

The Value of Prominent Directors

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***The Value of Prominent Directors:
Lessons in Corporate Governance from Transitional Japan***

By Yoshiro Miwa & J. Mark Ramseyer*

Abstract: Observers of modern transitional economies urge firms there to ignore stock markets. Stock markets simply will not work in such environments, they explain. Firms should instead rely on debt finance, particularly bank debt. Only then will they be able to keep principal-agent (*i.e.*, investor-manager) slack to manageable levels.

Turn-of-the-century Japanese firms faced problems that closely mirrored those in modern eastern Europe. Yet in Japan, the successful large firms did not rely on debt. Instead, they raised their funds through the stock market, and took a variety of steps to mitigate the principal-agent slack involved. As one of those steps, they recruited prominent investors to their boards.

Using data on firms in the cotton-spinning industry (arguably the most important industrial sector in turn-of-the-century Japan), we explore why the firms recruited prominent directors. First, we note that firms with such directors had higher profits than others. In part, they probably had higher profits because such investors had an eye for firms that would likely succeed. In part too, however, they seem to have had higher profits because those investors brought basic management skills -- they knew how to monitor and when to intervene.

Second, prominence held constant, we find that firms did not have higher profits by having directors affiliated with a bank or with other spinning firms. One might have thought directors with access to a bank or spinning technology would raise profits at a firm. In fact, they did not, for banks did not have the funds to lend, and the technology was freely available. Last, we explore whether the directors certified firm quality on behalf of other investors. Although firms with prominent directors apparently did have an advantage in the capital market, we conclude that quality certification was at most a by-product (if even that) of the monitoring and intervention these directors performed.

Keywords: Japan, directors, corporate governance, transition, cotton industry, economic history

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What corporate governance schemes should firms in modern transitional economies adopt?

To begin to answer this question, we ask what governance arrangements successful firms adopted in one transitional economy in the past. At the turn of the last century, Japan found itself in a transitional environment much like that of Eastern Europe today. In the article below, we use data from that transitional Japan to ask which governance arrangements most effectively contributed to firm success. More specifically, we note the way Japanese firms actively tried to attract prominent directors to their boards, and ask “why?” -- what type of directors most contributed to firm success, and what did they do?

In transitional Japan the presence of some industrialists on a board did correlate with higher profits. Firms with nationally prominent directors, for example, did better than their competitors. Their profits did not further increase if a director had banking experience; it did not increase if the director had industry-specific expertise; and the directors seem not (at least self-consciously) to have been certifying firm quality to other investors. Several recent studies suggest that directors (whether in the U.S., Japan, or anywhere else) add value if they have ties to a bank. Given our results, we suspect these studies may be capturing the effect of simple prominence. Bank-affiliated directors everywhere are often prominent men, and their value-added may result simply from that prominence.

We begin by summarizing the history of late 19th century Japan (Section I.A.), and outlining the issues at stake (Section I.B.). In Section II, we use evidence on profitability in the cotton-spinning industry to ask which types of directors best predicted high profits levels among the large, internationally prominent firms. In Section III, we use evidence from prefectural records to check our conclusions against accounts of a more local economy.

I. Transitional Japan

A. Institutional Structure:

1. Introduction. -- The recent transitions in Eastern Europe present a puzzle. For decades, the men who ran the local factories had no need to make a profit. For decades, the judges who adjudicated local disputes had no need to decide quarrels among investors, managers, and entrepreneurs. For decades, the politicians who ran the local legislatures had no need to design default rules to govern the disposition of such quarrels.

Times have changed. Men must turn a profit now, even in Eastern Europe. Judges must decide business disputes, and politicians must design default rules. But how are they to do so? What governance arrangements maximize long-term success at a firm? What judicial strategies maximize overall gains? What default rules mimic the rules the parties would have chosen? Is that even the approach courts should adopt? And do any of the answers differ from the answers that would govern advanced capitalist economies.

To begin to explore a few (only a very few) of these questions, we examine records from turn-of-the-century (i.e., turn-of-the-last-century) Japan. There too, entrepreneurs, investors, managers, judges and legislators faced a radically transitional economy. There too they needed

governance structures, judicial good sense, and reasonable default rules. There too they had precious little indigenous tradition on which to rely.

2. Tokugawa Japan. -- Closed as Japan had been to the West, most Japanese knew little of Western institutions or technology before the middle of the 19th century. When Commodore Perry sailed into Uraga Bay with his gunboats in 1853, he encountered a country whose government (the Tokugawa regime) had tried strenuously to keep the West at bay. At bay it did successfully keep the West. Yet it did far less to design institutional structures that would facilitate economic growth.

