stable functioning of Japan's bank-based financial system have already been lost. Over the middle to long term, these changes in the financial environment are expected to have a radical influence on markets and banks, including their functions, roles and inter-relationships.

We now consider various influences that the changes in the financial environment will exert on Japan's financial system.

(1) IT innovation

To begin with, let us summarize the possible effects of IT innovation on financial transactions, on those who bear the responsibility for such transactions and on the overall financial system, based on Bank of Japan IMES [2001]. The ongoing IT innovation is characterized by: (i) the integration of information processing and telecommunications technologies; (ii) faster speed, lower costs and a wider range (globalization) for the processing and disseminating information; and (iii) the astonishing speed at which IT innovation is spreading. Based on these characteristics, the influences that IT innovation is likely to exert from the present through the near future can be summarized as follows.[18]

[18] The effects of IT innovation on the financial system also include the facilitation of electronic money and electronic payment and settlement technologies. If electronic money were to become used as an independent "money," replacing the existing payment and settlement systems based on central bank money and bank deposits, it would greatly change the image of

First, IT innovation works toward reinforcing the functioning of capital markets. The dramatic increase in data processing capacity brought about by IT innovation, together with the developments in financial engineering, has been expanding the scope of products traded on capital markets. IT innovation facilitates more accurate quantification of the risk-return profile of financial products, and the development of securitization techniques to bundle and unbundle various financial asset attributes.[19] At the same time, IT innovation results in more active arbitrage trading from reduced transaction costs, and is rapidly expanding the overall turnover of market transactions.

The expansion of electronic trading[20] and STP (straight-through-processing)[21] has been improving efficiency in market transactions. These changes have already become widespread in the U.S. With the competitive pressure on banks from capital markets, the share of conventional banking (taking deposits and extending loans) is on a continuous declining trend. Although such changes have not yet become evident in Japan, similar pressures are likely to build up in Japan in the near future.

Second, IT innovation facilitates market entry into the field of financial intermediation by businesses in non-financial industries. For example, the use of new infrastructures such as the Internet and financial engineering to develop new financial products is lowering the costs for non-financial businesses to enter the financial intermediation market. The development of methodologies such as credit scoring[22] is

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Japan's financial system. However, as noted by Bank of Japan IMES [1999], to date electronic money has only been issued with a guarantee of convertibility to bank notes and bank deposits, and thus it is more appropriate to understand electronic money not as an independent "money," but rather as a new type of deposit. Electronic money presently does not meet the two basic prerequisites to be recognized as independent "money" – general acceptability and finality – so for the time being it is unlikely that a financial system based on electronic money will become completely independent of the existing payment and settlement systems and widely utilized. Accordingly, the influences of electronic money and electronic payment and settlement methods are omitted from the discussions below.

[19] Today, a wide variety of Mortgage Backed Securities (MBS), other Asset Backed Securities (ABS), automobile loans, credit card claims and other securitized assets, as well as structured financial products such as dual currency bonds, are already being traded on capital markets.

[20] BIS [2001] notes that in combination with STP, electronic trading has the potential to markedly improve the efficiency of market trading by reducing transaction costs.

[21] STP is a processing method whereby all trading procedures from front-office purchases and sales of financial products through to back-office funds settlement are integrated and handled electronically.

[22] "Credit scoring" is a statistics-based loan application screening method whereby the applicant's financial and other attribute data are weighted to produce individual scores that represent the credit risk, and loans are extended when the total of these scores exceeds a given level (the cut-off score). In the U.S., subcontractors have appeared who utilize credit scoring

also expanding the potential for intermediaries to grasp the business conditions of potential borrowers without relying on settlement account (liquidity) data, thus lessening banks' comparative advantages in information production relative to non-financial businesses.

In fact, new trends are emerging in Japan. Internet banks have recently been established[23], and retailers have also established banks. These trends are expected to further decentralize the functions of financial intermediaries[24], intensifying competition among them.

Third, IT innovation is likely to prompt more mergers and alliances within the banking sector, especially among commercial banks, as well as alliances with businesses in other industries. To enjoy the economies of scale expanded by IT innovation, businesses must bear the increased burden of IT-related investment. The recent worldwide trend toward bank mergers and alliances[25] also reflects the following banks' efforts: (i) to reinforce their abilities to withstand heightened competition from overseas financial institutions and new entrants from non-financial businesses[26], and (ii) to secure market participants' confidence.[27]

If the trend toward creating mega-banks reinforces banks' oligopoly position, it will be a favorable development for bank profits. To date, however, the net effect of the decentralization of financial intermediaries has been an increase in competitive pressures.

In sum, the changes described above appear to be exerting great pressures to change the competitive and complementary relations among capital markets, existing

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to screen loan applications on behalf of banks.

[23] Three Internet banks were recently established in Japan: Japan Net Bank (opened October 2000), Sony Bank (opened June 2001) and eBANK (opened July 2001). See Basel Committee on Banking Supervision [2000] for surveys and analyses of the recent electronic banking trends in industrialized nations.

[24] Since new financial technologies have facilitated the unbundling of existing financial functions, there is a growing trend toward the development of institutions specializing in particular financial fields and businesses, in contrast to full-scale banks offering a comprehensive range of services including conventional deposits and loans. The recently established IY Bank and eBANK have both announced business strategies of specializing in small-lot settlement, and these strategies are attracting a great deal of attention.

[25] See G10 [2001] for information regarding financial sector mergers and alliances in the industrialized nations.

[26] Such operating alliances apparently include efforts focusing on particular operating fields designed to create new profit centers amid intensified competition.

[27] Economists have noted that other reasons for active bank mergers and alliances may include securing funds for large-scale IT related investments, as well as incentives to expand business scale under "too-big-to-fail" policies and to maximize the personal interests of bank managers.

banks, new banks established by businesses in non-financial industries, and other financial intermediaries.

(2) Influence of Globalization

Next, we consider the influence of the globalization of financial transactions. The established practice is that internationally active banks are rated by rating agencies based on objective profitability indices such as ROE (Return on Equity) and ROA (Return on Assets). The banks' funding costs reflect their credit ratings. Because Japanese banks have not traditionally pursued profitability as measured by ROE and ROA, their figures have remained low compared with those of U.S. banks (Figure 3). Accordingly, the intensification of global bank competition is expected to provide an incentive for Japanese banks to improve their profitability.

One particularly effective strategy to improve ROE and ROA, especially for large city banks, is to shift their core business from traditional deposit-loan banking to investment banking, that is to the provision of high value-added, state-of-the-art financial products and services.

Yet, at least for the time being, U.S. and European financial institutions enjoy comparative advantages in these fields. If overseas financial institutions expand their global financial services, for example via the Internet, the greater competition will make it increasingly difficult for Japanese banks to shift toward higher value-added financial services. As investment banking generally entails higher risk than commercial banking, a shift toward investment banking would require more sophisticated risk management techniques based on appropriate evaluations of the potential risks and rewards on a value-added basis. In this respect, Japanese banks are considerably behind their U.S. and European counterparts.

On the other hand, for the time being, overseas financial institutions are unlikely to enter Japan's traditional lending market. It is because they view the market as unattractive due to thin profit margins compared with risks incurred. Thus, they are expected to refrain from any significant market entry unless the profit margins suddenly expand to a level that justifies the loan risks. For the foreseeable future, the heightened competition from overseas financial institutions will probably take the form of indirect competition via international credit ratings. And its influence will likely be limited to certain large Japanese banks operating on an international basis.

This implies that the pressure for change from globalization is not all that great

for Japanese banks specializing in domestic operations.[28] If that is the case, Japan's banking system may become increasingly divided into two groups: large banks engaged in international operations that are evaluated based on international profitability criteria, and banks specializing in domestic operations.

Meanwhile, as globalization is generally understood to increase the substitutability of domestic and foreign financial assets, it may influence transactions on capital markets.[29] Transactions in Japan's capital markets will become more active if Japan can make them attractive to overseas investors. Conversely, if such attractive markets cannot be realized, Japan's capital markets will lose the competitive power versus overseas capital markets, and this could result in a hollowing-out of Japan's domestic capital markets.

(3) Relaxation and Abolition of Financial Regulations

For many years, Japanese banks were placed under the Convoy System, but this system became exposed to the pressure for change with the launch of the Japanese financial "Big Bang" initiative in 1996. The regulatory and supervisory authorities have been striving to transform their approach from the direct regulation and supervision of banks based on internal information to regulation and supervision based on market discipline, in accordance with the current international trends.[30]

The measures toward the relaxation and abolition of financial regulations under the Japanese financial "Big Bang" initiative are outlined in Figure 4. The primary

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[28] Nevertheless, listed Japanese banks specializing in domestic operations will also be subjected to pressures for improving their profit performance because foreign investors' demand higher ROE and ROA.

[29] Globalization increases the substitutability not only of domestic and foreign assets but of currencies. In fact, an increasing number of Latin American and Eastern European countries effectively adopt the U.S. dollar and the euro respectively. Like electronic money, however, the question of currency substitutability ranges beyond the time horizon of this paper, and is therefore omitted hereafter.

[30] For example, regarding the Basel Accord on minimum capital standards, the proposed New Basel Capital Accord, which is presently under review as a revision to the 1988 Capital Accord, includes "market discipline" as one of the three main pillars together with "minimum capital requirements" and the "supervisory review process." In a related development, in 1999 the Basel Committee on Banking Supervision (BCBS) established the Multidisciplinary Working Group on Enhanced Disclosure (MWG) together with the International Association of Insurance Supervisors (IAIS), the Committee on the Global Financial System of the BIS (CGFS), and the International Organization of Securities Commissions (IOSCO). The MWG is chaired by Peter Fisher, Executive Vice President of the Federal Reserve Bank of New York. It is working to create a systematic framework toward reinforcing market discipline and enhancing financial institutions' disclosure. (The MWG is commonly referred to as the "Fisher Project" and the present phase as the "Fisher Project II;" see Footnotes 49 and 76).

objectives of such measures include strengthening the functioning of capital markets and activating capital market transactions. Because most of these measures were implemented during 1998, only a handful of financial regulations now remain untouched.

Among the measures taken so far, approving the entry of non-financial businesses into the banking services is particularly important for intensifying competition. The entire series of measures for relaxation and abolition of regulations is definitely promoting greater competition and amplifying the pressures for restructuring in the banking sector.

As demonstrated below, IT innovation, globalization, and the relaxation and abolition of financial regulations are working together toward increasing the effectiveness of capital markets and lessening that of banks. This trend will significantly change the competitive balance between capital markets and banks, and among banks themselves.[31] Moreover, these developments are working to radically alter the functions and roles of banks and capital markets, as well as the mutual relationship between them.

Looking at the most recent developments in the leading industrialized nations, the global trend is toward restructuring financial systems to expand transactions via capital markets. This is evidenced by the expansion of capital markets and the contraction of the traditional banking businesses in the U.S., and by the emergence of a unified capital market and increased capital market transactions in the EU. As one example, in the U.S. the intensified competition with markets has made it difficult for banks to implement inter-temporal risk smoothing, and derivatives and other financial technologies are being used as substitutes (Allen and Santomero [2001]).

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[31] The contents of the financial intermediation functions that customers expect from banks will greatly change due to the maturation of the economy, the accumulation of assets by the household sector, the aging of society and the progress of IT innovation. Corporate needs will likely expand beyond bank lending to the demand for a wide range of financial services including derivatives, loan commitments and other off balance sheet transactions. Meanwhile, with the accumulation of assets by the household sector, households now have greater room to take higher risks, and will exhibit a growing demand for diversified financial products. According to the Bank of Japan's *Public Opinion Survey on Household Savings and Consumption (CY 2000)*, a growing number of households are identifying "securing funds for their post-retirement life" as a primary goal of their savings efforts, so the demand for reverse mortgages and for insurance and pension related products for the elderly is expected to increase.

4. Optimal Balance between Capital Markets and Banks in Financial Systems

The 1990s is characterized by the contrast between the prosperity of the U.S. market-based financial system and the paralysis of Japan's bank-based financial system. During this decade, the U.S. system gained much higher acclaim.

The success of the U.S. system and the pressure for change coming to bear on Japan's financial system (reviewed in Section 3) have gave birth to the arguments that Japan's financial system will or should rapidly shift to a system based on capital markets like the U.S. system. For example, Hoshi and Kashyap [1999] present a simulation that the demand for bank loans in Japan will decline by 30% to 50% within 10 years[32], given the present speed at which large-sized Japanese corporations are shifting their fundraising to capital markets. Thus, they conclude that Japan's financial system will rapidly shift to the U.S. system. Nevertheless, it is important to note that these types of simulations often fail to pay due attention to Japan's unique financial structure.

In this section, as a first step, we review the recent theoretical insights on the optimal balance of roles between banks and capital markets resulting from the business strategies that rational banks adopt given the competitive pressure from capital markets and/or other banks. Then, we point out some reservations in applying them to Japan's financial system.

(1) Theoretical Survey

Sharpe [1990] and Rajan [1992] argue that the process whereby so-called private information is produced via the close ties between banks and borrowers for their mutual benefit creates rents. The source of the rents is the lenders' informational monopoly, which also influences the lending rates and the efficiency of the borrowers' projects. In line with this basic understanding, Petersen and Rajan [1995] show that the increased competitive pressure on banks from capital markets lowers the rents, thus reducing banks' incentive to provide loans. This results in a prompt shift in corporate fundraising from bank loans to capital markets.

Boot and Thakor [2000] criticize the model presented by Petersen and Rajan [1995] for the strong assumption that banks only extend loans based on their close

[32] Hoshi and Kashyap [1999] conduct their analysis focusing on corporate funding. In contrast, Ishida and Mio [2000] argue that the demand for deposits as a settlement means determines the macroeconomic scale of the banking industry.

relationships with borrowers ("relationship lending")[33]. They note that banks actually extend loans to borrowers at some distance ("transaction lending" or "arm's length lending")[34], in addition to relationship lending. They demonstrate that the changes in competitive pressure among banks cannot be similar to the changes in the competitive pressure from capital markets in terms of their influence on optimal bank business strategies.

