

Discussion Paper #97-DOF-27

**Relational Financing as an Institution
and its Viability under Competition**

**Masahiko Aoki
Sendar Dinc**

September 1997

The MITI/RI Discussion Paper Series presents the results of research conducted under the auspices of MITI/RI. The series is circulated to encourage discussion and elicit critical comment. As results are not final, do not quote or copy without consent of the authors.

The opinions expressed are those of the authors, and not those of MITI/RI or the Ministry of International Trade and Industry.

Abstract

This paper presents a new, generic definition of relational financing that may cover a wide range of financial practices in different economies, ranging from the Japanese main bank relationship, to bank lending to smaller firms, and venture capital in the U.S. It then discusses various incentives of the financier to commit to relational financing and reviews the recent literature on issues about how those incentives are affected by increasing competition. One useful insight is that increasing competition is not necessarily harmful to relational financing. It then applies theoretical insights to problems of institutional transition in two Asian economies. It argues that the Japanese financial system will retain some aspects of relational financing even after the impending financial deregulation, although there will be a significant reduction in the bank's role in corporate governance. Finally, it assesses that the ongoing experiment of main bank relationship in China may be one of viable financial options for successful transition of the planned economy to a market economy, but cautions that more competition in the banking sector is necessary for relational banking to emerge as an institution.

Relational Financing as an Institution and its Viability under Competition

Masahiko Aoki

Professor of Economics, Stanford University

Director General,

Research Institute of International Trade and Industry

Sendar Dinc

Research Associate Center for Economic Policy Research

Stanford University

September 1997

Contents

1. Introduction

..... P. 1

2. A Generic Conception of Relational Financing as an Institution

..... P. 3

3. Types of Incentives for the Relational Financier

..... P.10

4. Competition and Relational Financing

..... P.14

5. The Post-deregulation Role of Banks in Japan

..... P.19

6. The Experiment of a Main Bank Relationship In China

..... P.27

7. Conclusions

..... P.31

References

..... P.33

Relational Financing as an Institution

Masahiko Aoki and Sendar Dinc

1. Introduction

The Japanese main bank system as an institution which supported high economic growth up to the mid-1970's was composed of three complementary elements: a type of relational contracting between banks and firms, a specific inter-bank relationship (mutual delegation of monitoring), and a particular set of regulatory measures such as entry regulation, "financial restraint", deposit guarantees, and restriction on market financing (Aoki, Patrick and Sheard 1994). Deregulation in foreign exchanges and other domains starting in the late 1970's triggered the increasing reliance of the Japanese corporate sector on bond financing. However, the regulatory framework insulating the banking and securities businesses from each other was kept intact until recently, which contributed to the erosion of coherence of the system.

In the second half of the 1990's, the Japanese financial system seems to have finally entered the phase of substantial financial deregulation, partly forced by the need to correct the aftermath of the bubble, but, more fundamentally, in response to increasing competitive pressure from global markets. One of its most important consequences is likely to be the removal of the regulatory wall that prohibits banks and securities houses from entering into each other's business domains (the so-called "Big-Bang" reform). This prospect, as well as the recent history of the financial system, raises a host of interesting questions regarding the impact of competition on the main bank system. Without the regulatory measures mentioned above, will the main bank system in Japan be able to survive? Does the bubble in the late 1980's indeed mark the end of the main bank system, or represent an episode that lies in its long (probably too

long) transition to a more competitive system of relational financing?¹

Instead of immediately responding to these questions, we start by asking more generic questions about what the essential nature of relational financing is and what the conditions are under which it can prevail as a dominant, if not a sole, form of financing in the economy. This perspective allows us to identify the fundamental factors that facilitate the continual viability of relational financing in an increasingly competitive environment, even if its actual form may evolve and modify itself in response to the changing environment. As we will see presently, some important corporate financing practices in the U.S. economy, where historical, technological, regulatory, and competitive environments are quite different, actually share certain fundamental attributes with Japan which may be regarded as variants of relational financing. To understand these common attributes may be quite useful for predicting the future course of any relational financing institution, particularly in the Japanese banking system.

In the following section we provide a new, generic concept of relational financing and describe the basic nature of its institutionalization. In section 3 we discuss various types of incentives that can support the institutionalization of relational financing. Section 4 surveys the recent research about how increasing competition in the financial sector affects these incentives and, accordingly, the viability of an institution of relational financing. In these sections, we continue to work at an abstract level, but examples are drawn from various types of financing, such as Japanese main banking in its heyday, bank lending to small firms in the U.S., and venture capital financing to entrepreneurial firms in Silicon Valley. In Section 5 we will come

¹ These questions are the same as those raised by by Rajan (1996) in his insightful review of Aoki and Patrick (1994): "[I]s continued financial repression (as opposed to the initial repression needed to recapitalize the banking system after the war), especially restriction on direct market finance and interest rate controls, necessary for the success of the system? The answer is important because the recent collapse of disciplined lending was preceded by the liberalization of the system, suggesting a possible connection." (p.1364)

back to the Japanese financial system and make some conjectures about its future. In so doing, we will apply the results of the theoretical insights of the preceding sections as well as examine a contemporaneous change in corporate organization which may trigger a complementary change in the role of banks in corporate governance. In Section 6 we turn to another important economy in East Asia - China - which has recently started an experiment in a main bank relationship. We cannot predict whether the Chinese experiment will eventually lead to an evolution of some type of relational banking institution. However, as we will discuss below, there is an important reason why China may be better off to aim at nurturing a sound banking system rather than to rely exclusively on securities markets. Therefore, a theoretical understanding of the competitive impact on relational financing will turn out to be useful in this regard as well.

2. A Generic Conception of Relational Financing as an Institution

Our working definition of relational financing is as follows: *relational financing* is a type of financing in which *the financier is expected to make additional financing in a class of uncontractible states in the expectation of future rents over time*. We refer to types of financing that are not relational as *arm's length* financing.

Types of expected additional financing and the associated class of uncontractible states can be diverse. Additional financing may be step-financing by venture capitalists to entrepreneurial start-up firms contingent on the smooth proceeding of developmental projects pursued by the latter.² In this case, the expected future gains to the venture capitalists are

² Venture capitalists commit only a fraction of the capital needed for the ultimate development of a project. Subsequent financing is tied to the proceedings of the project that may not be contractible. For general descriptions of venture capital financing, see Bygraves and Timmons (1992), Fenn, Liang and Prowse (1995).

capital gains (entrepreneurial rents) at the time of the initial public offering (IPO). Alternatively, it may be additional financing to small liquidity-constrained firms that American banks may make after they have gained inside information about those firms. In this case, the expected future gains to the banks may be monopolistic and/or information rents.³ Or, it may be refinancing by the main bank to a financially distressed firm contingent on the prospect of recovery. In this case, future gains expected by the main bank may be either monopoly rents, reputational rents, policy-induced rents, or an admixture of them (we will discuss those rents below).