Instead, from the 17th through the mid-19th century, the Tokugawa government largely made it up as it went along. Few Japanese knew anything of the organizational or legal machinery that Western jurists, governments, and entrepreneurs had developed. Within this secluded world, Japanese jurists did the best they could with a haphazardly federal collection of national and provincial courts bound by uncoordinated jurisdictional and substantive rules. Government officials scarcely even tried to address commercial concerns, much less design efficient default rules. Faced with a largely inoperative (for commercial purposes) judicial and legislative framework, entrepreneurs mostly relied on kin ties and raised capital within the family.

3. Meiji Japan. -- During the last decades of the 19th and the first decade of the 20th century, all this changed. Japan now transformed herself with what -- in retrospect -- seems almost blinding speed. Although the new Meiji government took power in 1868, for several decades it had only tenuous control over the country. Indeed, it quelled a major armed revolt in 1877. Nonetheless, it legislated aggressively. It introduced its initial try at modern courts in 1878. It passed a modern constitution in 1889. It passed a French-based Civil Code in 1890,

abandoned it before it took effect, and adopted a Prussian-based Civil Code in 1896 and 1898. It adopted one Commercial Code in 1890, then replaced it with another in 1899. It adopted a Civil Procedure Code in 1890, a Criminal Code in 1880, a new Criminal Code in 1907, a Criminal Procedure Code in 1880, and yet another Criminal Procedure Code in 1922.

In large numbers, Japanese entrepreneurs began to use this new legal machinery to structure their business affairs. In 1894, there were 2,800 registered companies. By 1902, there were 8,600, and by 1910 12,300 [Kyoto 1967: 900]. In time, after a series of false starts the economy eventually boomed. Where per capita GNP (in constant 1934-36 yen) had been 115 yen in 1890, by 1900 it was 141 yen, by 1910 158 yen, and by 1920 204 yen [Ohkawa, *et al.* 1974: 237]. Where 90 banks operated in 1881, by 1890 there were 210, and by 1900 2,060 [Kyoto 1967: 897]. Where trains had 18 miles of track in 1873, by 1883 they had 244 miles, by 1893 1,938 miles, and and by 1903 4,394 miles [Ramseyer and Rosenbluth 1995: 120]. Where Japan had virtually no cotton-spinning mills in 1880, by 1934 the three largest cotton-spinning firms in the world were all Japanese [Miwa and Ramseyer 2000].

B. Issues at Stake:

1. Introduction. -- Below, we explore what types of corporate governance arrangements most effectively facilitated long-run firm success in this radically transitional environment. To date, most observers have argued that stock markets should not work in transitional economies, and that firms there will need instead to depend on bank debt. Elsewhere, however, Miwa and Ramseyer [2000] find that the most successful cotton-spinning firms in turn-of-the-century Japan relied on equity rather than debt (much less bank debt), and raised that equity broadly from many shareholders. To reduce the incentive misalignments between managers and shareholders, the

firms then (1) regularly drained the firm of excess cash by paying high dividends; (2) tied managerial pay to firm profits; (3) relied on reputational sanctions in the managerial labor market; (4) restricted managerial discretion by charter and statute; and (5) actively recruited prominent industrialists to the board. Tactics (1) through (4) are straightforward enough to explain.¹ In the article that follows, we focus on the more perplexing point (5): why did Japanese firms recruit these prominent industrialists? What role did they play, and what benefit did they bring the firms?

2. Hypotheses. -- Recent work in economic history suggests three functions prominent directors might have played: (a) they might have facilitated access to credit, (b) they might have provided technological expertise, and (c) they might have certified firm quality for other investors. In the rest of this Section I.B.2., we explain each hypothesis. In Section II, we use evidence from cotton spinning firms in Japan to test how well they applied to turn-of-the-century Japan.

(a) Credit access. In Insider Lending, Naomi Lamoreaux argues that 19th century New England banks lent primarily to their directors or to those close to their directors [1994: 4, 7, 8, 26]. “[C]apital was scarce,” she explains, while “[i]nformation systems were still primitive, data about potential business dealings [were] difficult and costly to obtain, and people were not sure whom they could trust.” In this environment, bank “directors often funneled the bulk of the funds under their control to themselves, their relatives, or others with personal ties to the board.” Nor was this limited to New England. Instead, much the same thing occurred in “other parts of the United States” and in much of the rest of the world.

¹ Indeed, they closely resemble the tactics adopted in the modern high-technology sectors to align managerial and investor incentives, as nicely outlined by Black and Gilson [1998].