Based on the Boot and Thakor [2000] model, under what conditions will the competitive pressures press banks to shift from their traditional relationship lending to transaction lending, and press borrowers to shift from bank borrowing to funding on capital markets? Clarifying these issues should prove useful for considering the future image of Japan's financial system.

(2) The Boot and Thakor [2000] Model

A. Basic Settings

This model has four types of economic entities: (i) commercial banks, (ii) investment banks, (iii) borrowers, and (iv) depositors and/or investors.

First, commercial banks are engaged in the traditional banking of taking deposits and extending loans. Their loans are extended to each borrower via either relationship lending or transaction lending. Commercial banks select relationship lending if the informational asymmetries between the lender and the borrower are severe enough. Thus, relationship lending is not very competitive with funding on capital markets.[35] Commercial banks conduct their information production activities, which consist of project supervision and the provision of expertise, to identify projects with desirable risk-return profiles. Their activities raise the expected profitability of the borrowers' projects, and also have the effect of minimizing moral hazards on the part of the borrowers. In other words, the rents created by the information production activities are shared between the banks and the borrowers. Commercial banks

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[33] Under the "relationship lending" assumed by Boot and Thakor [2000], as the investment in information production increases, the monitoring elements gradually shift from *ex ante* to interim and eventually *ex post* monitoring (as classified above by Aoki [1994]), and the relationship lending ultimately approaches the type of lending that prevailed under Japan's main bank system.

[34] Boot and Thakor [2000] use the term "transaction lending" for "arm's length lending."

[35] In other words, monopolistic rents can be created precisely because relationship lending has a low substitutability with funding on capital markets, and this provides an incentive for the commercial banks to build up special relations with their borrowers to the point that these banks bear the costs of information production.

determine the scale of the investment in their information production at the point where the marginal benefits from information production become equal to the marginal costs of the investment. Moreover, the investment scales influence the closeness of the relationships with the borrowers. In contrast, transaction lending[36] is in competition with funding on capital markets because the banks and the borrowers do not share such information.

Second, investment banks assist borrowers in their funding on capital markets.[37] Specifically, these banks bear the costs of searching for borrowers and investors on capital markets, and of matching their mutual needs via the purchase and sale of bonds issued by the borrowers.

Third, the borrowers are given their credit ratings. The banks and capital market participants can observe them free of charge.

Finally, the depositors and/or investors are faced with the portfolio selection of holding their assets as bank deposits or purchasing bonds issued on capital markets by borrowers.

This model analyzes the effects of two types of competitive pressures, the competitive pressure among banks and the competitive pressure on banks from capital markets. The competitive pressure among banks is defined as an increasing function of the number of banks. The competitive pressure on banks from capital markets arises from the competition between investment banks that assist borrowers in their funding on capital markets and the commercial banks that engage in transaction lending. Accordingly, the competitive pressure on banks from capital markets is defined as a decreasing function of the investment banks' capital market search costs, and as an increasing function of the number of investors in capital markets.

B. Optimal Lending Strategy for Commercial Banks

The effects of each competitive pressure on commercial banks' lending strategies can be summarized below.

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[36] Boot and Thakor [2000] cite mortgage lending as an example of transaction lending, but in terms of Japanese lending practices, transaction lending is better understood as loans without any special monitoring because of the pledged collateral.

[37] For simplicity, Boot and Thakor [2000] assume that the issuance of bonds is the only instrument whereby borrowers raise funds on capital markets. This paper, however, takes other instruments into account, such as equity finance. Therefore, the role of the investment banks is to select the optimal funding instruments for the borrowers' needs from among the various alternative instruments available, and to provide comprehensive financial services including bond underwriting.

(i) The routes whereby the competitive pressures are exerted on the lending strategies can be divided into (a) the effect on the total scale of commercial banks' loans (the total scale effect) and (b) the effect on the contents of the lending forms (the substitution effect). In terms of the total scale effect, increased competitive pressures regardless of whether from capital markets or among the banks, reduce the total scale of commercial banks' loans, and increase funding on capital markets.

(ii) On the other hand, the substitution effect depends on the type of the competitive pressures.

* Heightened competition among banks places downward pressure on rents, increasing the share of relationship lending (relatively more profitable), and decreasing the share of transaction lending (relatively less profitable). Meanwhile the investment in information production per relationship lending decreases. Thus, while the ratio of relationship lending to transaction lending increases, the relationships between banks and borrowers become less close.

* Stronger competitive pressure on banks from capital markets increases (decreases) withdrawals (entries) from (into) the banking industry38, resulting in weaker competition among banks. While the ratio of relationship lending to transaction lending declines, as the banks increase their investment in information production, the value added borrowers enjoy from individual relationship lending rises, and the relationships between banks and borrowers becomes closer.

Figures 5-8 illustrate the above conclusions. While Figures 5 and 6 only depict the substitution effect, Figures 7 and 8 depict the overall relationship between competitive pressures and borrowers' funding methods, considering both the total scale effect and the substitution effect.

First, let us examine the substitution effect shown in Figures 5 and 6. In these figures, bank rent is expressed as a function of the borrower's credit rating. The rent from transaction lending is defined as a decreasing function of the competitive pressure from capital markets, the competitive pressure among banks, the borrower's credit rating, and the bank's deposit taking costs.[39]

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[38] The assumption of smooth withdrawal from the banking industry is probably unrealistic in terms of the present Japanese banking industry. We will consider the implications derived from removing this assumption later on. The concept of withdrawal includes reduction of the assets held by existing banks in addition to banks' exit from the banking industry, but for simplification this paper only considers the latter.

[39] The rent is assumed as a decreasing function of the borrower's credit rating because

Next, the rent from relationship lending is defined by the sum of the rent from transaction lending and the additional rent from the specific nature of relationship lending. The additional rent is defined as an increasing function of the investment in information production, and as a decreasing function of the borrower's credit rating and the costs of relationship lending.[40] In general, borrowers can make more profits without relying on close relations with banks as the borrower's credit rating becomes higher. Therefore, when the borrower's credit rating is put on the horizontal axis and the rent on the vertical axis, the rent curve from relationship lending is much steeper than that from transaction lending.

Figure 5 assumes the case where the competitive pressure among banks is not all that high. For borrowers with low credit ratings, banks receive higher rent from relationship lending than from transaction lending. However, as the borrower's credit rating rises, the differential between rents from relationship lending and transaction lending narrows and eventually reverses. Subsequently, the banks continue to extend transaction lending until the rent from transaction lending reaches zero. Thereafter, the banks can no longer extend loans because they can no longer withstand the competitive pressure from capital markets, and borrowers shift to funding on capital markets.[41]

In contrast, Figure 6 assumes the case where the competitive pressure among banks is sufficiently strong. Transaction lending is more influenced by the competitive pressure among banks than relationship lending, which is differentiated by information production. When the lending competition among banks intensifies, the rents from both types of lending decrease, but the decrease in rent from transaction lending is much greater. Thus, the rent curve of transaction lending shifts downward more than that of relationship lending. And when competitive pressures are strong enough, the rent curve of transaction lending is always lower than that of relationship lending. In such cases, borrowers with credit ratings of $\underline{\theta} \le \theta < \theta_R$ choose relationship lending, and all other

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borrowers with higher credit ratings can raise funds on capital markets under more favorable terms. Therefore, banks cannot continue to extend transaction lending unless they lower the rent as the borrower's credit ratings become higher.

[40] Here, the additional rent specific to relationship lending is assumed as a decreasing function of the borrower's credit rating because the borrower evaluates the merits of relationship lending in comparison with transaction lending.

[41] Borrowers with low credit ratings (corresponding to the range $\underline{\theta} \le \theta < \theta_R$ in the figure) secure funds through relationship lending, those with high credit ratings (corresponding to the range $\theta_T \le \overline{\theta}$ in the figure) secure funds from capital markets, and those with middle-level credit ratings (corresponding to the range $\theta_R \le \theta < \theta_T$ in the figure) secure funds from transaction lending. Here, $\underline{\theta}$ and $\overline{\theta}$ represent the lower and upper thresholds of the borrower's credit rating.

borrowers (that is, borrowers with credit ratings of $\theta_R \leq \theta < \bar{\theta}$) choose to raise funds on capital markets. This means that under such conditions, there is no transaction lending whatsoever. Yet because the intensified competition among banks decreases the rent from relationship lending, the banks' information production, which is costly, also declines. Thus, the relationships between banks and borrowers become less close, and the value added that borrowers obtain from relationship lending also decreases.

Next, we examine the relationship between competitive pressures and borrowers' funding means incorporating the total scale effect. To begin with, Figure 7 presents the relationship between the intensity of competition among banks and borrowers' funding means. When the competitive pressure among banks is not all that high, relationship lending increases while transaction lending decreases (the substitution effect) as the competitive pressure among banks rises. Nevertheless, as the competitive pressure among banks increases further, the bank rents decline, the amounts of both relationship and transaction lending decrease, and funding on capital markets expands (the total scale effect). At the same time, the banks' investment in information production per relationship lending declines.

On the other hand, Figure 8 presents the effect of changes in the competitive pressure from capital markets on banks' optimal strategy. When the competitive pressure from capital markets is sufficiently weak, the competitive pressure among banks to earn (high) rents is strong. Therefore, relationship lending dominates transaction lending. As the competitive pressure from capital markets increases, banks shift from relationship lending to transaction lending (the substitution effect). Because the total lending demand decreases as the competitive pressure from capital markets rises[42], the amount of transaction lending initially rises due to the shift from relationship lending, but eventually declines as the total scale effect becomes dominant. Meanwhile, the banks' investment in information production per relationship lending rises.

C. The Boot and Thakor [2000] Model and U.S. Banks' Business Strategies

Broadly speaking, the business strategies adopted by U.S. banks from the latter half of the 1980s through the 1990s is consistent with the Boot and Thakor [2000] model. To recover from their losses during the Latin American debt crisis, U.S. banks began to drastically revise their business strategies from the latter half of the 1980s

[42] The model assumes that the competition among banks weakens as the competitive pressure from capital markets rises. Thus the initial decrease in lending from the total scale effect is somewhat mitigated.

toward putting more emphasis on ROE. Under the FRB's low interest rate policy during this period, there was a massive shift of individual investors' funds from safe assets like deposits to capital markets.[43] In this process whereby capital markets became more active, U.S. banks adopted a strategy that changes their emphasis from traditional commercial banking with poor profitability to investment banking via mergers, acquisitions and other means.[44]

Furthermore, as the average quality of borrowers was improved by the prolonged U.S. economic expansion, the share of high-quality borrowers rose (with a low monitoring burden for banks), the share of relationship lending declined, and the share of funds raised on capital markets increased.

Thus, we can understand the business strategies of U.S. banks and the resulting reinforced U.S. market-based financial system as being consistent with the Boot and Thakor [2000] model. Nevertheless, it is rather hasty to conclude that Japan's financial system will mimic the U.S. experience in the near future. In the following section, we note several reservations for applying the model to Japan's financial system.

(3) The Boot and Thakor [2000] Model and Japan's Financial System

The Boot and Thakor [2000] model is useful in providing a general framework for considering the future image of financial systems. Nevertheless, we should not simply apply the model in envisioning the future of Japan's financial system, because the model findings differ from the Japanese experience in terms of the effects of competitive pressures both from capital markets and among the banks themselves. In addition, we must pay special attention to the uniqueness of Japan's financial structure.

A. The Influence of Competitive Pressure from Capital Markets

First, let us consider the influence of competitive pressure from capital markets. In the Boot and Thakor [2000] model, an increase in the competitive pressure on banks from capital markets decreases the total lending scale, and also decreases the share of

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[43] Under the Boot and Thakor [2000] model, the increase in the number of investors participating in capital markets increases the demand for bonds, and thus intensifies the competitive pressure on bank lending from capital markets.

[44] Traditional U.S. commercial banks faced a bad loan problem in the early 1990s, as they took excessive risks in shifting to real estate lending, which was driven by large corporations' shift to funding on capital markets. However, because the bad loans were restricted to those in a limited geographical area around New England, and because the disposal of bad loans resulted in a substantial decline in the number of banks, the U.S. commercial banks were able to relatively smoothly change their core business from traditional commercial banking to investment banking.

relationship lending in total lending because the competitive pressure among banks is eased. The closeness of banks' relationships with borrowers, however, rises because banks increase their investment in information production.

When we apply the model to Japan's present financial system, there are no obvious problems with the outcome that the total scale of bank lending decreases as competitive pressure from capital markets intensifies. Nevertheless, the logic that the competition among banks declines as the competitive pressure from capital markets intensifies is not acceptable. This is because the smooth withdrawal from traditional banking operations, which is assumed in the model, does not match the reality in Japan.

In the case where banks do not smoothly withdraw from the banking industry, the same banks compete for the lending demand that has already been reduced by the intensified competition from capital markets. Thus the competition among banks actually increases. Looking at Japanese banks' behavior during the bubble era, the competition among banks for the smaller lending demand intensified as fundraising on capital markets became easier for large-sized businesses, which resulted in shifting banks' lending toward high-risk loans. And looking at Japan's present financial system, in which smooth withdrawal from the banking industry is not observed, the competition among banks for high-quality borrowers is in fact intensifying as businesses decrease their external funding due to stagnant economic conditions.

Thus, even with intensified competitive pressure from capital markets, when banks cannot smoothly withdraw from traditional commercial banking operations, their profits are squeezed by the intensified competition among banks, which leads to the destabilization of the banking system.

B. The Influence of Competitive Pressure among Banks

Next, we consider the influence of competitive pressure among banks. In the Boot and Thakor [2000] model, when the competition among banks intensifies, the share of relationship lending in total lending increases while the investment in information production decreases, leading to less close relationships between banks and borrowers. However, looking at the reality in Japan, if the relationships between banks and borrowers were to actually weaken, a large number of businesses might be forced into bankruptcy as their performance deteriorates if they cannot receive the financial assistance.