The above definition does not exclude the possibility that the financier may take an action in opposition to the borrower's interests in some other uncontractible (or contractible) state. An example is a liquidation, or an arrangement by banks for acquisition of a financially distressed firm, or the firing of a founding entrepreneur by a venture capitalist. Our definition does not require a given duration for the financial relationship, either. While a main bank-borrower relationship may be open ended, financing by a venture capitalist is expected to end at an IPO (initial public offering), although in many cases venture capitalists remain as board members after the IPO. Finally, our definition does not prevent the borrower from obtaining both arm's length and relational financing from different financiers. A borrower may even have multiple relational financing, like some Japanese companies which have multiple main banks (core banks). Venture capitalists also co-invest in syndication, although one of them usually plays a leading role.

When some type of relational financing becomes established as a self-enforceable, dominant (if not sole) form of financing in a certain domain of corporate finance, we say that

³ See Petersen and Rajan (1994), Berger and Udell (1995).

relational financing is institutionalized. At the fundamental level, the emergence of non-atomistic-market institutions in the present case the institution of non-arm's length financing and their subsequent evolution may be considered to be a response to market failures. "[T]he absent contingent markets may be replaced by long-term relations..... In any case, the actual futures and contingent price will be replaced by expectations of future prices and quantities. Expectation *per se* can be thought of as an element of individual psychology, but in practice social institutions play a major role in guiding and forming expectations. There areunderstandings that others will not exploit every possible short-term profit opportunity, and elaborate financial services networks to provide forecasts and to smooth out temporary difficulties."(Arrow (1997), p.6) Indeed, in our working definition of relational financing as well, expectations play prominent and essential roles.

In our definition, expectations play roles in a two-tier structure: once as the mutual expectation of contingent financing at the time of the initial financing, and then as the financier's expectation of future rents at the time of refinancing. If the first-tier expectation holds, entrepreneurs or small proprietors may be able to initiate development projects or expansion investments which may be impossible within the constraint of their own funds alone. Or the firm may undertake investment in firm-specific assets (human and non-human) in the expectation of rescue in the event of mild financial distress.

However, how can those expectations be generated and sustained? This is the commitment problem inherent in our definition of relational financing, as initially discussed by Mayer (1988) and Hellwig (1991). The financier's reputational concerns, his informational monopoly, his market power in the future financing of the borrower due to a lack of competition, or the threat of a regulatory punishment by the government may induce the financier to keep his commitment, depending on the environment. Then, by backward induction,

the borrowers may expect a certain type of contingent refinancing by the financier. Therefore, in order to predict the evolution and viability of relational financing as an institution, it is critical to understand how the incentives of the financier are sustained for making additional financing in particular contingencies. We will examine this subject in the following two sections. In the rest of this section, we will introduce some other issues related to our subsequent discussions: soft-budgeting and monitoring, and governance.

A . Monitoring characteristics: As economic institutions substitute for missing complete markets, they entail particular allocational consequences. If expectations generated under a relational financing institution are such that the relational financiers are “soft” (e.g., they are engaged in rescue operations in wide-ranging contingencies), adverse selection of a risky project, as well as moral hazard behavior of the borrowers, may be induced. In an analogy with a concept of statistical inference theory, the resulting allocational outcome may be characterized as an instance of a Type II error: i.e., too many inefficient projects may be financed (accepted) and refinanced. The relatively low rate of financial failure of large firms in the Japanese economy under the main bank system may indicate a tendency toward such error. A venture capitalist may suffer a similar problem. Having invested and learned that a project is not a success but has a survival probability, there may be an incentive to attract new funds from uninformed outsiders (Admati and Pfleiderer 1994). In contrast, if the financiers will not, in general, accept refinancing in unfavorable states and thus an arm's length financing institution prevails, a symmetric Type I error may prevail: i.e., potentially efficient projects may be liquidated (rejected) too often following formal bankruptcy procedure.

Unless the relational financiers themselves are compensated for their “soft” behavior by the other party or a third party (e.g., the regulatory authority), the costs of type II errors may have to be largely born by them. Therefore, not only are the relational financiers engaged in

monitoring to see if the relevant uncontractible state that calls for their refinancing has actually occurred (*ex post* monitoring), but also they may be motivated to obtain information that may reduce possible costs arising from the asymmetric information problem. That is, to safeguard themselves from the consequences of adverse selection, they ought to be informed of the risk characteristics of a borrower's project before the initial financing (*ex ante* monitoring). Also, to minimize the possible cost arising from the fulfillment of commitment to uncontractible actions, they need to carefully monitor the behavior of the borrower after the initial financing (interim monitoring). Then, due to the difficulties of information transfer, the relational financiers tend to integrate *ex ante*, interim, and *ex post* monitoring.

Thus, a relational financing institution is likely to emerge in a transaction domain in which strong complementarities exist among the three stages of monitoring (Aoki 1994). For example, *ex ante* monitoring of the main bank in its heyday was geared toward mitigating information asymmetries about the managerial and organizational capabilities of borrowing firms in absorbing and improving on existing foreign technologies. The main bank's informational advantage accumulated from continual contacts with the borrowing firms (interim monitoring) provided valuable (negative) feedback about new loan decisions to the same borrower, as well as (positive) feedback for finding possible problems about a borrowing firm at an early stage.. *Ex ante* and interim monitoring of entrepreneurial projects requires professional engineering competence in specialized fields. The venture capitalists meet such needs. They focus on companies in specific industries. On the other hand, if project evaluation, financial analysis of on-going businesses, and reorganization, restructuring, or liquidation of financially distressed firms are performed better by respective specialists, and if there is not much complementarity among them, an institution of arm's length financing is more likely.

B. Governance implications. Institutions of relational financing may also entail unique types of

governance structure of borrowing firms, different from the one under arm's length financing institutions. The property rights approach (Hart (1995)) considers that "residual control rights" the rights to decide in uncontractible, thus court-unverifiable events can be most efficiently allocated if they are vested with the owners of assets. Aghion and Bolton (1992) applied this insight to financial contracting. Debt contracts can trigger the automatic transfer of property rights in corporate assets from the borrower to the lender if the court-verifiable state of default occurs. That prospect provides the equity holders with incentives to monitor the management (the agent of the borrower) in the interim. The property rights theory presupposes a situation where repeated financial transactions do not entail any reputational concern of agents (Kreps (1990)), joint ownership does not exist (Maskin and Tirole (1995)), and there is no ambiguity of property ownership. However, these conditions may not clearly hold under institutions of relational financing.

For example, if a firm is financially distressed but is not bankrupt, the property rights of firm's assets may still be legally in the hands of the borrower. Yet the relational financier may be willing to undertake a costly refinancing action (rescue operation), conditional on partially or fully securing residual rights of control (e.g., replacement of or take-over of management). When the firm has recuperated, however, management rights are returned to the inside management as a rule. Such shifts of residual rights of control take place in many cases without the substantive transfer of property rights (e.g., the transfer of equity shares, the use of legal bankruptcy procedure). The transfer of residual rights is expected to occur contingent on the financial state of the borrower, but definition of the state that triggers the transfer is not contractible. The main banks render costly rescue financing in mild to severe, but recoverable, financial states of borrowers, but they do so out of reputation concern. By investing in reputation, the main banks were able to derive (relational) rents from the same and/or other

firms in the future, as there were demands for its contingent governance role as we will see subsequently.