Others have made similar claims in different contexts. Carlos Ramirez [1995: 676], for instance, asserts that turn-of-the-century U.S. firms with a partner from J.P. Morgan & Co. on their boards faced less severe liquidity constraints. Through their presence on the board, the partners “curtail[ed] the principal-agent problem and diminish[ed] the informational asymmetries between investors and managers.” Similarly, Takeo Hoshi, Anil Kashyap, and David Scharfstein [1991] apply the logic to the modern Japanese keiretsu. Because of the longstanding ties between keiretsu firms and their banks, they argue, keiretsu firms too face fewer liquidity constraints than their peers.

This logic itself is hard to impeach, and the implications for transitional economies seem straightforward. If good information is scarce, lenders will lend to people with whom they have the closest contact. If credit comes from banks, then firms with close connections to bankers (firms with bankers on their board, for instance) will have the best access to credit. If credit is tight, then firms with bankers on their boards will suffer less from any credit shortage than their competitors. Ultimately, firms with bankers on their boards should have higher odds of success.

(b) Technological expertise. Firms in transitional economies will often need to learn, adopt, and exploit radically unfamiliar technologies. Take Japan. Where most work had been agricultural, where transportation had been by foot or boat, where industrial activity had seldom involved more than weaving silk or brewing rice wine -- in this environment, entrepreneurs had to learn how to run trains on time, to coordinate massive cotton-spinning factories, to organize labor and machine technology in new mines to extract the newly demanded minerals. To make matters worse, workers did not have the labor skills entrepreneurs needed, managers did not have the organizational skills they wanted, and engineers did not have the technology they craved [e.g., Kinukawa 1938: v. 3, pp. 269-71; v. 7, pp. 13-14].

Less severe the technological problems may be in Eastern Europe, but problems they are nonetheless. Observers regularly bemoan the way factory managers do not know how to run factories. But neither do the managers understand much of the technology they need. One cannot (to take but an obvious example) run a mutual fund the way the communists made payroll on the state farm. Neither can one make a BMW 740i the way communists made Trabants.

In such a world, at least hypothetically the right director could help a firm obtain the technology it needs. He could serve as a consultant himself, or use his ties elsewhere to recruit others in the know. Suppose technological skills were scarce. If prominent directors could help obtain those crucial skills, firms with such directors would have a competitive advantage. If those skills were sufficiently important, firms with such directors would outperform their rivals.

In turn-of-the-century Japan, some spinning firm directors did have that technological expertise. Kyozo Kikuchi, for example, simultaneously served as chief engineer for the Settsu, Hirano and Amagasaki firms [Nichibo 9]. In 1898, he also sat on the board of six textile firms (eventually he would become president of Amagasaki and Settsu) [Shogyo 1897]. Had one of the firms with which he was affiliated wanted technological advice, in many cases Kikuchi could have given it himself.

Other spinning firm investors may not have had the expertise themselves, but they knew where to find it. Ichizaemon Morimura ran Noritake China, but also had invested in the spinning industry. When the Fuji boseki firm found itself in trouble early in its history, Morimura (the largest shareholder in the firm, though not a director) saved it. He did not save it through his own expertise. Rather, he saved it by recruiting the talented Heizaemon Hibiya -- founder of Tokyo gasu boseki. After much hesitation Hibiya arrived, restructured Fuji, and transformed it into a formidable competitor [Fuji 1947: 37-88; Kinukawa 1994: v. 7, pp. 203-05].

(c) Quality certification. In Did J.P. Morgan's Men Add Value?, J. Bradford De Long [1991: 205; see also Ramirez and De Long 1995] argues that turn-of-the-century U.S. firms with a Morgan partner on their board had higher stock prices (relative to book value) than their competitors. They earned this advantage, he explains, because the Morgan men certified firm quality. Once on the board, the Morgan men could “assess the performance of firm managers, quickly replace managers whose performance was unsatisfactory, and signal to investors that a company was fundamentally sound.”

The Morgan partners, continued De Long [1991: 209], “saw themselves -- and other participants in the pre-World War I securities industry saw them -- as filling a crucial ‘monitoring’ and ‘signaling’ intermediary role between firms and investors in a world where information about firms’ underlying values and the quality of their managers was scarce.” Morgan could charge high fees because its partners provided these certification services. It could offer the certification services credibly because its reputation for probity earned it a large stream of quasi-rents on its substantial market share in the investment banking industry. And it could keep other firms from challenging its certifying role because reputations are easy to lose but hard to earn.