In the case where borrowers would go bankrupt as a result of weaker ties with banks, would the banks still have an incentive to reduce their investment in information production as a rational choice? The banks would determine whether they should

reduce their investment in information production by comparing the cost-saving effect from the reduction in information production against the cost-increase effect from the consequent increase in bankruptcies or bad loans.

Japanese banks will not choose to reduce their investment in information production, even if the competition among banks intensifies, in cases where the potential for corporate bankruptcy rises and credit risks increase during economic downturns. In fact, Japanese banks are unable to reduce their information production because the probability of corporate bankruptcies is rising, and maintaining this investment itself works toward squeezing their profits.

C. The Current Conditions of Japan's Financial System

The Boot and Thakor [2000] model demonstrates that changes in the competitive pressure from capital markets and among banks are decisive factors determining the future division of roles between banks and capital markets. As described in section 3, the pressure for change brought on by changes in the financial environment generally takes the form of intensified competitive pressure on banks from capital markets, as typically experienced in the U.S.[45]

In Japan, the authorities have already steered their policy in redesigning the financial system towards greater use of the market mechanism under the Japanese "Big Bang" initiative. Nevertheless, the reality is that to date there has been no striking increase in financial transactions via capital markets, and that Japan's bank-based financial system remains essentially unchanged.[46] So the question becomes as follows. Why is this theoretically-conceivable pressure for change has failed to spark any major changes in the competitive pressures between banks and capital markets, and among the banks?

As Aoki and Okuno [1996] argue, "Even though the trend is towards the greater utilization of capital markets for funding, especially among large corporations,

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[45] According to the U.S. flow of funds accounts, the percentage of bank loans in the financial liabilities of non-financial businesses decreased from 20.0% at the end of 1990 to 12.1% at the end of 1999. On the other hand, the percentage of shares, equities and securities increased from 60.2% to 74.8% during the period.

[46] According to Japanese flow of funds accounts, the percentage of bank loans in the financial liabilities of non-financial businesses remained virtually unchanged from 38.9% at the end of 1990 to 38.8% at the end of 1999. During the same period, the percentage of shares, equities and securities increased from 38.9% to 43.1%. Meanwhile, the percentage of cash and deposits in financial assets held by the household sector increased from 48.5% to 54.0%, while the percentage of household sector shares, equities and securities decreased from 21.1% to 13.4%.

and the monitoring capabilities of the main banks in Japan's financial system are deteriorating, it is not entirely realistic nor desirable to conclude that Japan's financial system should be swiftly shifted to an Anglo-Saxon securities-based system." We believe that this argument provides perspectives that are well worth considering, even today.

In order to examine the future image of Japan's financial system based on the above arguments, we must pay attention to the uniqueness of Japan's financial structure. We examine this issue in the next section.

5. Uniqueness of Japan's Financial Structure

There are many plausible hypotheses as to why Japan's capital markets have failed, at least so far, to fulfill their roles.

One hypothesis is that Japanese businesses have not perceived any need for funding on capital markets in recent years due to the weak growth in business fixed investment and the pressures they face to repay excessive debts accumulated during the bubble era. In fact, for the past 2-3 years corporate cash flow has exceeded business fixed investment, and the flow of funds accounts indicate that non-financial businesses have posted net savings ever since 1998. This is viewed as proof that Japanese businesses have continued to repay their excessive debts.[47]

Given these points, the present sluggish growth in funding on capital markets can be attributed to the fact that businesses are restricting their fixed investment reflecting the stagnant economic conditions, and channeling their excess cash flow to repay outstanding debt. Thus, as the repayment of excessive debt progresses and the demand for funds for business fixed investment rebounds along with the recovery of economic conditions, the share of funds raised on capital markets may substantially increase.

If this hypothesis is correct, capital markets should then fulfill their roles once the excessive debt is swept away and the economy picks up. However, even in the manufacturing industry where the debt overhang is not that large, bank-based finance continues to be dominant. Therefore this hypothesis does not convincingly explain the dominance of bank-based finance in Japan's financial system.

In this section, we consider Japan's unique structural factors, that is, (i) the

[47] In fact, the outstanding balance of corporate debt has been on a declining trend since 1998.

underdevelopment of Japan's capital markets, (ii) the large presence of public finance, and (iii) the profit structure of Japanese banks, which are all important to explain why Japan's capital markets do not function sufficiently.

(1) The Underdevelopment of Japan's Capital Markets

As noted in Section 2, an advanced market infrastructure[48] – including sophisticated legal, tax and accounting systems, high-quality public information through the promotion of disclosure, and improved corporate governance via takeovers and other means – is essential for ensuring the efficient functioning of market-based financial systems. Because Japan's financial system has long been dependent on bank-based finance ever since the end of the World War II, it is an undeniable fact that the advanced market infrastructure required for well-functioning capital markets has not yet been fully prepared. In recent years, Japanese businesses have been upgrading their disclosure practices, but compared with the U.S., the disclosed corporate information in Japan is not sufficient in terms of both quality and quantity.[49]

(2) The Large Presence of the Public Finance[50]

The next possible reason why financial transactions in Japan's capital markets have been stagnant is the large presence of public finance. Japan's public finance is said to have played a dominant role in the post-war reconstruction period and the consequent high-growth era in the 1950s and 60s. In Japan, public finance have provided a variety of financial services to customers under more favorable conditions than those offered by capital markets and private banks, which results in reduced incentives for investors and borrowers to utilize capital markets.

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[48] We consider both the primary and the secondary markets.

[49] Disclosure for evaluating counter-party risk is being examined by the Fisher Project II (see Footnotes 30 and 76). Relating to these efforts, Bank of Japan Deputy Governor Yutaka Yamaguchi has emphasized the necessity of providing market participants with incentives to disclose the true standing of their management by stating that "The critical point is whether the pressure from markets, which are expected to serve as a primary incentive, works to promote high-level information disclosure as a market business practice " (Yamaguchi [2000]). Meanwhile, another Bank of Japan Deputy Governor, Sakuya Fujiwara, has stated that along with so-called "microeconomic transparency," improvement in "macroeconomic transparency" via disclosure regarding the stability of each nation's economic regulations and settlement systems is essential for the efficient and stable administration of international financial markets (Fujiwara [2000]).

[50] Higo [2001] presents a comprehensive examination of the various issues on Japan's public finance.

A. The Postal Savings System

The postal savings system, which plays the central role in funding for public finance, has a large presence within Japan's financial system as a provider of the most popular financial assets for individuals. In effect, the postal savings system has hindered individual investors from investing in capital markets.[51]

After the U.S. economy suffered from the burst of the bubble economy in the late 1980s, private businesses promoted structural reforms including advancement of new business fields. And then, the U.S. achieved outstanding economic growth during the 1990s with active capital markets as key background support.[52] Like Japan from 1995, in the early 1990s the U.S. authorities maintained an extremely low interest rate policy whereby the real interest rate on deposits was reduced to virtually zero with a view to stimulating economic growth and support financial institutions' profits.[53] As shown in Figure 9-1, in the U.S. during this period there was a major shift of household sector financial assets from deposits to mutual funds (equivalent to "investment trusts" in Japan). Consequently, risk capital was provided smoothly, which is believed to have formed the basis for the subsequent sustainable economic growth.

In contrast, there has been almost no shift of household sector financial assets from deposits to investment trusts in Japan. Instead, as shown in Figure 9-2, over 50% of the ¥552 trillion in additional household financial assets accumulated over the 10 years from 1990 through 1999 were channeled into public finance (postal savings, postal life insurance, etc.).

Although postal savings deposits and other public finance sector financial assets are in effect risk-free (the general understanding is that these assets are all guaranteed by the government, including implicit debt guarantees[54]), the interest rates on these deposits are almost the same as those of private banks. On the other hand, virtually all of the public finance funds are entrusted to the Trust Fund Bureau at a fixed interest rate. In this way, interest rates in the public finance sector do not appropriately meet the normal requirements for overall asset and liability management.

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[51] For further details, see Okumura [2001].

[52] As explained below, the provision of risk capital by venture capital firms played a significant role in the U.S.

[53] Japan has maintained an extremely low interest rate policy ever since 1995. The corresponding period in the U.S. was from 1991 through 1993.

[54] For example, Article 3 of the Postal Savings Law explicitly states that "The government shall guarantee the repayment of savings accepted as postal savings and the payment of interest on these savings."

Given this market distortion whereby the public finance sector provides financial assets with advantageous risk-return profiles, it is difficult to see how households have any incentive to take on risk on their own initiative via the purchase of capital market bonds and investment trusts.[55] In other words, in Japan, regardless of the low-interest rate environment, because relatively high-yield, risk-free financial products have long been provided by the postal savings system, individual investors' funds have inevitably remained within postal savings deposits.

Therefore, even if an advanced market infrastructure is appropriately put into place, as long as the distortions from public finance remain, there are structural disincentives that prevent individual investors from participating in capital markets, and the competitive pressure on banks from capital markets is unlikely to rise to the U.S. levels.

B. Public Finance Loans

Then, what about the fundraising side? The presence of government financial institutions extend loans to businesses is significant. It goes well beyond the mere fact that government financial institutions occupy roughly 10% of all outstanding loans to non-financial businesses.[56] In fact, public finance has a firmly established presence in diverse areas of Japan's financial system, ranging from lending to blue chip companies to individual housing loans. In many cases, these transactions actually impede the sound development of capital markets and private banks. Blue chip companies should be able to raise sufficient funds easily by issuing corporate bonds, and private banks should have no problems in extending sufficient housing loans.

Another significant side effect is that the lending rates of government financial institutions are determined outside of the market mechanism. As is well known, these rates have generally been set at a low level in line with policy objectives. The framework for this low interest-rate policy was originally established after World War II, based on the public finance system and regulations on interest rates set by private banks. The low interest rate policy is said to have made major contributions to Japan's post-

[55] Another conceivable reason why individual investors have not actively participated in capital markets is that private financial institutions have failed to develop financial products that can replace postal savings deposits from a risk-return perspective. Nevertheless, given the difference in credit standing between public and private financial institutions, the private institutions would experience substantial difficulties in developing such financial products.

[56] According to the flow of funds accounts, loans extended by government financial institutions accounted for ¥46.7 trillion out of the ¥490.7 trillion in total outstanding loans to non-financial businesses as of the end of 1999.

war reconstruction and subsequent high growth.[57] More recently, with the liberalization of interest rates in the private financial sector, the tone of the low-interest rate policy is gradually weakening. Nevertheless, given the generous low interest rate lending extended by government financial institutions to small and medium-sized businesses, as well as the low interest rate housing loans provided by the government Housing Loan Corporation, one can conclude that Japan's public finance system continues to effectively restrict private banks' lending margins and lending interest rates.[58] As a result, the incentives for businesses to raise funds on capital markets have been sharply curtailed.

Japanese private banks' lending rates are set at low levels relative to the borrowers' credit risks and the ROE that should normally be demanded by the equity market.[59] This interest rate setting is influenced by the low interest rate finance provided by government financial institutions.[60] The low level of lending rates itself is desirable for borrowers. Yet given the ongoing changes in the financial environment, it is difficult to expect the low interest rate policy framework to function in a stable and efficient manner over the long term. Moreover, the continued existence of the framework itself is now weakening banks' inter-temporal risk sharing function by restricting their profits. It also harms the sound development of capital markets. The

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[57] Horiuchi [1995] claims that the businesses receiving public finance during the post-war reconstruction and high-growth periods were primarily mining, agriculture, forestry, fisheries and maritime transportation businesses. These sectors were not among the main pillars that supported Japan's high economic growth. He also points out that government financial institutions extended loans to various unpromising businesses, while they rejected loan applications from Toyota and Sony, which later became leading Japanese businesses.

[58] The U.S. also has a public finance system, but it is significantly different from Japan's system in terms of the range of activities and the funds provision methods. So, any direct comparison is difficult. In terms of the provision of credit, unlike Japan's system that provides loans directly to the private sector, the U.S. system primarily functions via reductions and exemptions on interest payments, the purchase of loans, and credit support methods such as insurance and guarantees. Thus, the U.S. public finance system does not compete directly with private banks. See, for example, "FY 2000 Economic Survey of Japan" (Economic Planning Agency).

[59] As detailed below, Japanese banks' lending margins remain around one-third to one-half of those realized by U.S. banks.

[60] Higo [2001] empirically analyzes a correlation between the government financial institutions' market share of loans to small and medium-sized businesses and the lending rates charged by private banks, using data by prefecture. He finds that the former increases in proportion with the latter. He also points out that the share of businesses that cite low interest rates as their reason for selecting government financial institutions is relatively low in major metropolitan areas where private banks' lending rates are low, and relatively high in outlying areas such as the Kyushu and Tohoku regions where private banks' lending rates are high. This implies that the competition with government financial institutions continues to restrict the lending rates charged by private banks.

framework hinders improvements to Japan's financial system functions.

(3) The Poor Profitability of Japanese Banks: Comparison with U.S. Banks

A. The Profit Structure of Japanese Banks

We now review the characteristics of Japanese banks' profit structure, which provides a starting point for considering their business strategies, and the roles and functions of the Japanese banking system.

As noted above, the profitability of Japanese banks is far below that of U.S. banks in terms of both ROE and ROA (Figure 3). On the whole, Japanese banks have adopted a low-margin, high-volume strategy.

During the post-war period, Japan developed a financial system based on indirect finance. The system was complemented and reinforced by a low-interest rate policy for both lending and deposit rates with interest rate regulation, and by the protective bank supervision under the Convoy System. The government secured the stability of bank profits by effectively guaranteeing a certain profit margin, albeit at a low level. The competition among banks for acquiring deposits up until around the 1980s is considered as having been extremely rational, given the abundant promising loan applications and the guarantee of a profit margin by interest rate regulation.

However, the stability of bank profits and bank management have gradually declined with the following changes: (i) liberalization of interest rates, (ii) the greater competition with capital markets due to improvements in market infrastructure, and (iii) the decline in promising loan applications as the economy is becoming more mature. Furthermore, the introduction of the Basel Capital Accord in 1988 restricted banks' ability to increase their leverage as a means of boosting profit levels.[61] At present, Japanese banks have not secured sufficient profitability to meet borrowers' credit risks and international bank profitability standards.