In the case of venture capital financing, the property rights of assets and the location of residual rights of control tend to be more clearly defined in shareholding and employment agreements between founding entrepreneurs and venture capitalists. (Sahlman 1990, Fenn, Liang, and Prowse 1995). However, there is not necessarily a perfect correlation between them (that is why there are two separate contracts). Also they involve elements of joint property rights combined with option rights. A typical shareholding agreement allows an entrepreneur to increase his ownership share (normally in common stock) at the expense of investors if certain performance objectives are met.. Financing of venture capitalists normally takes the form of convertible preferred stocks or subordinated debt with conversion privileges. So venture capitalists are protected from downside risk (they are paid before holders of common stock in the event of project failure), whereas an entrepreneur is provided with strong performance incentives. The employment agreement between entrepreneur and venture capitalist specifies the employment terms of the former. When problems with the founding CEO are perceived, (s)he may be fired by a venture capitalist acting through the board of directors (Hannan, Burton and Baron (1995)). Fired entrepreneurs forfeit their claims on stock that has not been vested. Thus ultimate control rights may be said to be voluntarily relinquished *ex ante* by the entrepreneur, particularly if (s)he is liquidity constrained at the outset (Hellmann 1995). But as long as the project moves forward successfully, the distribution of residual rights of control tend to tilt in favor of entrepreneurs.

3. Types of Incentives for the Relational Financier

Financiers are induced to enter relational financing in the expectation of rents in the long-term.

There are many sources of their rents, some of which we describe below.

A. Information advantages and information rents. After the initial financing is offered, the financier often gains access to information about the firm that other financiers do not have. This information advantage gives rent opportunities to the financier. The possibility of these information rents induces him to monitor the firm to obtain better information (e.g. von Thadden (1995)), and allows him to add financing to the firm even if other (outside) financiers are not willing to lend. Aoki, Patrick, and Sheard (1994) argued that the management of payment settlement accounts for client firms provided a particularly important informational advantage for the main banks in Japan. Through this channel, the main bank was able to observe the true financial state of a client firm and to judge the riskiness of rescue financing. Similarly, lending relationships between American banks and small firms help alleviate the liquidity constraint of the firms. This effect is stronger the lower the number of banks the firm maintains a relationship with, and the higher the number of additional financial services it obtains from the same bank (see Petersen and Rajan (1994), Berger and Udell (1995)). However, the information monopolies need not always be beneficial. The possibility of losing the project's surplus to the financier may negatively affect the firm's *ex ante* incentives to invest (see Sharpe (1990), Rajan (1992)).

B. Market power and intertemporal smoothing. If the financier has market power --other than any information monopolies--, he can expect to earn a positive net return from investment in the future. Hence, this market power may allow the financier to smooth financing costs over time. This may provide him with incentives to undertake financing in less favorable terms, for which he is compensated in the long term (see Petersen and Rajan (1995)). However, there are also distortions associated with a financier's market power: a well-established firm may choose to rely on internally generated funds more than it otherwise would in spite of a tax

disadvantage, etc. The bank's market power may also lead to the rescue of financially distressed firms that undertake inefficient projects *ex ante* --"the soft budgeting problem" as discussed by Dewatripont and Maskin (1995).

C. Reputation. One of the mechanisms commonly found in enforcing commitments in repeated transactions is the reputation mechanism. If the future positive returns to a financier are conditional on the financier's maintaining a 'good reputation', this threat may induce him to take costly action to maintain his reputation (Sharpe (1990), Boot et al. (1993), Dinc (1997a)).

For example, a bank can be induced to keep its commitment to provide rescue credit to a distressed borrower, if failing to do so would tarnish the bank's reputation and cause the bank to lose profitable future loan opportunities. In fact, these future financing opportunities need not be limited to with respect to the same borrower, but may extend to other borrowers as well. However, the effectiveness of a reputation mechanism may be undermined by information asymmetries. For example, if other borrowers cannot observe whether a borrower's distress is only temporary or that liquidation is a better option, the bank's concern to keep its reputation may lead to the rescue of companies which are no longer economically viable.

D. Relation-specific rents. Through relational financing, some economic value that is otherwise left unrealized may be created. The distribution of such a value may then be subject to bargaining between the relational financier and the borrower. We may call the portion of the value accrued to the relational financier the relation-specific rents. The expectation of such rents may in turn allow the relational financier commit to refinancing.

Aoki (1994b) presents a model of how such relation-specific rents can arise between the relational financier and the firm, when a certain type of the financier's governance role can mitigate a moral hazard problem unique to a particular type of work organization. Suppose that the internal organization of the firm incorporates firm-specific, mutually complementary human

assets whose individual contributions are hard to gauge. The owners of those assets (the workers) may then have incentives to free-ride on the efforts of others. They will, however, lose the continuation values of their specific assets if the firm is terminated, so the threat of liquidation of the firm in a bad financial state may effectively control the moral hazard behavior of the workers. On the other hand, their continuation values need to be protected from the temporary financial distress of the firm if it is a result of uncontrollable external events. Even if asymmetric information prevents the financier from distinguishing the effects of moral hazard from those of exogenous risk factors, future prospect for the relational rents may induce him to undertake the costly rescue of a distressed firm unless the observed state of the firm is below a certain threshold, in which case he opts for liquidation. When the firm is run well, banks are kept from direct involvement in corporate governance. We refer to this type of governance structure as the *contingent governance*, implying that the degree of a bank's intervention is contingent on the financial state of the firm.

E. Financial restraint and policy-induced contingent rents. Hellmann, Murdock and Stiglitz (1997a, 1997b) introduced the concept of policy-induced contingent rents, largely inspired by East Asian development experiences. They argued that the government can regulate the deposit rate at a level lower than the competitive rate. If this policy is combined with stable macro economic policy, the real rate can still be maintained at a positive level. They call such government action "financial restraint" to differentiate it from "financial repression." In the latter, the real deposit rate becomes negative due to a high inflation rate, and wealth transfer occurs from the household sector to the government. The rent created through such a mechanism will become the target of unproductive rent-seeking behavior. In contrast, they argue, financial restraint only creates "rent opportunities" for the banking sector, the realization of which is contingent on the competitive effort of banks to mobilize deposits.

The realization of rents provides "franchise value" for the banks, for which productive uses may include the expansion of bank branches to capture more deposits. If the saving propensity of the household sector is inelastic to the interest rate, and if households hold more of their assets in the form of deposits in response to the bank's efforts rather than in unproductive forms (e.g., cash in a bedroom chest, gold, etc.), then financial deepening will occur and welfare loss from price distortion may be minimized. They argue that financial restraint thus represents one instance of the "market-enhancing" role of the government. In Japan, the capture of policy-induced rents by individual banks seems to have been partially conditional on their compliance with government policy, since the monetary authority controlled branch licensing as an effective instrument of punishing noncompliant banks. It seems clear that government preference included the rescue of financially distressed firms by main banks to avoid social and economic instability.⁴ A possible implication of this policy may be a tendency toward "soft-budgeting", i.e., bank rescues of inefficient firms that should be liquidated. Another implication of the deposit regulation may have been the distortion of asset prices. Because of the deposit rate regulation, households may prefer to own real assets, particularly real estate, which may have contributed to the high real estate price appreciation evident even before the bubble of the late 1980's .