Hypothetically, directors in transitional economies could perform the same function. Some observers claim regulators are fewer and less sophisticated there than they are here. If so, then privately negotiated certifiers should serve an even more important role there. Should some directors be able to certify unusually credibly, then firms with such directors should enjoy a competitive advantage in the capital market. Better able to exploit profitable business opportunities, they should ultimately out-compete their rivals.

At least one prominent Japanese businessman did certify textile firm quality in the late 19th century. In 1886, several entrepreneurs tried to organize the Mie boseki firm (discussed extensively below). Unfortunately, potential investors remembered the government-sponsored cotton spinning firms of a few years earlier. The government had organized these firms to introduce the English technology, but the firms had failed famously. Their failures, in turn, now made investors chary [Takamura 1971: preface; Nakaoka 1986: 46].

The man who intervened to change investor expectations was Eiichi Shibusawa. Shibusawa had already founded the giant Dai-Ichi Bank (predecessor to the Dai-ichi Kangyo Bank) and -- perhaps more crucially -- the highly successful Osaka boseki spinning firm. Faced with investor reluctance to invest in Mie, he now used his family's money to buy 200 of the 2,200 Mie shares. Once he placed his money and reputation now behind the firm, other investors soon followed [Murakami 1970: 393-97].

3. Equilibrium. -- Several years ago, Harold Demsetz and Kenneth Lehn [1985] noted that in equilibrium firms would adopt the corporate governance arrangements that most effectively maximized firm value. In equilibrium, for instance, firms would appoint prominent industrialists to the board if but only if they added value. Prominent industrialists might then benefit the firms on whose boards they served. Crucially for the empiricist, however, in equilibrium those firms would not necessarily out-perform their rivals.

In fact, of course, competitive economies are never in equilibrium. Firms in competitive economies regularly go out of business, and all the more so when economies are in transition. Indeed, almost by definition a "transitional world" is one out of equilibrium. If prominent industrialists did add value in such an environment, their firms should outperform the others. In Section II below, we use evidence from firms in the cotton spinning industry (1903-1911) to

study exactly that issue. We then turn to the three hypotheses above, and explore the extent to which they did and did not apply.

II. Prominent Directors in Cotton Spinning

A. Introduction:

At the turn of the last century, the cotton-spinning industry epitomized Japan in transition. It was enormous, and it was new. By the 1920s Japanese spinning firms used more raw cotton than British firms. By the 1930s, they produced a fourth of all Japanese manufactured goods, and employed 40 percent of all factory workers [Miwa and Ramseyer 2000].

The cotton spinning firms were also radically modern. They used English machines: almost exclusively, they relied on ring-spindle Platt Brothers equipment. They used English know-how: many of the leading Japanese engineers had spent time in England absorbing manufacturing technique. They used English personnel: the firms maintained a steady corps of Platt Brothers technicians as advisers. They even used English architecture -- down to imported red bricks [Saxonhouse 1974: 152, 162].

To these firms, entrepreneurs actively recruited prominent industrialists as investors and board members [Miwa and Ramseyer 2000]. In the article that follows, we ask why they did so. Toward that end, we collect information on firm size, profitability, shareholdings, and board composition. We then ask whether having directors (a) most likely to provide access to banks, (b) best able to obtain technical access, or (c) most capable of certifying quality -- whether having such directors helps predict firm profits.

B. The Data:

We take the identity of firm directors from an 1898 directory [Shogyo]. To extract the information, we rely on published work by Yoichi Kobayakawa, Haruhito Shiomi, Tsuneo Suzuki, and Kazuo Wada, and on a data base they created from that directory.²

We obtain our firm financial data (accounting profits and number of spindles, on a semi-annual basis) from an annual publication of the cotton-spinning trade association [Sanko sho]. Readers should take the results with at least the usual skepticism one shows accounting data (and perhaps more, given the still-primitive state of accounting principles at the time). We begin this data in 1903 (when the publication began) and end it in 1911 (the end of the Meiji era). We close our data in 1911 because shortly thereafter the larger firms began integrating vertically in weaving operations. Given the resulting differential rates of integration, we could no longer readily compare profitability across firms.

We compile shareholding data from work by Kazuo Yamaguchi [1968]. He lists shareholdings of the largest cotton-spinning investors as of about 1898. To learn whether a firm was listed on a stock exchange, we consult the official histories of the Tokyo and Osaka Stock Exchanges [Tokyo 1928; Osaka 1928].

[Insert Table 1 about here.]

C. The Variables:

We define the following variables. Summary statistics appear in Table 1.