Next, how should we understand the mechanism of this low profitability (especially as measured by ROE) of Japanese banks in light of corporate governance? One prevailing view is that investors' control over banks is weak, and that the market discipline for effective utilization of risk capital is insufficient. In Japan, the share of stable shareholders has traditionally been very high, and risk control has been conducted through the development of long-term relations between banks and their stockholders.

[61] Given the maturation of the economy (the end of Japan's high-growth period) and the resulting higher credit risk of borrowers, the basic concept behind the Basel Capital Accord is appropriate.

On the other hand, these stable relationships have resulted in a weakening of the incentives for the creation of value-added, and have allowed the continuance of inefficient management policies despite the changes in the banks' business environment.

Japan's traditional financial administration policies, as marked by the Convoy System, have placed greater emphasis on stability and uniformity than on individual bank profitability. These policies have, in effect, worked to weaken corporate governance via shareholders.

B. The Direction for Improving Profitability

As seen in Section 3, Japanese banks are now being pressured by globalization to improve their profitability as measured by ROE and ROA. The banks' options toward achieving improved profitability may be summarized as follows: (i) drastically reducing expenses; (ii) increasing lending margins; and (iii) increasing non-interest income by expanding investment banking operations (the provision of new products and services aside from traditional loans, such as off balance sheet trading).[62]

Let us first examine option (i), a drastic reduction in expenses. As shown in Figure 10, the ratio of expenses to equity is higher at Japanese banks than at U.S. banks, but the ratio of expenses to total assets is lower than at U.S. banks. This contradiction is simply because Japanese banks have much less equity capital compared with U.S. banks, and thus the Japanese banks' expense ratios appear excessive when measured against equity capital.

When the Japanese banks' expenses are measured in terms of total assets, the expense ratio was around 3% as of the end of 1999, which is not an excessive level. As shown in Figure 3, to match the ROE and ROA levels prevailing at U.S. banks by slashing expenses alone, Japanese banks would have to reduce their expenses to nearly zero. This is simply not a realistic strategy. Thus, the feasible strategy for Japanese banks is to pursue measures under options (ii) and (iii), in addition to the expense-cutting efforts.

As presented in Figure 11, Japanese banks' lending margins are extremely low, at just one-third to one-half of those realized at U.S. banks. Therefore, option (ii),

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[62] ROE = ROA × (ROE/ROA [= total assets / equity]) = ROA × (total assets / risk assets) × (risk assets / equity [= 1 / capital adequacy ratio]). Therefore, to boost ROE under a given capital adequacy ratio, aside from increasing their ROA, the banks could logically increase their ratio of (total assets / risk assets). This means reducing the percentage of risk assets in total assets, in other words, improving the average quality of bank assets. But, this would probably be difficult in general under a competitive environment.

increasing the lending margins, is the fastest route to improving bank profitability. Nevertheless, it would be impractical to suddenly increase the margins on lending rates across the board because it could harm the overall economy via a negative influence on borrowers' business behavior. The key strategy will be to accurately evaluate the credit risk of each borrower and gradually reflect it in individual lending rates.

Finally, what is the feasibility of option (iii), increasing non-interest income by expanding investment banking? Figure 12 reveals that the gap between U.S. and Japanese banks' non-interest income has roughly tripled over the past decade. In fact, expanding Japanese banks' non-interest income by strengthening their investment banking and other commissions and fees-producing operations[63] appears to be the most promising strategy. Nevertheless, since Japanese banks' introduction of information technologies and financial engineering is well behind their Western counterparts, the Japanese institutions would encounter substantial difficulties in trying to rapidly catch up with these foreign competitors.

While catching up with the ongoing information technologies requires large-lot investments, since the banks' profits are likely to be squeezed if the competition among banks intensifies, such investments might not be made in an appropriate manner. As a result, the efficiency and stability of the overall financial system might be damaged. As mentioned in Section 3, the recent wave of bank mergers toward creating mega-banks has apparently been prompted, in part, by a compelling need to secure funding sources for the required information technology investment in an effort to improve profitability for survival.

While management discipline on Japanese banks has traditionally been exerted by the authorities, this is now being replaced by intensified competitive pressure. At the same time, this intensified competitive pressure is also squeezing bank profitability and stability since it places downward pressure on lending margins. Thus, the present system is unsatisfactory from the perspective of providing incentives for healthy bank management.

6. The Future Image of Japan's Financial System: Tentative Conclusions

[63] Investment banking includes the open market underwriting of corporate bonds, the intermediation of large-lot finance, and other wholesale operations such as M&A and derivatives products. In general, the profit ratio on wholesale operations increases in proportion to scale. With a transition from traditional commercial banking to investment banking operations, banks' income sources shift from interest income to commissions and handling fees.

(1) The Future Image of Japan's Financial System

Based on the above considerations, we may venture to envision the future image of Japan's financial system as follows.

(i) IT innovation and the relaxation and abolition of various capital market regulations under the Japanese "Big Bang" initiative will provide greater incentives for both individual/institutional investors and borrowers to utilize capital markets. It will increase the competitive pressure on banks from capital markets, which is likely to contract the scale of the traditional bank lending market.

(ii) However, for the time being, the competitive pressure on banks from capital markets will probably not intensify to the U.S. level because of the following unique characteristics of Japan's present financial structure. (a) Improvements to the capital market infrastructure remain insufficient. (b) Private banks' lending rates continue to be restricted by the low interest rate policy and government financial institutions' low interest rate loans. (c) The existence of the postal savings system makes it difficult to achieve a shift of private investors' assets to capital markets. (d) Japan's corporate governance structure and institutional complementarity are not fully suited to greater utilization of capital markets.

(iii) The increase of new entrants from non-financial sectors into the banking sector and the difficulties in smooth withdrawal of existing banks from the banking sector imply a possible intensification of the competition among banks. At the same time, the lending market is shrinking under the increasing pressure from capital markets. Given the present worsening of business performance and the reduced demand for business fixed investment funding, Japanese banks are likely to continue providing their traditional support to borrowers (that is, the close relationships between Japanese banks and their borrowers is unlikely to weaken).[64] This perspective implies that the banks' profits will continue to be squeezed, and that sound and stable bank

[64] Here, the businesses that receive bank support are those borrowers who have fallen into a temporary worsening of business performance. Bad loans to businesses with no realistic prospects for future business recovery should be promptly disposed of.

management, which is a prerequisite for the sound functioning of any bank-based financial system, will not be maintained.

These tentative findings cast doubt on the argument that Japan's financial system will smoothly shift to a market-based financial system like the U.S. system. While they are based on the assumption that the pressure for change in Japan from changes in the financial environment will not heighten to the U.S. level, it is an entirely likely assumption given Japan's present situation. Moreover, the overall functioning of the Japan's financial system is likely to be unsatisfactory because the capital market will remain unable to fully fulfill its proper roles while the prerequisites for a stable and efficient banking system are no longer being met.

Then what sort of system redesign and administration should the authorities pursue to ensure the efficient and stable functioning of the overall financial system ? We address the roles of the authorities in Section 7. If the capital markets are unlikely to function well while the effectiveness of the banking system is decreasing, can we expect alternative funding routes in Japan to provide risk capital for growth industries? Before proceeding to Section 7, we briefly consider the potential of venture capital firms in Japan.

(2) The Potential of the Venture Capital: A New Style of Financial Intermediation

In the U.S. from the 1970s through the 1990s, banks' presence in the provision of risk capital declined while the presence of non-banks increased. Venture capital firms may be considered as the representative example of this trend.

Then, to what extent can we rely on venture capital firms in Japan?

The IT industry[65] was a main pillar supporting the sustainable expansion of the U.S. economy during the 1990s, and venture businesses provided the main thrust for this dramatic IT industry growth. In line with the trend, during 1999 venture capital investments increased by approximately 2.5 times from the previous year to post an historical high of $48.3 billion.[66]

As venture businesses challenge completely new technologies and market risks, a high degree of informational asymmetries exist between venture businesses and their investors. While venture businesses have a low probability of success, extremely high

[65] According to *The Emerging Digital Economy II*, published by the U.S. Department of Commerce in 1999, the IT industry accounted for just 8% of U.S. real GDP from 1995 through 1998, but was responsible for 35% of U.S. real GDP growth during this period.
[66] According to *Venture Capital* (National Venture Capital Association).

returns can be expected when their businesses do succeed. Because of this tremendous uncertainty involved in venture businesses, venture capital firms are expected to exert management control over the businesses they invest in.

The manner in which venture capital firms exert corporate governance over venture businesses can be roughly summarized as follows.[67] When venture businesses run smoothly, venture capital firms play a passive role in fostering the business.[68] It is only when venture businesses encounter serious management problems that the venture capital firms begin to actively exert management control.[69] Moreover, the venture capital firms evaluate venture businesses in terms of not only expected short-term profits, but mid-term corporate value. Venture capital firms may make investments in venture business that presently have a negative net worth, but are expected to become highly profitable in the future.[70] Investments in the shares of businesses in their initial growth phases are risky, but because the share prices are at low levels, the returns are sometimes 100 times the initial share prices when the businesses succeed.

Pension funds are one of the primary sources of U.S. venture capital.[71] The pension funds provide capital to venture businesses purely for portfolio investment purposes. In order to achieve efficient risk sharing, they never make direct investments in venture businesses, but rather chose indirect investments via venture capital firms, which function as financial intermediaries. In selecting venture capital firms, the pension funds rely on "gatekeepers", which are the companies specializing in evaluation of venture capital firms"[72]

While most U.S. venture capital firms are independent businesses, most Japanese venture capital firms are subsidiaries or affiliates of financial institutions. It means that many of the Japanese venture capital firms are not truly independent from their parent companies in terms of their personnel and management. Because there are no counterparts to gatekeepers in Japan, Japanese venture capital firms are unable to

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[67] See Japan Center for International Finance [2000] for details regarding the present conditions of venture capital in the U.S.

[68] Specifically, venture capital firms provide operating capital, know-how to improve management efficiency, and information about industry and market trends, etc.

[69] This includes seconding management executives, and introducing banks.

[70] Nevertheless, U.S. venture capital firms are generally extremely strict in screening potential investments. According to Takahashi [2001], some major venture capital firms receive 2,000 applications a year, and ultimately provide funds to 10 or fewer businesses.

[71] Pension funds were originally prohibited from investing in venture capital firms and making other high-risk investments, but this prohibition was repealed by the 1979 revisions to the Employee Retirement Income Security Act (ERISA).

[72] The "gatekeepers" sometimes establish their own funds, collect capital from investors, and implement diversified portfolio investments in several venture businesses.

efficiently accumulate funds from a wide range of investors. Given this situation, Japanese venture capital firms inevitably remain highly dependent on bank loans for their funding needs.

Japanese banks' risk-taking capabilities have declined in recent years because of the bad loan problem. Thus, they find it difficult to invest in businesses that are operating at a loss or have a negative net worth at present, even if they are expected to realize improved profitability in the future. Analysts have noted that Japanese venture capital firms, inevitably dependent on banks for their funding, are generally functioning under these same restrictions.

Given these conditions, it is highly unlikely that the Japanese venture capital market will become as vibrant as that of the U.S. during the 1990s.[73, 74] For the present, banks are expected to continue playing a central role in the provision of venture capital to small and medium-sized businesses in Japan.

7. The Roles of the Authorities: Policy Implications

Section 6 presented our tentative conclusions regarding the future image of Japan's financial system. In this section we examine the roles of the Japanese authorities in redesigning and administering the nation's financial system, including their roles in reforming the peculiarities of Japan's financial structure.

The primary roles of the authorities are, as shown in the above examinations, to secure the stable and efficient functioning of the overall financial system by fully utilizing the functions of both capital markets and banks. Because the changes in the financial environment are working toward enhancing the effectiveness of capital

[73] During 1999 and 2000, a so-called "Internet bubble" where the prices of IT-related shares skyrocketed also emerged in Japan. During this period, many new venture capital firms discovered promising Internet companies, arranged for early listings on the Mothers or Nasdaq Japan markets, and quickly recovered their investments when share prices rose following the IPOs. This behavior was distinctly different from the proper role of venture capital firms in supporting venture businesses' management and increasing venture businesses' value. See Takahashi [2001] for further details.

[74] On the other hand, the excessively strict listing requirements in Japan compared with those on Nasdaq and other U.S. markets (in practical terms, for a long time it was impossible to list businesses operating at a loss on Japanese markets) make the investment recovery period excessively long. It is one of the reasons for the stagnation of venture capital activities in Japan. However, this problem is being ameliorated via such measures as the relaxation of the listing standards for the over-the-counter market and the establishment of the Mothers and Nasdaq Japan markets.

markets, the optimal balance between capital markets and banks in the financial system is shifting toward more important roles and functions for capital markets. In order to achieve the optimal balance, the authorities will need to take the following measures: (i) to beef up the market infrastructure in the direction of the greater use of the market mechanism, as well as to remove structural impediments to the market mechanism; and (ii) to revise regulatory and supervisory policies so that the banking system functions well as a key component of the financial system.

(1) The Market Mechanism and the Authorities

A. Utilization of the Market Mechanism

IT innovation, globalization, financial deregulation and other changes in the financial environment (pressure for change) are apparently working toward increasing the effectiveness of Japan's capital markets. Meanwhile, the effectiveness of Japan's bank-based financial system has been diminishing (or will decline in the future) under the changing financial environmental. In order to improve the effectiveness of Japan's financial system as a whole and strengthen the robustness of the financial system via the diversification of intermediation routes, it is desirable to redesign the system toward prompting greater utilization of capital markets.[75]

While Japan's financial administration policy has already shifted toward this direction under the Japanese "Big Bang" initiative, the market infrastructure has not yet been sufficiently enhanced. Promoting greater disclosure[76], upgrading the quality of public information via the introduction of mark to market accounting, enhancing the competitive environment via deregulation and revision of tax systems, and improving corporate governance via further discipline through takeovers and other means are all necessary to ensure the ideal functioning of the market mechanism.