⁴ It seems apparent that some aspects of the regulatory framework provided by the Japanese monetary authority in the 1950's and 60's was close to what Hellmann et al. (1997a, 1997b) describe. Throughout the 1960's the deposit rate was fixed (e.g., at 5.5% for one-year time deposit), while the average effective lending rate (adjusted for compensating deposits) charged to all the companies listed in Tokyo Exchanges was more than 14%. Although this spread included the default premium on loans, as well as any rents the banks captured from the corporate sector, it may still suggest that the rents created by deposit rate restrictions were substantial. In fact, after mid 1970's when the Japanese banking system entered the phase of deposit rate regulation, the discrepancy between the deposit rate and the effective lending rate by the banks to the corporate sector dramatically shrank. (Aoki 1984).

4. Competition and Relational Financing

In the previous section, we discussed the incentives of a relational financier; however, the actual level of the financier's return depends on the competition he faces. Although this return, in general, decreases with competition, the impact of increased competition on relational financing as an institution is not necessarily negative. In fact, even though competition has often been considered to be harmful to solving the commitment problem inherent in relational financing, recent theoretical analysis shows that this need not be the case. Accordingly, we start with examining how an increase in competition affects the relational financier's incentives. We then study in the second part of this section how relational financing as an institution is likely to respond to increasing competition.

A. The effects of competition on the relational financier's incentives. The possibility of intertemporal smoothing by banks depends on their ability to extract rents with their market power. By assuming that a bank's market power decreases depending on the number of banks⁵, Petersen and Rajan (1995) show that the intertemporal smoothing by banks becomes more difficult as the number of banks increases. Since decreasing market power means a decreasing share of project surplus to the bank, banks are less willing to take actions for which they can be compensated only by sharing the future surplus from the firm's project. Empirical evidence supplied by them on bank lending to small firms in the U.S. supports this theoretical result.

At first sight it may appear that the insight of Petersen and Rajan (1995) extends to the

⁵ Dinc (1997b) endogenously derives the market power of a bank by applying the auction theory. The market power decreases with the number of competing banks. However, this does not imply uniformly lower interest rates for borrowers. Since the equilibrium interest rate becomes more informative as the number of competing banks increases, the borrowers at the lower tail (with respect to the distribution of borrower creditworthiness) pay higher rates, while those at the upper tail pay lower.

case where the bank's commitment to a costly rescue action is enforced by a reputation mechanism. However, Dinc (1997b) shows that there are cases in which an increase in competition may actually enhance the effectiveness of the reputation mechanism. Even though an increase in competition may decrease a bank's return from relational financing, it may decrease even more the bank's 'outside option' the return from arm's length loans to which the bank will have to retreat if it does not keep a good reputation. This disproportionate decrease in the bank's outside option strengthens its incentives in relational financing. In general, whether competition strengthens the bank's incentives depends on: a) how close a substitute the funds offered by the new financiers are to relational financing, and b) the number of competing banks. New competition from bond markets is more likely to be helpful to relational financing than competition from new banks because bonds are a closer substitute to arm's length loans than to loans under relational financing. Indeed, if the borrower's access to bond markets does not too greatly increase the net rescue cost of a distressed borrower to the bank, competition from bond markets increases the effectiveness of relational financing. However, if the number of banks becomes too large and/or borrowers can have free access to bond markets, relational financing may become unsustainable. On the other hand, if the number of banks is too small, their ability to extract rents from the borrowers without a commitment to rescue becomes too large, and relational financing cannot be motivated. Hence, the viability of the reputation mechanism in relational financing is maximized with an intermediate number of banks.

An increase in competition is not likely to have a strong effect on relational financing, however, when the principal incentive of the relational bank are the rents from its information advantages. Rajan (1992) shows that such rents depend on the number of financiers from whom a firm chooses to borrow *ex ante*, not on the number of outside banks an inside bank faces. Hence, by limiting the number of financiers at the initial financing stage, a firm may

preserve relational financing even if the financiers face increasing competition *ex ante*. On the other hand, an increase in competition may mitigate any negative effects from the bank's information rents on the firm's *ex ante* incentives to invest (see Rajan (1992)). Indeed, we observe that Japanese firms do not restrict major payment settlement accounts to a single main bank as their relative bargaining power is strengthened, but still limit their number to a few (so-called "core banking").

Finally, policies to control the deposit rate directly or indirectly become more difficult to maintain with the globalization of financial markets. These policy-induced rents are obviously vulnerable to an increase in competition: Once the regulation on the deposit rate is removed, the source of policy-induced rents will disappear.

B. Institutional responses to competition. Our discussion in the previous section about the effects of competition on the financier's incentives did not distinguish between whether relational financing was well established or at an early stage of its development when the financiers faced additional competitive pressure. However, the response of financiers to the same competitive pressure is likely to be different in those two cases. As discussed in previous sections, relational financing often requires skills and expertise different from those in arm's length financing. For example, the main bank accumulates complementary skills for *ex ante*, *interim*, and *ex post* monitoring, while the venture capitalist provides multi-faceted managerial help (engineering, financial, personnel, business networking, legal, etc.) to the entrepreneur. However, a financier's skills are often his private information and he has to build a reputation as a skilled financier. Yet, "building" a reputation is often more difficult than "maintaining" one (intuitively, once a reputation is damaged, it is more difficult to rebuild). Hence, even if financiers do not have incentives to build a reputation at the increased level of competition if they have already built their reputations when they face the new competition, they may still

have incentives to continue relational financing.

Dinc (1996) formalizes this idea in the context of main bank lending, in which banks can keep their rescue commitment only if they have the necessary monitoring capabilities. Consequently, the capable banks have to distinguish themselves from the incapable ones to attract new borrowers. It is shown that the minimum return from relational financing necessary to induce a capable bank to keep its commitment decreases as it reveals its type. This result has important implications for the evolution of a financial institution. It indicates that if two countries start with different restrictions on banking entry and bond issues, etc., and these restrictions remain in place long enough, not only will the prevalent type of financing (the prevailing institution) be different in each country, but also these differences may survive deregulation. This is an example of institutional path dependency. For example, even if the development of security markets in Japan makes the credit markets as competitive as, say, those in the U.S., the financial institutions of these two countries may still show differences that cannot be explained by any legal distinctions. Similarly, the harmonization of regulation in the European Union need not lead to a common financial institution across the member states. This path dependency suggests that restrictions on competition in the credit market may be necessary for the emergence of relational financing, but such restrictions need not remain in place once relational financing is well-established.

So far, we have ruled out bank mergers as a response to increasing competition. Although our main arguments are robust in this assumption, it is not only realistic to allow banks to merge, but it may also be crucial to the study of how different financial systems react to similar competitive pressures. Suppose the banks face so much competitive pressures from bond markets that previously-prevalent relational financing ceases to be feasible. Relational financing may continue if the competition forces the weak banks to exit; otherwise, banks may

have to retreat to arm's length lending as a response. However, relational financing requires initial reputation building, as well as relation-specific investment for information gathering. Both bankruptcy of banks or a return to arm's length lending by banks results in the loss of this investment, while mergers may allow it to be saved. Hence, banks in a financial system with a great deal of relational financing have more incentive to merge when faced with competition from security markets.

Once faced with competition, relational financing may also respond by adding new features while reserving its main function. For example, if banks can also underwrite securities they may continue to have a stake in the firm's future financing needs even if they now have to compete with security markets. On the firm's side, relational financing with a bank may allow the firm to use security markets earlier than it otherwise could. Although it is a valid concern that a relational financier, through his information monopoly, may delay rather than facilitate a firm's ability to use security markets, Gande *et al.* (1997) provide evidence from bank underwriting activity in the U.S. that a bank's outstanding loans to a firm will allow it to underwrite smaller and riskier issues than the investment houses. In fact, banks underwrite increasingly smaller issues as they gain expertise and reputation.

In summary, the theory indicates that competition need not be harmful to relational financing, but, even when it is harmful, a well-established relational financing institution is likely to respond in a way that maintains the basic attributes of relational financing. However, the type of relational financing demanded, as well as the type of firms which value it, may be different.

5. The Post-deregulation Role of Banks in Japan

In practice, bank rents that contributed to the evolution of the Japanese main bank

institution may be considered an admixture of policy-induced rents extracted from the household savers under financial restraint; monopolistic rents made possible by entry regulation, bond issue repression, and the institutionalization of financial *keiretsu*; as well as relation-specific rents yielded by corporate clients in exchange for the bank's information services and unique roles in contingent corporate governance. The fact that rents acquired by the Japanese banks may have been manifold suggest that the Japanese institution of relational financing may be fairly robust to changing environments, provided that banks are capable of flexibly adapting the sources of rents. Let us see if the banks can adapt themselves to the increasingly competitive international environment, changes in regulatory framework, innovations in transaction and information technology, and the evolution of borrower's organizations.

A. The increasing importance of information rents and bank mergers. Low interest rates in the 1990's implemented by the macro monetary policy have helped the banking sector remain profitable in spite of the massive bad loan problem. However, such a policy will not help inefficient banks after the impending deregulation of foreign exchanges which will allow individual savers to deal directly with financial institutions abroad. Monopolistic rents have been increasingly bid away by competition from the bond markets since the late 1970's, although the increasing competition has hurt smaller institutions disproportionately. As a consequence of the moral hazard behavior of banks during the bubble, the main bank's reputation as an able monitor has also been tarnished. Doubt is being cast as to whether banks still possess the ability and incentives to relax the liquidity constraint of firms.⁶ Finally, we believe the proposed "Big Bang" financial deregulation is likely to be rather sweeping contrary to the skepticism expressed by some.

⁶ Indeed, there is evidence that a firm with a low rated main bank significantly reduced its loan for reducing liquidity constraint of its client firms after the bubble was burst (Gibson 1995) .

It is thus obvious that the Japanese main bank institution will not be resurrected exactly as it used to be in early 1980's, let alone 1960's. It needs to adapt the source of rents in response to the increasingly competitive environment. If the Japanese banking system can maintain its relational financing characteristic, what type of firms will demand such financing, and what kind of rents will banks be likely to rely on in their commitment to it? A reasonable answer, consistent with the theoretical discussion in the previous sections, seems to depend on the size, maturity, industry, and organizational characteristics of client firms.

We start by discussing the cases of small and mid-sized firms, as well as young firms in the non high-technology industry. We consider that these firms will continue to attach a greater value to relational financing provided by banks. We expect the banks will also have sufficient incentives for relational financing vis-a-vis these firms. The discussion in the previous section indicates that, particularly for this class of firms, the reputation mechanism that sustains a bank's rescue commitment may not be affected negatively by the increasing competition from bond markets. The bank's incentives for any intertemporal income smoothing are likely to be affected negatively. However, the recent deregulation that allows banks to underwrite securities through subsidiaries is likely to provide additional incentives for banks to maintain relational financing with those firms up to their maturity.

Large firms are likely to value the bank's services in security underwriting and risk management more than rescue commitment. The main banks may try to cultivate relational investment banking services with old and new client firms through securities subsidiaries (Hamao and Hoshi 1997). The bank's incentive for such relational financing is likely to be derived from its information advantages. Also, as discussed in the previous section, Japanese banks may respond to the competitive pressures from security markets by mergers. This preserves the value of relation-specific investment in main the bank relationship while

decreasing the excessive competition among banks that may be detrimental to the viability of relational financing. Furthermore, mergers may also lead to branch closing in order to decrease the inefficiencies of excessive branching from the era of deposit-rate control. However, we predict that there will be a substantial modification in the role of banks in the corporate governance structure of large firms, thus reducing the opportunity of relation-specific rents for banks. This prediction is derived from the following reasoning: Just as the contingent governance structure evolved and sustained itself due to its institutional complementarity with the internal organization of the borrowing firm prevailing in the heyday of the main bank system, a contemporary organizational change in the non-financial corporate sector will be bound to trigger a change in the bank's role in corporate governance. In our view, this is a very important change that may modify the characteristics of the Japanese economy in a non-trivial way. Let us therefore focus on this and related issues in the following two sub-sections.

B. Lagging in emergent organizational and financial innovations. One of the present authors has argued, on various previous occasions (e.g., Aoki 1990), that one of the most conspicuous characteristics of the Japanese firm's organization was its ability to fine-tune the coordination of workers' tasks on the basis of information sharing and horizontal coordination. Incentive-wise, this information systematic feature was supported by the centralized administration of homogeneous employment contracts in which the workers are rewarded by gradual promotion on the basis of their relative performance. Further, we pointed out in this essay that the expectation of main bank's contingent intervention may have approximated an efficient external discipline on such homogenous internal organization. These organizational features provided leading Japanese firms with considerable competitive strength in the late 1970's and 80's.

However, partly in response to the Japanese challenge, but, more essentially, aided by fast-moving technological progress in digital communications and information processing,

American industry is modifying the traditional hierarchical control of specialized tasks. The technological innovation in communications and information processing has made the scope of individual job tasks much wider without forgoing the benefits of specialized skills, while facilitating less-hierarchical coordination among individual tasks within and across organizations. These two tendencies may be referred to as the "modularization" of the organizational unit (Pine (1992)). That is, the task content of each organizational unit becomes more self-contained rather than "functionally" specialized, while flexible coupling and decoupling with other units is facilitated by the standardization of interfaces (e.g., flexible outsourcing through de facto standardization, flexible business networking). The modular organization may take the form of a small entrepreneurial firm with technological and market niches of its own, or that of an autonomous, task-oriented division within an established firm. The flexibility facilitated by modularization is instrumental for the American industry to gain a competitive edge in emergent markets such as multi-media. Artful coupling of modules (business alliance, M&A) may lead to a product or system innovation which may be beyond the reach of individual firms. Also, modularization helps the localization of risks in highly uncertain technological and market environments, and thus is conducive to entrepreneurial experiments.