B. Stance on Public Finance

As discussed in Section 5, the large presence of public finance in Japan has hindered the market mechanism from properly functioning by effectively restricting the lending rates charged by private banks and generally diminishing the relative

[75] Reforms should be advanced immediately toward making the nation's capital markets, especially its stock markets, more attractive to individual investors. The required measures include reducing stock investment units, lowering share transfer taxes, and providing other securities taxation incentives.

[76] In this regard, Multidisciplinary Working Group on Enhanced Disclosure [2001] presents several proposals (see Footnotes 30 and 49).

attractiveness of funding via capital markets. The existence of the postal savings system, where advantageous interest rates are set on risk free deposits fully guaranteed by the government, diminishes the incentive for individual investors to take risk on capital markets. There are concerns that greater investment by the postal savings system might expand its scale to the point that the system would have sufficient market power, exerting a harmful effect on the market mechanism. Such harmful effects of public finance must be rectified as quickly as possible. Furthermore, the disclosure practices of government financial institutions are markedly behind those of private banks. The lack of management discipline via external checks is another major problem.[77]

Theoretically, these conditions are understood to be a case where public financial institutions and private financial institutions are engaged in oligopolistic competition in the markets of equivalent financial products. Public financial institutions seek to maximize social welfare, while public financial institutions seek to maximize their own profits. In such a case, the greatest concern of the authorities is whether the presence of the public financial institutions, which ostensibly aim at maximizing social welfare, not only quantitatively restricts the behavior of private financial institutions, but ultimately winds up impairing social welfare.

Ide and Hayashi [1992] present an interesting analysis using a simple duopoly model comprising public and private financial institutions. Some of their conclusions can be summarized as follows.[78]

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[77] Government financial institutions' low-profitability loans can be justified if they contribute to improving overall social welfare, in accordance with policy objectives. The lack of an established system for appropriate external checks to confirm that loans are actually selected based on these criteria is still a problem.

[78] Ide and Hayashi [1992] also conduct analysis assuming a Stackelberg duopolistic competition where public financial institutions or private financial institutions play the leading role in determining lending volume. Their main conclusions are as follows.

(i) When the public financial institutions play the leading role, and work to maximize social welfare while accurately projecting the profit-maximization behavior of the private financial institutions, the resulting equilibrium provides a higher level of social welfare than would be realized by the private financial institutions acting alone.

(ii) When the private financial institutions play the leading role, social welfare is optimized only when public financial institutions' marginal costs remain constant in terms of scale.

The above conclusions suggest that the existence of public financial institutions can work to increase social welfare under a Stackelberg duopolistic competition, and not under a Cournot duopolistic competition. It should be noted, however, that social welfare is increased only when the following extremely strict conditions are fulfilled. In case (i), the public financial institutions must willingly play the leading role while constantly and accurately projecting the reactions in terms of the private financial institutions' behavior. In case (ii), the public financial institutions' marginal costs must remain constant in terms of scale.

(i) Suppose a Cournot duopolistic competition where public financial institutions that seek to maximize social welfare and private financial institutions that seek to maximize their own profits do not alter their behavior in response to changes in other's behavior. In this case, the market share of the public financial institutions exceeds that of the private financial institutions. The public financial institutions lose their market share whenever they are privatized.

(ii)Public financial institutions competing with private financial institutions achieve higher social welfare when the public financial institutions add the maximization of their own profits to their original objective of maximization of social welfare.

These conclusions imply that under a Cournot duopolistic competition between public and private financial institutions, the existence of public financial institutions can actually impair social welfare, and that the privatization of these public financial institutions can achieve greater social welfare.[79]

C. Improving Controllability of Undesirable Market Developments

When bank-based financial systems shift toward market-based financial systems, the extent to which price fluctuations directly influence businesses and households apparently increases.

As noted in Bank of Japan IMES [2001], the faster speed of financial transactions and the globalization resulting from IT innovation could markedly decrease the stability of the financial system by increasing volatility in interest rates, foreign exchange rates and share prices, and easily spreading herd behavior among investors[80].

For these reasons, central banks and other authorities need to enhance the controllability of undesirable market developments from the perspective of securing the stability of the financial system. Here, "the controllability of undesirable market developments" includes appropriate implementation of monetary policy, appropriate communication with market participants to eliminate unnecessary uncertainty regarding future policy courses[81], and emergency responses to sudden outbreaks of undesirable developments in financial markets.[82]

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[79] See the Appendix for the details of the model.

[80] The existence of market participants with strong market power, such as the postal savings system and huge overseas hedge funds, may obstruct the smooth and efficient functioning of capital markets.

[81] A wide range of communication methods are required, including the public disclosure of the minutes of Monetary Policy Meetings, press conferences by the central bank governor, the release of economic outlooks, and various commitments regarding future policy courses.

[82] The FRB's emergency response to the Long-Term Capital Management crisis in the autumn

IT innovation enables market participants to easily access information. It also enables the central bank and other authorities to disseminate their messages on a real-time basis. The authorities should appropriately communicate with market participants amid these changes in the market environment..

At the same time, the central bank should make every effort to remove all the barriers, one by one, that obstruct the full functioning of the interest rate transmission mechanism as a basis for controlling markets, as the roles and functions of capital markets grow in the financial system. From this perspective, it is important to address the problems with public finance as quickly as possible.

(2) Regulatory and Supervisory Policies

A. Basic Concept

For banks to continue to appropriately fulfill a unique role within Japan's financial system, it will be essential to shift bank discipline from the present mechanism imposed by the financial authorities to a market-driven mechanism based on competitive market pressures. Nevertheless, due to the existence of "market failures," the authorities' role in bank regulation and supervision will remain essential into the future, although there is still room for debate regarding the optimal extent of their involvement.

By nature, regulatory and supervisory policies constantly need to be reorganized to meet changing times. For example, the regulations governing entry into and exit from the banking industry on a case-by-case basis have served as the main pillar of the system of Japan's banking regulations. , From now on, the financial authorities must set up solid judgment criteria reflecting regulatory, supervisory and competition policies. As discussed below, our basic position is that market entry barriers should be lowered to the greatest possible extent, and that the regulatory and supervisory system should ensure the smooth exit of banks from the industry whenever they are required to do so.

When businesses from other industries actively enter into the banking industry, partially due to IT innovation, one important point is how the authorities determine which bodies should be subjected to regulatory and supervisory policy. At the least, the existing financial regulatory and supervisory policy based on the financial sector is losing its meaning and obstructing the provision of fair competitive conditions (a level

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of 1998 is a good example.

playing field).[83] For example, the functions of the weather derivatives recently being provided by banks, casualty insurance companies and electric power companies are similar to the functions of casualty insurance. Furthermore, considering the present astounding speed of technological innovations, it is essential to shift the financial regulatory and supervisory framework from the present institutional approach to a functional approach[84], and such revisions have to be implemented flexibly, on an ongoing basis, to respond to the speed of technological innovations.

B. Market Entry Regulations

To date, the authorities' regulations limiting market entry into the banking industry have been justified on the ground that additional market participants would increase competitive pressures, thus squeezing existing bank's profits[85] and impairing the bank monitoring function.

However, protecting existing banks from potential competitive pressures by market entry regulations may prompt collusive activities among the existing banks to restrict competition. Thus market entry regulations could effectively diminish social welfare. If monitoring activities differentiate each loan, new entrants into the banking industry would expand the range of choices available to the borrowers. Especially, the entry of businesses with superior capabilities in developing advanced financial products employing the fruits of IT innovation (e.g., Western investment banks) has direct merits for many borrowers and financial services users, and will not just increase the competitive pressures among banks.

In considering appropriate market entry regulations, it is necessary to compare

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[83] If the trend toward creating mega-banks continues, it will become necessary to revise the "too-big-to-fail" policy of the supervisory authorities from the perspectives of ensuring fairness and preventing the emergence of moral hazards. Nevertheless, to forestall an explosive transmission to the entire financial system of the harmful effects from the bankruptcies of huge banks during financial crises, the authorities' role in the orderly processing of such failed banks will still remain important. (As opposed to a "too-big-to-fail" policy, this approach may be called a "too-big-to-explode-quickly" policy).

[84] The main point here is that when the IT innovations spark diverse changes that cannot be predicted beforehand, a flexible response beyond the institutional approach is essential for ensuring policy effectiveness. We are not recommending a complete redesign of the regulatory and supervisory system based on the functional approach.

[85] This is closely related to the "excess entry theorem" for oligopolistic banking industries presented by Suzumura [1990]. This theorem states that in a banking industry with a Cournot oligopolistic competition, when deposits and loans cannot be differentiated and thus have strategic substitutability, the number of banks in the industry equilibrium inevitably exceeds the optimal number of banks to maximize social welfare. The theorem also states that marginally reducing the number of banks inevitably improves social welfare.

the benefits and costs of their diverse potential effects. Nevertheless, the correct direction is apparently to relax the entry regulations to the greatest extent.[86] It is because various competitive pressures will become the only forces capable of exerting discipline on bank management in the future, and new financial technologies are essential to improve banks' profitability.

C. Policies to Promote Exit from the Banking Industry or Bankruptcy Processing

Even if competitive pressures intensify from the increase in new entrants, banks that conduct appropriate risk management and take on the necessary risks should still be able to secure appropriate profits. However, banks that undertake excessive risks or take an excessively cautious stance toward risk-taking should be weeded out by the market mechanism. This simply represents the proper functioning of market discipline.

The shift of the main forces imposing management discipline on banks from the authorities to market competition is expected to result in a higher number of bankruptcies compared with that under the Convoy System.[87] Thus, the key objective is to prepare an environment that facilitates the rapid exit of banks that fall into management difficulties. In other words, we have to promote enhanced disclosure[88] and upgrade accounting standards to establish an environment where market discipline can easily function.

As argued by Sakai and Shikano [2000], the paralysis of Japan's financial system during the 1990s was partly caused by a series of government announcements that the authorities would not force the bankruptcy of large-scale banks. These announcements fostered banks' expectations of receiving public assistance, and thus effectively quashed the banks' self-help efforts toward the disposal of their bad loans[89].

Until a string of bank failures emerged toward the end of the 1990s, the

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[86] Kim [2001] extends the excess entry theorem by explicitly incorporating the government's reaction to the strategic behavior of businesses (where the government is the regulatory body), and demonstrates that this leads to different policy implications regarding the optimal regulatory approach. Rather than simply regulating market entry as stated by the excess entry theorem, Kim concludes that approving new market entry under certain conditions is the preferred approach toward enjoying the benefits of enhanced social welfare.

[87] In the sense that the Convoy System has facilitated the continued existence of banks that would have been weeded out under an environment that properly enforces market discipline, the Convoy System has effectively impaired the efficiency of the financial system.

[88] As indicated by Hoshi [2000], when the authorities do not require banks to disclose the true standing of their (bad) loans, the rational behavior of banks that have virtually failed is to pursue loans with even higher risk and higher profits.

[89] Baba [2001] investigates this mechanism utilizing the real options approach.

authorities' approach was to solve banking problems by promoting mergers with other banks or sales of businesses to other banks that have close relations with ailing banks. At the same tome, the authorities pursues the responsibility of failed banks' executives. Put differently, the authorities dealt with the problem banks on a case-by-case basis. The disposal of problem banks was delayed and the volume of bad loans mushroomed as a result of strictly adhering to this case-by-case approach.

Delaying the solution of bad loans and the bankruptcy processing of banks facing difficulties may prompt banks to retain unprofitable assets. It impairs the efficiency and stability of the overall banking system, and thus increases the overall social burden.[90] It is why the rapid dissolution of virtually bankrupt banks is significant. To these ends, the authorities must completely abandon the Convoy System, prepare transparent bankruptcy processing rules, and constantly strive to further improve these procedures.

When preparing and improving bankruptcy processing rules, the following two perspectives are critical: (i) how to secure the rapid exit of virtually bankrupt banks that have thin prospects of recovery, and (ii) to determine which exit methods should be adopted to minimize the social friction. The former is achieved via effective market discipline. For the latter, it is essential to beef up the safety net, primarily via continuous improvement of the deposit insurance system and of the central bank's function as the lender of last resort to avoid the systemic risk triggered by any given bank failure.

8. Conclusion

The perspectives presented in this paper may be summarized below.

(1) The changes in the financial environment, including IT innovation, globalization and the relaxation and abolition of financial regulations, are apparently working toward increasing the effectiveness of capital markets. Meanwhile, some of the basic

[90] The lack of incentives for the managers of virtually bankrupt corporate borrowers to maintain their corporate value has also been noted as a serious problem. Yellen [2000] provides the following example. Japanese real estate developers constructed buildings using bank loans, and the market value of these buildings subsequently fell below the value of the collateral provided due to the depressed real estate market. Since the developers are now concerned that the banks might take possession of their buildings, they are neglecting the required building maintenance and management works. As a result, the value of these buildings is declining further.

prerequisites required for the efficient and stable functioning of Japan's bank-based financial system are no longer being met, and this will continue even after the bad loans held by Japanese banks are all disposed of. In order to improve the effectiveness of Japan's financial system as a whole and to achieve a more robust system via the diversification of intermediation routes, the system must be redesigned toward prompting greater utilization of capital markets. Under the Japanese "Big Bang" initiative, the authorities have already steered their policy in line with the greater utilization of capital markets.

(2) Nevertheless, it is difficult to expect that Japan's financial system will immediately shift to a market-based financial system like the U.S. system. The Japanese financial system's high dependence on banks and unique structure including underdeveloped capital markets, the large presence of public finance, Japanese corporate governance and institutional complementarity imply that an immediate shift to a market-based financial system is not a practical solution. Furthermore, given the social costs that such a radical transition would entail, it would be undesirable to try and force such a change. In fact, the banking system has certain comparative advantages over capital markets in terms of financial transactions with high agency costs, such as the provision of funds to small and medium-sized businesses, and in converting complex and sophisticated financial technologies into financial services that are easily understood by bank customers. While it is possible that IT innovation will diminish the banks' comparative advantages in information production, the financial system should be redesigned toward utilizing the greatest possible advantages of banks' financial functions.

(3) Stable bank management is a prerequisite for ensuring the efficient and stable functioning of the banking system within the financial system. With the ongoing changes in the financial environment, however, it is difficult and clearly undesirable for the authorities to directly protect banks or enforce discipline on banks. Competitive pressures from capital markets and among banks are expected to play the primary role in enforcing management discipline. While the rapid solution of the bad loan problem is an urgent issue for all banks, it is critical that banks set lending rates in accordance with actual credit risks, reinforce their capabilities to develop new financial products and services, and thus structurally improve their profitability. They also need to reconstruct their risk-management systems, beginning with efforts to revive the monitoring functions that deteriorated during the bubble era.

(4) The expected roles of the authorities are to redesign and administer Japan's financial system to ensure the efficient and stable functioning of the whole system . To that end, the authorities should beef up the financial structure so that both banks and capital markets can fulfill their functioning well, by maintaining appropriate competitive pressures between capital markets and banks, and among banks. Specifically, two critical points will be the greater use of the market mechanism and the revision of regulatory and supervisory policies. In order to ensure the efficient functioning of the market mechanism, the authorities must give priority to continuously enhancing the market infrastructure. It includes promoting better corporate disclosure, revising the nation's tax and accounting systems, and realizing an environment in which market discipline can easily influence corporate governance. Furthermore, Japan's public finance must be drastically revised to improve the effectiveness of the overall financial system toward utilizing the greater advantages of capital markets. It is necessary for the two reasons below. First, the low interest rate loans presently provided by government financial institutions unduly restricts private banks' lending margins in comparison with their borrowers' credit risks. Second, the postal savings system curbs incentives for individual investors to further utilize capital markets. External shocks are expected to immediately reflect market pricing in market-based financial systems and thus directly expose businesses and households to such shocks. Therefore, the central bank and other authorities have to improve their controllability of undesirable market developments to secure the stability of the Japan's financial system as it evolves toward becoming a more market-based financial system.

(5) The authorities' regulatory and supervisory policies need to change flexibly to meet changing times. Specifically, market entry barriers should be maintained at the lowest possible level and the exit of banks should be promptly advanced. The goals of these policies is to impose discipline on banks via competitive pressures and simultaneously secure the stability of the overall financial system. To achieve these goals, the government must work toward creating and reinforcing an environment in which market discipline is easily transmitted. Especially since the number of bank failures is expected to increase compared with that under the Convoy System, it is particularly important to build up a system where banks with management difficulties are assisted with rapid market withdrawal.

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(Figure 1) Financial Debt Composition: Non-financial Businesses

(Percentage of Total Financial Liabilities, December-end 1999)

	Japan	U.S.	Germany
Loans	38.8	12.1	33.3
Securities	9.3	8.2	1.3
Shares and Equities	33.8	66.6	54.3
Trade Credits and Foreign Trade Credits	18.1	13.0	11.0

Source: Each nation's "Flow of Funds Accounts."

Note: Figures for shares and equities in each country reflect market prices, and do not represent the cumulative funding during prior years.

(Figure 2) Financial Asset Composition: Households

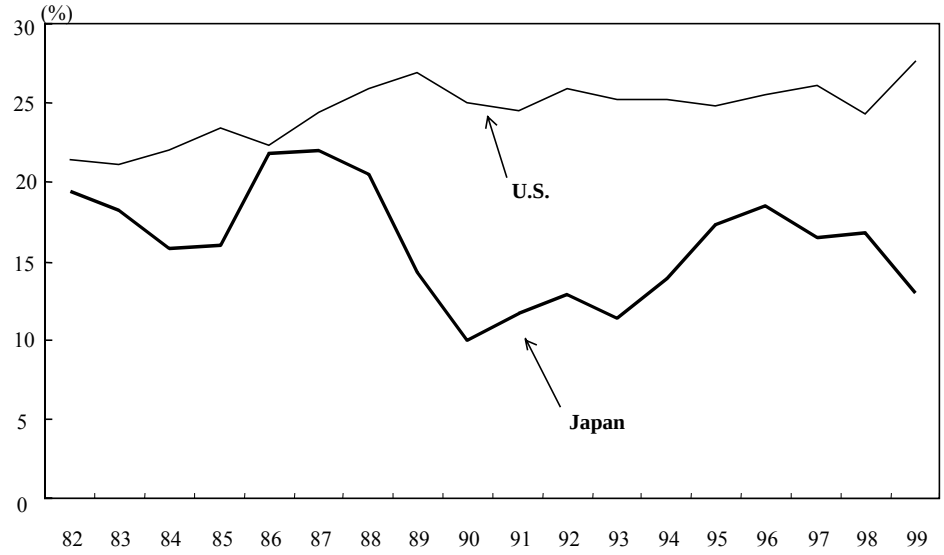
(Percentage of Total Financial Liabilities, December-end 1999)

	Japan	U.S.	Germany
Cash and Deposits	54.0	9.6	35.2
Securities	5.3	9.5	10.1
Investment Trusts	2.3	10.9	10.5
Shares and Equities	8.1	37.3	16.8
Insurance and Pension Reserves	26.4	30.5	26.4
Others	3.9	2.2	1.1

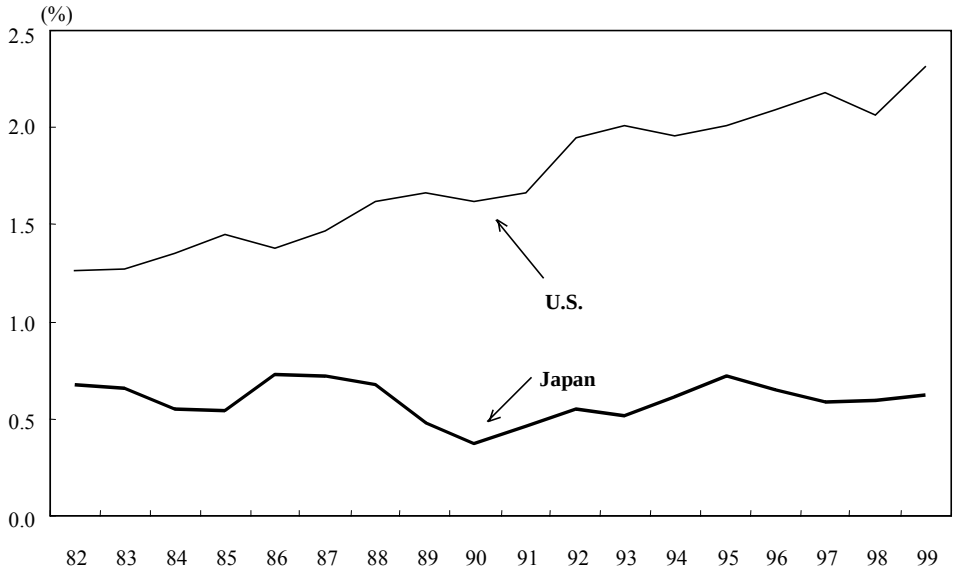
Source: Each nation's "Flow of Funds Accounts."

(Figure 3) Banks' ROE and ROA: U.S. and Japan

(1) ROE (Return on Equity)



(2) ROA (Return on Assets)



Source: Federation of Bankers Associations of Japan; FDIC "Quarterly Banking Profile."

Note 1. Japanese figures are for all banks nationwide (fiscal year settlement), and U.S. figures are for all banks covered by deposit insurance (calendar year settlement).

2. Japanese Banks: ROE = (net operating profit − securities <balance of 5 accounts> + funds added to general loan loss reserves)/average balance of capital account. Prior to 1988, because the net operating profit figures are not available, (operating profit + funds added to general loan loss reserves) is adopted as the numerator.
U.S. banks: ROE = (pre-tax net operating income + provisions for loan & lease losses)/total capital.

3. The ROA figures adopt "the average balance of total assets" as the denominator for Japanese banks and "total assets" as the denominator for U.S. banks.

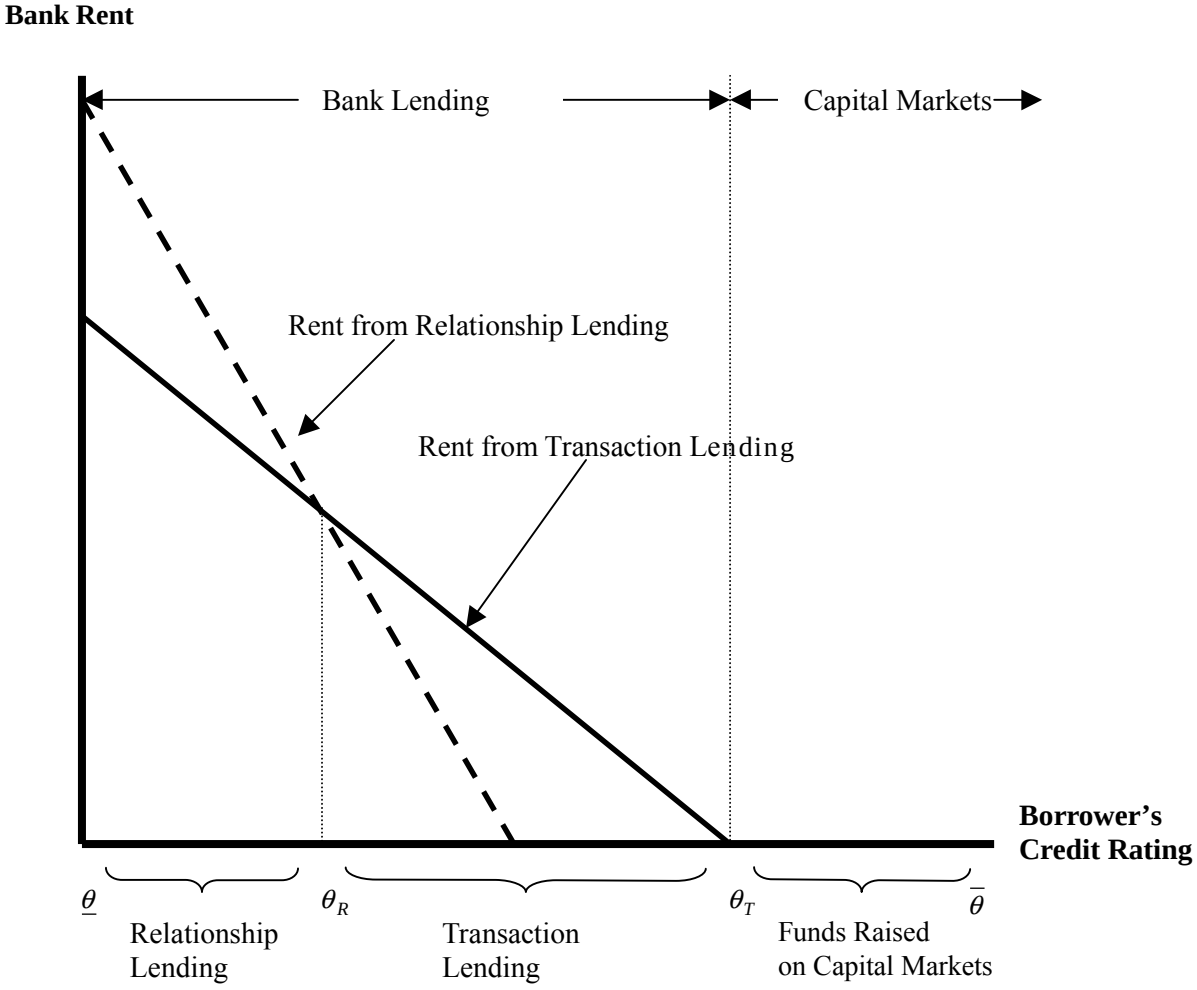
(Figure 4) Implementation of the Japanese "Big Bang" Initiative

(Fiscal Year)

Items	1997	1998	1999	2000	2001
(1) Expanding options for investors and entities raising funds					
Full liberalization of cross-border capital transactions and foreign exchange business	→	Apr.98			
Introduction of General Securities Account (CMA)	→	Oct.97			
Full liberalization of securities derivatives	→	→	Dec.98		
Introduction of over-the-counter sales of investment trusts by banks and other institutions	→	→	Dec.98		
Increased liquidity of ABS and other debts	→	→	Sep.98		
Expansion of the definition of securities	→	→	Dec.98		
Reform of the pension system	→	Dec.97			
(2) Improving the quality of services and promoting competition					
Utilization of holding companies	→	Mar.98			
Liberalization of the restrictions on the business operations of subsidiaries of financial institutions	→	→	→	Oct.99	
Switch from a licensing system to a registration system for securities companies		→	Dec.98		
Full liberalization of brokerage commissions		→	→	Oct.99	
Permission of straight bonds and CP issuance by banks	→	→	→	Oct.99	
(3) Making markets more user friendly					
Improvement of exchange trading and abolition of order-flow consolidation for listed securities	→	→	Dec.98		
Strengthening the functions of the registered over-the-counter market	→	→	Dec.98		
Abolition of securities transaction tax and bourse tax	→	→	Apr.99		
Partial elimination of withholding tax on JGBs	→	→	Apr.99		
(4) Upgrading the rules and framework for fair and transparent trading					
Introduction of prompt corrective action measures	→	→	Apr.99		
Enhancement of disclosure systems	→	→	Dec.98		
Reforms of accounting standards: introduction of mark to market accounting	→	→	→	→	Mar.01

Source: Revised from Sakai and Shikano [2000], p.53.