It is interesting to note that modularization, as well as flexible coupling, in the non-financial corporate sector is supported by emergent types of relational financing. Venture capital financing is an obvious example. The other is a tendency among some investment banks to develop "relationships" with client firms which regard M&A deals as strategic moves to gain dominance in their industry. Although it is yet far from obvious that this emergent tendency will eventually lead to the formation of a new institution of relational financing in Wall Street, it seems clear that helping such clients firms requires investment banks a different approach than that which was used to engineer the hostile take-over transactions of the 1980's (Chandler

1994). Investment banks can increase the value of their services as merger advisors with the information advantage they can gain from relationships with client firms. To develop the relationships, some investment banks are said to be assuming short-term costs, such as the repurchase of under-priced shares of which public offerings they managed.⁷

Japanese firms are clearly behind in this new organizational trend for various historical reasons. An institution of venture capital has been hard to develop because, among other reasons, there was no prior development of markets of the IPO which were conducive to the incentives of venture capitalists. Venture capitals were founded, in many cases, as subsidiaries of conventional financial organizations such as banks and securities houses. But they lacked the necessary expertise for venture capital relational financing, particularly its ability to assess new technology (Milhaupt (1997)).

The large Japanese manufacturing firms may be said to have pioneered the modularization trend in their (capital) *keiretsu* organization of suppliers and subsidiarization of peripheral business units. However, this trend was held in check at the half way point, because of legal prohibitions against a pure holding company. Under a provision of the Anti-Monopoly Act of 1948, a business corporation is allowed to spin off peripheral business units as subsidiaries, but it is required to retain its major business units within. Because of the practice of knowledge sharing in the horizontal coordination and centralized management of homogenous incentive contracts, this statutory provision has severely limited the capability of the Japanese firm to flexibly adapt and redefine its organizational structure to changing environments. The size of Japanese organizations is becoming too large for retaining effective information within, while its interface is too specific for flexible coupling and decoupling with

⁷ Michael Siconolfi, "Some merger bankers insist they want 'relationship'" Wall Street Journal, February 26, 1987.

other firms outside the orbit of *keiretsu*. However, the impending deregulation of the pure holding company may provide an instrument for large Japanese firms to cope with this problem, to which we will now turn.

C. Implications of deregulation of the pure-holding company. If the pure holding company is legalized as proposed by the government, large, multi-divisional firms can spin-off even major business units as relatively autonomous subsidiaries as needed. Each subsidiary then can run a separate incentive scheme, fitting the skill types required for its organizational objective, and thus facilitating the long-awaited diversity of employment contracts. Further, the pure holding company can credibly commit to punish badly performing subsidiaries (Itoh and Hayashida 1995), while it may aid them in the event of temporary "financial distress." It may also be capable of nurturing start-up subsidiaries with its corporate resources (financial, informational and technological), which is analogous to the function of venture capitalist in the U.S. In other words, much of the important contingent governance role that used to be played by the main banks, as well as a new function of venture capital financing, may become *internalized* under the framework of a pure holding company.⁸

The question then remains of who will monitor the monitor, i.e., the holding company, or the management of the parent company at the apex of capital *keiretsu* which will not adopt the pure holding company scheme. (Below, when we need to refer to both of them simultaneously, we do so simply as the parent company.) As has just been seen, the institutional complementary that existed between bank-oriented contingent governance and the

⁸ The question may be raised as to why the predicted merits of the deregulation of the pure holding company cannot be achieved under the present statute which permits business holding companies. The same merits have not been attainable because of the centralization of personnel administration, homogeneity of incentive contracts within business holding companies, and, particularly, the status differentiation existing between major divisions internalized under business holding companies and spun-off "peripheral" divisions.

internal organization of corporate firms will diminish with the emergence of the holding company between the two. Also, because of the large assets managed by the parent company, the exercise of the contingent governance role, like that of the main bank, will become beyond the reach of any single financial organization. Then, the external monitoring required for the parent company may become more like that of controlling the usual agency problems in large corporations elsewhere (e.g., free cash problems, tendencies toward building an empire). However, even if competition is ever intensified among various types of financiers, the emergence of competitive markets for corporate control has the least likelihood of success in Japan.

In spite of the recent publicity regarding the undoing of the cross-holding of shares, sales of stocks of related companies has actually been limited to peripheral ones by financially pressed financial institutions and companies and for a good reason. Cross stockholding among major corporations has been serving as an effective device for mutually insulating inside management from hostile-takeovers, and there is no reason why its utility for inside management, both financial and non-financial, should diminish. Insurance companies which manage a growing bulk of pension and related funds will certainly be concerned with the stock performance of client firms. They will, however, be likely to exercise the "voice" option, rather than "exit" from the financial *keiretsu* nexus, to control the agency problem of management of portfolio companies. It seems that we need to seek an effective source of monitoring within the orbit of relational financing.

We consider, however, that in this regard there is a fundamental flaw in the governance structure as legally stipulated, as well as actually practiced, in Japan. Statutorily, the Japanese Commercial Code affords relatively stronger rights to the stockholders' meeting (e.g., the right of dismissing directors at an emergency meeting, a right to set bonus payments to directors)

than in any other countries (see Fukao (1995)), but this has had a paradoxical result. The liberal statute makes the threat of professional trouble-makers in stockholders' meetings, known as *Sokaiya*, more effective. As a defense, the inside management-cum-directors of large companies have developed a practice of holding stockholders meetings on the same day (the last day of a common accounting year) with the excessive precaution of containing any "disorder" sometimes by disguised bribery. On the other hand, the board of directors is in practice functioning as a substructure of top management and does not serve as an independent source of monitoring inside management. This problem used to be mitigated to the degree that the main bank could monitor the company through loans and payment settlement accounts without effective board representation. However, as the parent companies are less likely to depend on banks for their borrowing, this problem will become important.

We believe that, given the prospect of the continuing importance of relational financing, as well as the absence of an effective market for corporate control, there must be corporate law reform to strengthen the function of the board of directors as a source of (interim) monitoring. For example, the introduction of a statutory requirement for outside directors to occupy at least one-third of the board seats may be a small, yet significant, step in that direction. One may fear that such a provision will not be effective because those seats are to be occupied by the relational financiers, and thus the subsequent interlocking of the directorate will make the prospect of the board as an independent source of monitoring less promising. But, if relational financiers and their clients collude for inefficient immediate gains, they can be eventually punished by the ever-competitive financial and product markets.

6. The Experiment of a Main Bank Relationship In China

We now turn to another part of East Asia: China. In the review of Aoki and Patrick

(1994), Rajan (1996) stated that, "although the book has done a splendid job in educating about [the Japanese Main Bank system]", he is "less convinced that the main bank system is relevant for developing and transforming economies." A very interesting experiment that may eventually provide an answer to such a concern is currently taking place in China. In the summer of 1996, China's Central Bank issued the *Temporary Rule for Main Bank Control* and started experimenting on relational financing among three hundred large state-owned enterprises (SEOs) and four state-owned commercial banks in seven large cities, including Beijing and Shanghai⁹. One bank was assigned to each of those SEOs as the "main bank (*zhuban yinhang*)" (with some overlapping), just as in the designated banking system in wartime Japan. Those banks were expected to provide loan contracts to their SEOs without government intervention, while jointly working out a possible solution to the latter's bad debt problems.¹⁰

In the transitional economy, the inefficiency of management of SEOs may not be the only reason for the bad debt problem. The socialist legacy from when the SEOs served as providers of various welfare benefits for their former and incumbent workers (the provision of pensions, medical care, housing, child care, leisure facilities, among others) is also responsible. Unless there are concomitant state-wide reforms in social welfare programs so that the SEOs are relieved of the extraneous burden of welfare provisions, the one-time recapitalization and privatization of SEOs will not resolve their bad-debt problems permanently. Conversely, a

⁹ They are the Industrial and Commercial Bank, the Agricultural Bank, the Bank of China, and the Construction Bank.