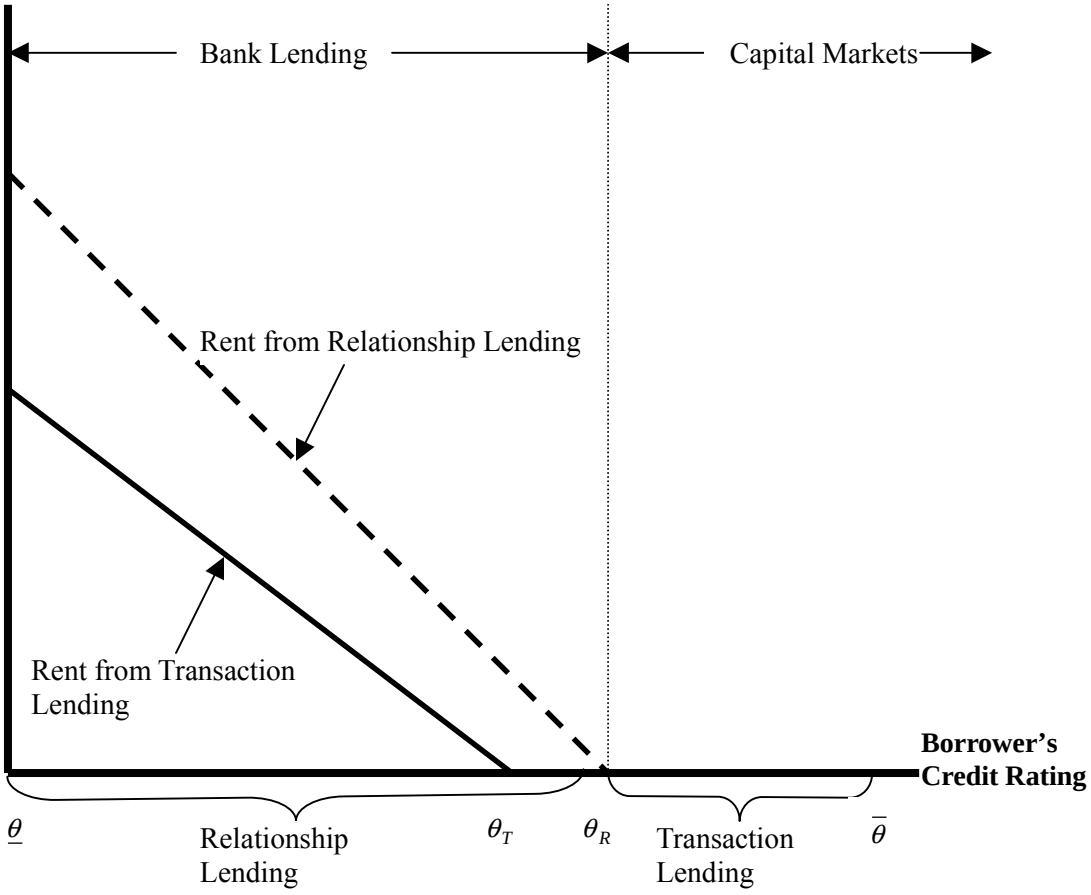
(Figure 5) Optimal Bank Strategy: Case where the Competitive Pressure among Banks is Not All that Strong
(Constant Total Scale of Bank Lending)



Source: Boot and Thakor [2000], p. 693.

(Figure 6) Optimal Bank Strategy: Case where Competitive Pressure among Banks is Sufficiently Strong
(Constant Total Scale of Bank Lending)

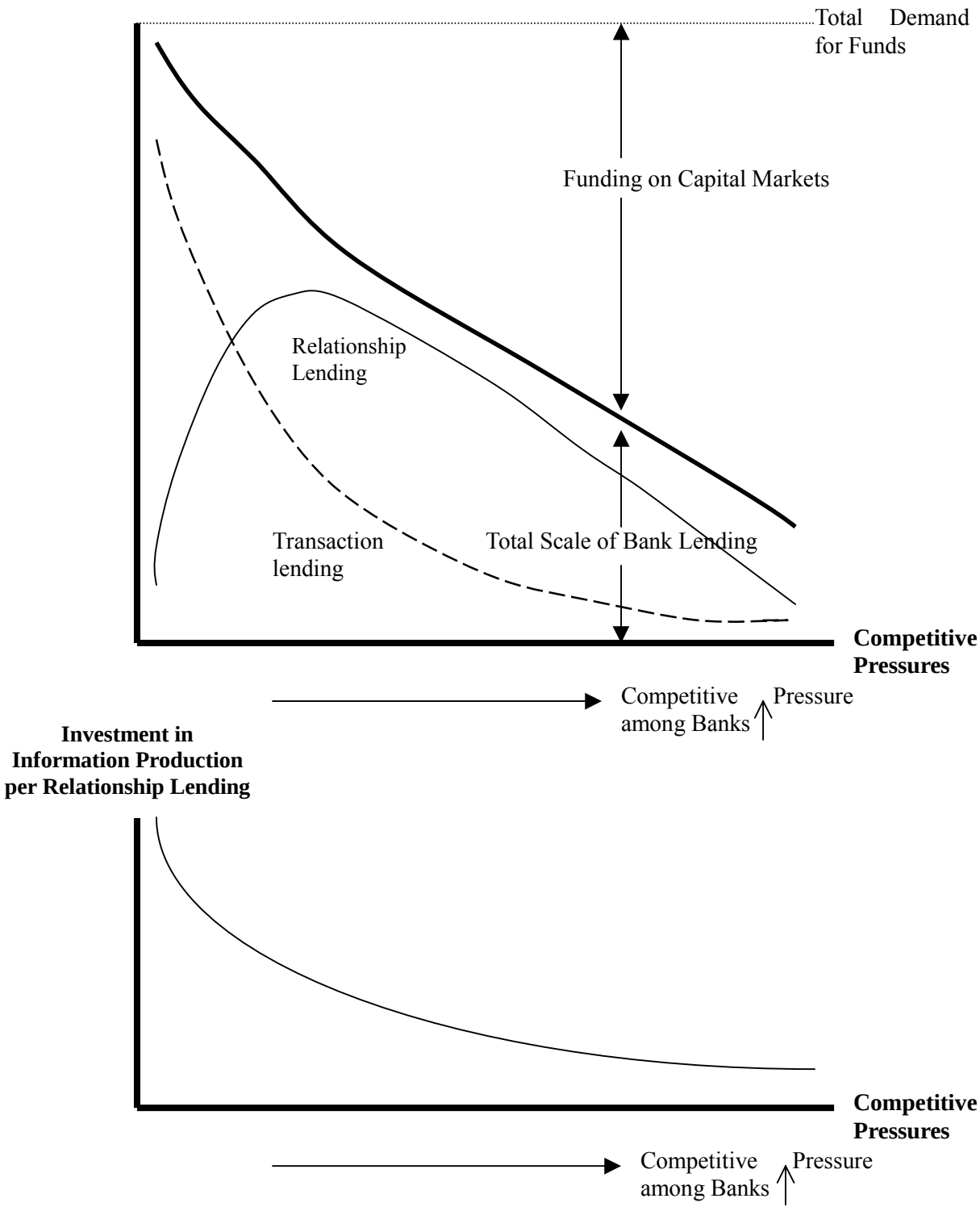
A. Bank



Source: Boot and Thakor [2000], p. 694.

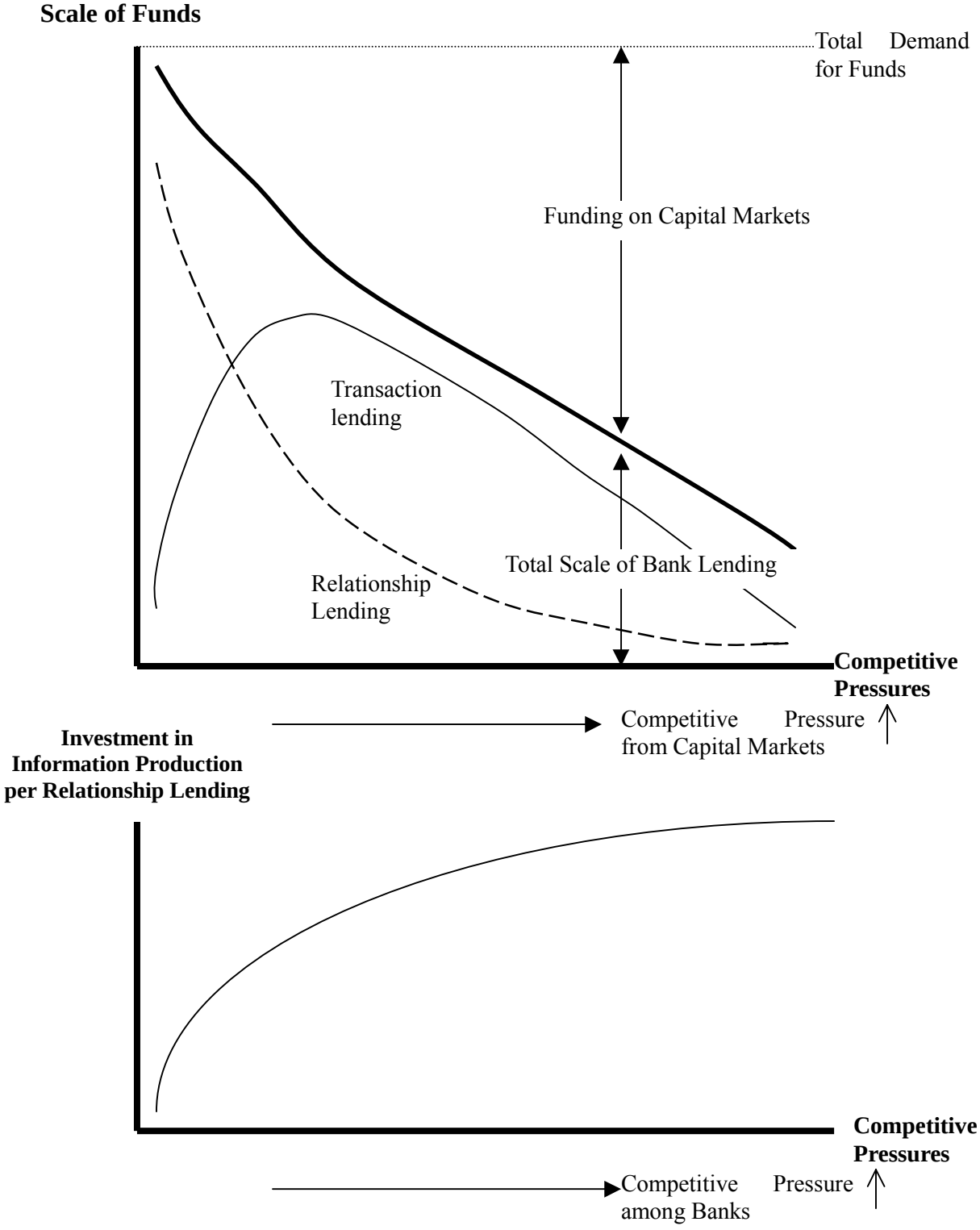
(Figure 7) Competitive Pressure among Banks and Funding Means

A. Scale of Funds



Source: Revised from Boot and Thakor [2000], p. 704, Figure 7.

(Figure 8) Competitive Pressure from Capital Markets and Funding Means



Source: Revised from Boot and Thakor [2000], p. 704, Figure 7.

(Figure 9) Changes in Households' Asset Allocation in the U.S. and Japan

(1) The U.S. **($billion)**

	1985-90	1991-96
Investment Trusts	390	940
MMF	176	162
Pensions and Insurance	1358	1688
Credit Market	811	458
Time and Saving Deposits	646	80
Corporate Equities	-554	-677
Others	281	473
Total	3108	3124

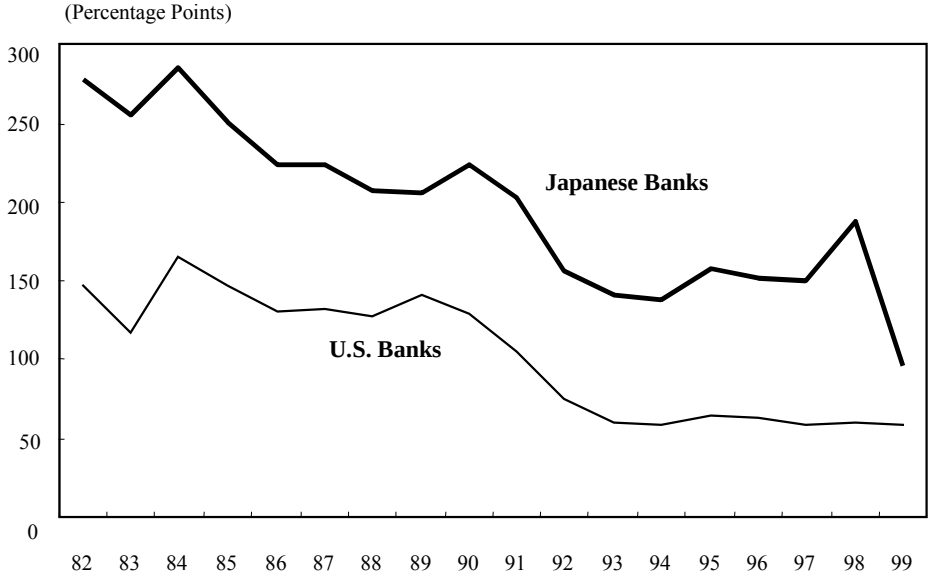
(2) Japan **(¥trillion)**

	1990-94	1995-99
Public Sector		
Postal Savings	67	60
Postal Life Insurance	39	32
Public Pensions, etc.	45	34
Subtotal	151	126
Private Sector		
Cash and Deposits	88	85
Insurance	40	14
Pensions	31	35
Securities	-26	7
Subtotal	135	140
Total	286	266

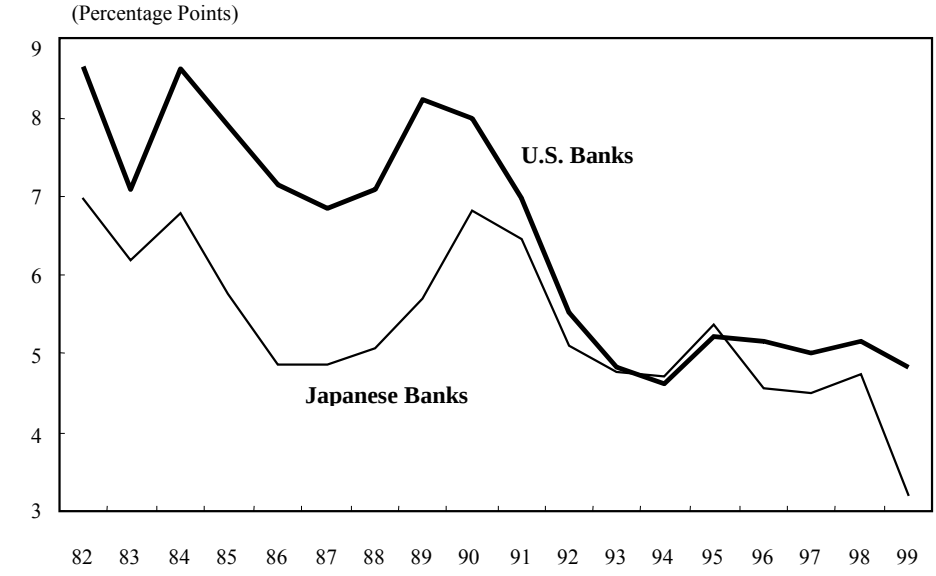
Source: Okumura [2001], p.49.
Note: Original data are from each nation's "Flow of Funds Accounts."