¹⁰ As of November 1996, more than eighty percent of the designated firms had reached new loan contracts with their main banks

solution to the problem of how to finance reformed social welfare programs cannot be made independently from the decision on the ownership reform of SEOs. The one-child policy and dominance of the rural population in China complicates and aggravates the generic problem of inter-generational financing of pension provisions facing every nation today. The Big-Bang approach to ownership reform *a la* Russia is very likely to lead to insider control: the capture of a majority ownership by the incumbent directors and workers (Aoki 1995), which will leave the majority of the rural population without the means of old-age support, in spite of the fact that they have contributed greatly to the accumulation of industrial capital after the revolution.

Notwithstanding such situations, however, there is no reason why SEOs cannot be corporatized in a manner consistent with the current Chinese ideology of a Socialist market economy. A large block of corporate shares can remain in the hands of state-run welfare programs, although their portfolio management might be entrusted to competing funds managers. Corporatization would induce a method of accounting more transparent and make the selection of management less politically charged and more accountable to the profit making principle. To be corporatized, however, large SEOs first need to work out plans to resolve their bad-debt problems. Unless this is done, outside investors will not trust new funds with them via markets. Obviously, restructuring and reorganization are not likely to be performed under the administrative guidance of traditional ministerial bureaucrats lacking financial expertise and prone to collusion with incumbent management. SEOs with bad debts cannot be profitable targets for potential take-over raiders. Through elimination, only banks might be left as possible candidates for external agents which could jointly work with SEOs to resolve bad debt problems, even though the monitoring and restructuring expertise of existing banks are admittedly extremely low. However, we are not living in the first-best world and any solution to resolving the problems of the socialist legacy needs to be sought in that particular historical

context. The practical experiment of the main bank relationship, so characteristic of the Chinese, is at least worth try.

In this regard, the Japanese experience after the War is instructive.¹¹ In the summer of 1946 the Japanese government repudiated its guarantee of bank credits to munitions companies, as well as government debts and insurance obligations to munition companies, in order to control rising inflation.¹² In the summer of 1946, each financial institution and specific companies hit by the government's actions were made to separate balance sheets into old and new accounts. Debts and capital were placed into old accounts and entries into new accounts were limited only to those assets deemed absolutely necessary for current operations (such as inventories, cash). The amounts of those assets were then recorded as accounts payable to the old account. "The idea behind the operation was to clean up bad loans (alternatively debts) [in old accounts] without interfering with ongoing business." (Hoshi 1995, p.305) The two accounts were to merge after reorganization and indeed did so after several years of joint work between companies and their designated banks. Hoshi (1995) described this process in detail and pointed out that the close relationships and information sharing, which developed between firms and banks (former designated banks) during this process, were indeed instrumental to the evolution of the later-day main bank relationship as an institution.

We cannot tell yet whether the current Chinese experiment on the joint workout between SEOs and banks will contribute to a solution of the bad debt problem.¹³ However, we

¹¹ Some Chinese reformist bureaucrats in the Central Bank carefully examined that experience. See Wu (1996).

¹² The size of the loss from the repudiation is estimated at almost 20 percent of GNE in 1946.

¹³ There was an optimistic interim report on this experiment in the international edition of the People's Daily on January 8, 1997.

should not lightly dismiss the experiment, either. Without doubt, the state-owned banks may not have sufficient expertise and competence to resolve bad debt problems of their own and their client SEOs. There may always be a temptation for the banks to indulge in soft-budgeting in the anticipation of help from the state. However, the People's Bank of China seems to be currently committed to harder budgeting. Also, learning by doing is an essential ingredient for banks to nurture reorganizational expertise and accumulate specific information regarding client firms which may eventually be able to afford banks with information rents.

However, one concern we have is the limited number of banks involved in the experiment. As discussed theoretically in section 4, for an institution of relational financing to emerge as a socially beneficial institution the number of competing banks should not be either too large or too small. In China now, only four state-owned commercial banks converted from specialized policy banks are operating in each province, together with, at most, a few business-enterprise owned or Province-owned banks and a newly organizing commercial bank which is consolidating local credit cooperatives (e.g., City Bank in Beijing). Further, the Industrial and Commercial Bank has an excessively large share of contracting in the main bank experiment (with 277 SEOs out of the 300 experimental subjects¹⁴). No bank may voluntarily want relational financing with SEOs which are having greater problems without the assurance of monopoly rents. However, too small a number of banks will restrain competition, which may not be conducive to the development of a healthy relational financing institution. What is absolutely necessary for the successful transition of the Chinese economy to a market economy is the further decentralization of the banking sector, which may be achieved by breaking up existing state-owned commercial banks, while allowing more entry into the banking sector.

¹⁴ Ibid.

Obviously the introduction of more competition into the banking sector cannot be completely *laissez faire* and needs to be framed within prudential regulation. Particularly, the introduction of substantial capital reserve requirements should be placed on competing banks so that supervision over banks is rule-based and automatic. (Dewatripont and Tirole (1994)).

7. Conclusions

In this essay we first introduced a new definition of relational financing and showed that the conception includes as its subclasses not only the Japanese main bank relationship but also some well-established, as well as relatively new, financial practices in the U.S. (Section 2). We then discussed types of incentives for the financier in relational financing and the efficiency implications of each type (Section 3). Next, we reviewed some of the recent literature on issues regarding how those incentives are affected by increasing competition. One useful insight was that increasing competition is not necessarily harmful to relational financing (Section 4). We then applied theoretical insights to problems of institutional transition in two Asian economies. We predicted that the Japanese financial institution will retain some aspects of relational financing even after the impending financial deregulation. However, we also pointed out that there will be a significant reduction in the role of banks in corporate governance (Section 5). Finally we assessed that the ongoing experiment of the main bank relationship in China may be one of viable financial options for successful transition of the planned economy to the corporate economy, but cautioned that much more competition in the banking sector, combined with rule-based prudential regulation, is needed for an institution of healthy relational banking to emerge (Section 6).

References

- Admati, Anat R. and Paul Pfleiderer, 1994, Robust Financial Contracting and the Role of Venture Capitalists, *Journal of Finance*, 371-402.
- Aghion, Philippe and Patrick Bolton, 1992, An Incomplete Contracts Approach to Financial Contracting, *Review of Economic Studies*, 59, 473-494
- Aoki, Masahiko, 1984, Shareholders' Non-unanimity on Investment Financing: Banks vs. Individual Investors, in M.Aoki, ed.: *The Economic Analysis of the Japanese Firm* (North-Holland), 193-224..
- Aoki, Masahiko, 1990, Toward an Economic Model of the Japanese Firm, *Journal of Economic Literature*, 28, 1-27.
- Aoki, Masahiko, 1994, Monitoring Characteristics of the Main Bank System: Analytical and Developmental View, in Masahiko Aoki and Hugh Patrick, ed.: *Japanese Main Bank System* (Oxford University Press, Oxford, UK), 109-41.
- Aoki, Masahiko, 1994b, The Contingent Governance of Teams, Analysis of Institutional Complementarity, in *International Economic Review*; 35, 657-676.
- Aoki, Masahiko, 1995, Controlling Insider Control: Issues of Corporate Governance in Transitional Economies, in M.Aoki (ed.), *Corporate Governance in Transitional Economies: Insider Control and the Roles of Banks*, EDI Development Studies, The World Bank, 3-29.
- Aoki, Masahiko and Hugh Patrick, 1994, *Japanese Main Bank System*, Oxford University Press, Oxford, UK, 3-50.
- Aoki, Masahiko, Hugh Patrick and Paul Sheard, 1994, The Japanese Main Bank System: An Introductory Overview, in Masahiko Aoki and Hugh Patrick, ed.: *Japanese Main Bank System* (Oxford University Press, Oxford, UK).
- Arrow, Kenneth J., 1997. The Place Of Institutions In The Economy: A Theoretical Perspective, forthcoming in Y.Hayami and M.Aoki, ed.: *Institutional Foundation of East Asian Economic Development* (MacMillan).
- Berger, Allen N. and Gregory Udell, 1995, Relationship Lending and Lines of Credit in Small Firm Finance, *Journal of Business*, 68, 351-381.
- Boot, Arnoud W., Stuart I. Greenbaum, and Anjan V. Thakor, 1993, Reputation and Discretion in Financial Contracting, *American Economic Review*, 83, 1165-1183.
- Bygrave, William and Jeffrey Timmons, 1992, *Venture Capital at Crossroads*, Harvard Business School Press, Cambridge.
- Chandler, Alfred, Jr., 1992, Competitive Performance of U.S. Industrial Enterprises since the Second World War, *Business History Review*, 68, 1-72.

Dewatripont, Mathias and Eric Maskin, 1995, Credit and Efficiency in Centralized and Decentralized Economies, *Review of Economic Studies*, 62, 541-555.

Dewatripont, Mathias and Jean Tirole, 1995, *The Prudential Regulation of Banks*, MIT Press.

Dinc , Serdar, 1996, Bank Competition, Relationship Banking and Path Dependence, Ph.D. Dissertation, Stanford University.

Dinc , Serdar, 1997a, Bank Reputation, Bank Commitment and the Effects of the Competition in Credit Markets, *mimeo*, Stanford University.

Dinc , Serdar, 1997b, Entry Restrictions, Credit Screening, and Bank Competition in the Credit Market, *mimeo.*, Stanford University.

Fenn, G., N. Liang and S. Prowse, 1995, The Economics of the Private Equity Market," *Staff Study*, N.168, Board of Governors of the Federal Reserve System.

Fukao, Mitsuhiro, 1995, *Financial Integration, Corporate Governance, and the Performance of Multinational Companies*, Brookings Institution.

Gande, Amar, Manju Puri, Anthony Saunders and Ingo Walter, 1997, Bank Underwriting of Debt Securities: Modern Evidence, forthcoming in *Review of Financial Studies*.

Gibson, Michael S., 1995, Can Bank Health Affect Investment? Evidence from Japan," *Journal of Business*, 281-308.

Hamao, Yasushi, and Takeo Hoshi, 1997, Bank Underwriting of Corporate Bonds: Evidence from Japan after 1994, *mimeo*, Columbia University.

Hannan, Michael T., M. Diane Burton, James N. Baron, 1995, Inertia and Change in the Early Years: Employment Relations in Young, High-Technology Firms, *Industrial and Corporate Change*, 5, 503-536.

Hart, Oliver, 1995, *Firms, Contracts, and Financial Structure*, Oxford University Press.

Hellmann, Thomas, 1995, The Allocation of Control Rights in Venture Capital Contracts, *mimeo.*, Stanford University, Graduate School of Business.

Hellmann, Thomas, Kevin Murdock and Joseph Stiglitz, 1997a, Financial Restraint: Toward a New Paradigm, in M.Aoki, H.Kim and M.Okuno-Fujiwara, ed.: *The Role of Government in East Asian Economic Development*, Oxford University Press, 163-207.

Hellmann, Thomas, Kevin Murdock and Joseph Stiglitz, 1997b, Financial Restraint and The Market Enhancing View, forthcoming in Y.Hayami and M.Aoki, ed.: *Institutional Foundation of East Asian Economic Development* (MacMillan).

Hellwig, Martin, 1991, Banking, Financial Intermediation and Corporate Finance, in Alberto Giovannini and Colin Mayer, ed.: *European Financial Integration* (Cambridge University Press, Cambridge, UK).

- Hoshi, Takeo, 1995, Cleaning up the Balance Sheet: Japanese Experience in the Postwar Reconstruction Period, in M.Aoki and H.Kim, ed.: *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks*, EDI Development Studies, the World Bank. 303-59.
- Itoh, Hideshi and Osamu Hayashida, 1995, Decentralized Personnel Management, forthcoming in I. Ohashi and T. Tachibanaki, ed.: *Employment Adjustment, Incentives and Internal Labour Market* (Macmillan).
- Kreps, David, 1991, Corporate Culture and Economic Theory, in J.A.Alt and K.A. Shepsle, eds., *Perspective on Positive Political Economy*, Cambridge University Press, 90-143.
- Maskin, Eric and Jean Tirole, 1995, Unforeseen Contingencies, Property Rights, and Incomplete Contracts, *mimeo*. Harvard University.
- Mayer, Colin, 1988, New Issues in Corporate Finance, *European Economic Review*, 32, 1167-1189.
- Milhaupt, Curtis J., 1997, The Market of Innovation in the United States and Japan: Venture Capital and the Comparative Corporate Governance," *mimeo*., Washington University in St. Louis.
- Petersen, Mitchell A. and Raghuram G. Rajan, 1994, Benefits from Lending Relationships, Evidence from Small Business Data, *Journal of Finance*, 49, 3-37.
- Petersen, Mitchell A. and Raghuram G. Rajan, 1995, The Effect of Credit Market Competition on Lending Relationships, *Quarterly Journal of Economics*, 110, 407-443.
- Pine, Jr. Joseph, (1993). *Mass Customization: The New Frontier in Business Competition*, Harvard Business School Press, Boston.
- Rajan, Raghuram G. 1992, Insiders and Outsiders, The Choice Between Informed and Arm's-Length Debt, *Journal of Finance*, 47, 1367-1400.
- Rajan, Raghuram G., 1996, Book reviewed: The Japanese main bank system: Its relevance for developing and transforming economies; Aoki, Masahiko; Patrick, Hugh, eds., Oxford University Press (1994), *Journal of Economic Literature*, 34, 1363-1365
- Sahlman, William A., 1990, The Structure and Governance of Venture Capitalist Organizations, *Journal of Financial Economics*, 27, 473-521.
- Sharpe, Steven A., 1990, Asymmetric Information, Bank Lending, and Implicit Contracts, A Stylized Model of Customer Relationships, *Journal of Finance*, 45, 1069-1087.
- von Thadden, Ernest-Ludwig, 1995, Long-Term Contracts, Short-Term Investment and Monitoring, *Review of Economic Studies*. 62, 557-575.
- Wu, X., 1995, The Reorganization of the Debts Owed by Chinese State Enterprises, (in Chinese), *Comparative Economic and Social System*, 3, 2-9.