(Figure 10) Expense Ratios to Equity and Total Assets

(1) Ratio of Expenses to Equity



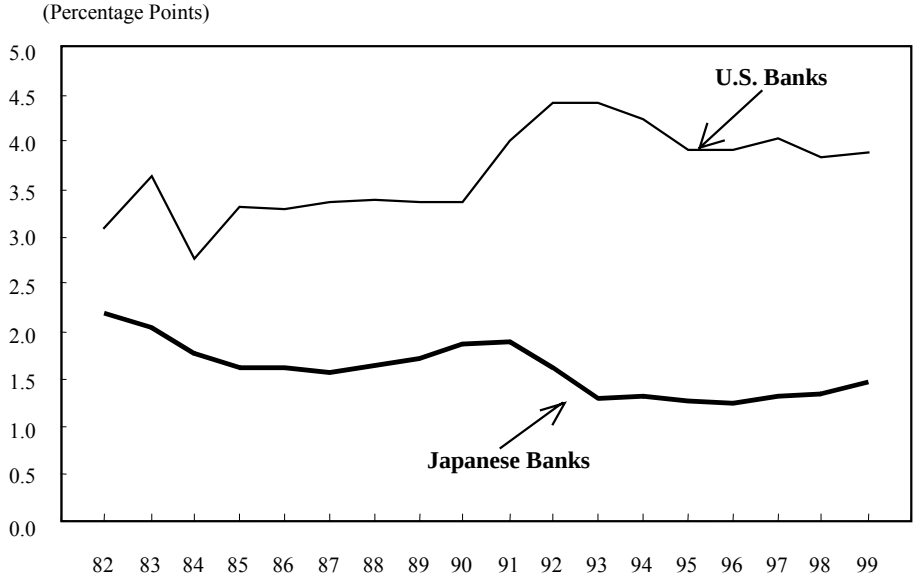
(2) Ratio of Expenses to Total Assets



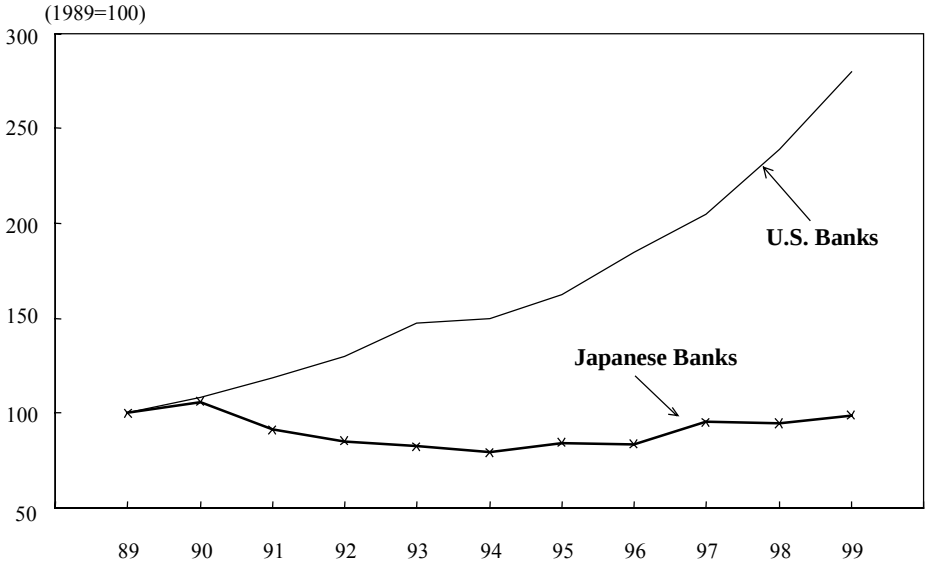
Source: Federation of Bankers Associations of Japan; FDIC "Quarterly Banking Profile."

Note 1. Japanese figures are for all banks nationwide (fiscal year settlement), and U.S. figures are for all banks covered by deposit insurance (calendar year settlement).
2. U.S. expense figures = interest expense + non-interest expense; Japanese expense figures = current ordinary expenses.
3. U.S. equity figures = equity capital; Japanese equity figures = paid-in capital.

(Figure 11) U.S.-Japan Comparison of Lending Rate Margins



(Figure 12) U.S.-Japan Comparison of Non-Interest Income



Source: Federation of Bankers Associations of Japan; FDIC "Quarterly Banking Profile"

Note 1. Japanese figures are for all banks nationwide (fiscal year settlement), and U.S. figures are for all banks covered by deposit insurance (calendar year settlement).

2. U.S. lending rate margin = (interest income on loans & leases)/(total loans & leases) − (total interest expense)/(total interest-bearing liabilities)

3. Japanese lending rate margin = (interest on loans + discounts on bills)/average loan outstanding - interest rate on deposits etc.

4. Japanese non-interest income = current income − fund management income − stock transaction revenues − funds revenue on the two trust accounts − special reserves + amortization of trust account bad debts − specified trading income − revenue from sales of government bonds, etc. and redemption revenues

Appendix

Public – Private Sector Competition in Financial Intermediation: Ide and Hayashi [1992] Model

(1) Cournot equilibrium between private financial institutions

The discussion begins by considering the Cournot equilibrium when two private-sector financial institutions compete in a homogenous financial products market. The volumes of the two institutions are q_1 and q_2, and the total volume of market supply is $q = q_1 + q_2$. The market's inverse demand function is $p = p(q)$, and the representative consumer's utility function $V(q)$ has diminishing marginal utility, which has the relation with market price as $p(q) = V'(q)$. The two institutions' cost functions are $c_1(q_1)$ and $c_2(q_2)$, and the model assumes that $c_i''(q_i) \geq 0 \ (i = 1, 2)$. Thus, each institution's profits $\pi_i \ (i = 1, 2)$ can be expressed as $\pi_i = p(q)q_i - c_i(q_i)$.

Both institutions pursue profit-maximization behavior. Under the Cournot equilibrium, which assumes that the institutions do not change their behavior in response to changes in the other institution's behavior, the reaction function for each of the institutions is defined by Equation A-1 below,

$$p(q) + p'(q)q_i = c_i'(q_i). \qquad i = 1, 2 \qquad \text{(A-1)}$$

Figure A-1 presents a graphic representation of this Cournot equilibrium. In this figure, the vertical axis presents the total volume of Institution 2, and the horizontal axis presents the production volume of Institution 1. For simplification, the model assumes a single interior stable solution. The Cournot equilibrium is then determined at the intersection of the two reaction curves, at point E_{MM}.

(2) Cournot equilibrium between a public financial institution and a private financial institution

The discussion then proceeds to the case in which one of the duopoly institutions is a public financial institution that seeks to maximize social welfare (here, the public institution is $i = K$ and the private institution is $i = M$). For this analysis, social welfare is defined as $W(q) = V(q) - c_K(q_K) - c_M(q_M)$.

Under these assumptions, the reaction function of the public institution

becomes

$$\frac{\partial W}{\partial q_K} = V'(q) - c'_K(q_K) = p(q) - c'_K(q_K) = 0 . \qquad \text{(A-2)}$$

Comparing the reaction function of the public institution, Equation A-2, with the reaction function of the private institution, Equation A-1, it becomes clear that $p(q) > c'_K(q_K)$. This means that because of the properties of the inverse demand and cost functions, given the same q_M, the q_K that satisfies Equation A-2 must be greater than the q_K that satisfies Equation A-1. As shown by the dotted line in Figure A-1, the public institution's reaction function curve is to the right of the private institution's reaction function curve. Therefore, the Cournot equilibrium point for competition between the public and private institutions, point E_{MK}, is to the right and below the equilibrium point for competition between two private institutions, point E_{MM}. This leads us to the following propositions.

Proposition 1

Assuming Cournot competition between a public financial institution that seeks to maximize social welfare and a private financial institution that seeks to maximize its own profits, the public institution's market share will be greater than the private institution's market share.

Next, to consider how changes in the public institution's objective function influence social welfare, the public institution's objective function is replaced by the following general form.

$$Z = (1-\theta)W + \theta\pi_K \qquad \text{(A-3)}$$

Here, π_K indicates the public institution's profits, and θ represents the extent to which the public institution is privatized. When $\theta = 1$ ($\theta = 0$), the public institution's objective function becomes the same as the private institution's (the purely public institution's) object function.

In this case, the first order conditions for the public and private institutions become as below.

$$\frac{\partial Z}{\partial q_K} = p(q) + \theta q_K p'(q) - c'_K(q_K) = 0 \qquad \text{(A-4)}$$

$$\frac{\partial \pi_M}{\partial q_M} = p(q) + q_M p'(q) - c'_M(q_M) = 0 \qquad \text{(A-5)}$$

Assuming that the second order conditions are satisfied, the changes in social welfare W when a purely public financial institution has a marginal profit pursuit stance become

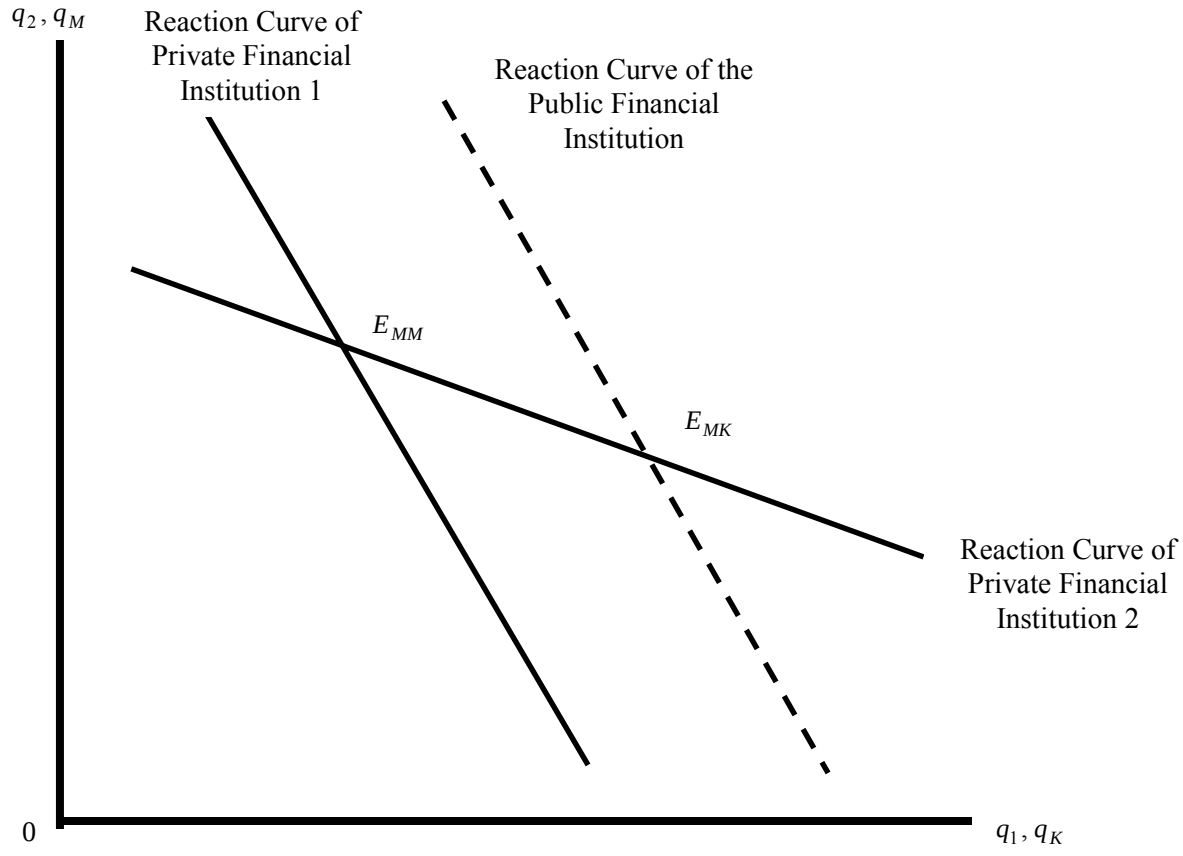
$$\left.\frac{\partial W}{\partial \theta}\right|_{\theta=0} = \left(\frac{q_K p'^2}{\delta}\right)\left[-q_M(p' + q_M p'')\right] > 0 \qquad \text{(A-6)}$$

where $\delta = [(1+\theta)p' + \theta q_K p'' - c''_K][2p' + q_M p'' - c''_M] - (p' + \theta q_K p'')(p' + q_M p'') > 0$. This leads us to derive the next proposition.

Proposition 2

A public financial institution competing with a private financial institution can realize a higher level of social welfare by adopting the additional objective of maximizing its own profits.

(Figure A-1) Cournot Equilibrium in Financial Intermediation



Source: Ide and Hayashi[1992], p.237.