1. Dependent variable.

² See Kobayakawa, Suzuki and Wada [1999]; Wada, Kobayakawa and Shiomi [1992a]; Wada, Kobayakawa and Shiomi [1992b]. We thank Professor Wada for generously providing access to this data base.

LnProfits: The natural log of the firm's semi-annual accounting profits, 1903-1911.

The data base includes 50 firms.

2. Board composition variables.

Banker (number): The number of directors at a firm in 1898 who had a banking background and served on the boards of six or more firms nationally (in any industry).

Banker (dummy): 1 if a firm had any banker directors (as defined above); 0 otherwise.

Explanation. To test whether a bank-affiliated director might facilitate access to credit, we first identify director affiliation. We do so by asking whether Kobayakawa, *et al.* (they identify all directors on 6 or more boards in 1898 -- 275 directors) list a director as having had a banking background. At one level, this is an overly broad rule. It covers anyone with any substantial connection to a bank -- professional bankers, to be sure, but also anyone who ever served on a bank board. We nonetheless use it because even non-professional bankers (if on the board of a bank) might have helped a spinning firm obtain credit.

Spinner (number): the number of directors at a firm in 1898 who simultaneously served on the boards of 3 or more cotton-spinning firms.

Spinner (dummy): 1 if a firm had any spinner directors (as defined above); 0 otherwise.

Explanation. To test whether a technologically sophisticated or well-connected director might provide access to the necessary expertise, we identify those directors most likely to have that sophistication or access. Toward that end, we ask whether a director served in 1898 on the boards of 3 or more cotton-spinning firms.³ If he did, we presume that he probably had better access to such expertise than other directors.

³ Obviously, this is a loose proxy. Hypothetically, the presence of overlapping directors could also proxy for membership in a pricefixing cartel. The possibility of a pricefixing cartel is discussed -- and rejected -- in Miwa and Ramseyer [2000] and Ramseyer [1996, ch. 7].

Prominent (number): the number of directors at a firm in 1898 who served on the boards of six or more firms nationally (in any industry).

Prominent (dummy): 1 if the firm had any prominent directors (as defined above); 0 otherwise.

Explanation. To test whether a director might have added value to a firm through his own prominence, we formulate a measure of national visibility. Accordingly, we ask whether a director in 1898 served on six or more boards nationally. By this measure, Shibusawa was the most prominent of them all, simultaneously serving on the boards of 31 firms.⁴

Total_Tax: Total income and business tax liability ($(\text{shotokuzei} + \text{eigyozei})/1000$) of those directors at the firm in 1898 who were wealthy enough that their tax liability appeared in Kobayakawa, *et al.* [1999: tab. 15].

Explanation. We use this variable as a second test of director prominence: the wealthier directors are more likely to have been prominent nationally, and the wealthier directors will have had a higher tax liability. To compile the information, we again use Kobayakawa, *et al.*, which reports the income tax and business tax liabilities of the highest-income directors. Shibusawa himself had a tax liability of 2,803 yen, placing him third in the group.⁵

3. Control variables.

Total_Spin: The total number of spindles (/1000). We convert mule spindles to ring-spindle equivalents by dividing by 1.3.

Total_S/h: The total number of firm shareholders, as of 1898.

⁴ He was followed by Jutaro Matsumoto, on the board of 28 firms. *Inter alia*, Matsumoto founded the 130th National Bank and served as president of the San'yo railroad.

⁵ In 1898, per capita GNP in Japan was 50.9 yen [Ohkawa, *et al.* 1974: 237]. Kihachiro Okura had a tax liability of 3,464 yen, and Jutaro Matsumoto had a liability of 2,966 yen. Okura ran a trading operation heavily connected to the government, and amassed large amounts of wealth during the Sino- and Russo-Japanese wars. Eventually, he invested heavily in Manchuria. In 1898, he served on the boards of 7 firms.

Largest5S/h: The total percentage of the firm's shares held by the five shareholders with the largest interests, as of about 1898.

Listed: 1 if the firm listed its stock on either the Tokyo or Osaka Stock Exchanges; 0 otherwise. Both exchanges were organized in 1878.

Osaka, Tokyo, Nagoya: 1 if a firm was headquartered in any of these cities; 0 otherwise.

[Insert Table 2 about here.]

D. Results -- Control Variables:

In Section E we test the relation between firm profits and board composition -- the primary focus of this essay. Before doing so, however, turn to the control variables themselves. More particularly, turn to the implications they pose for recent studies of corporate governance in transitional economies.

Observers of contemporary transitional economies routinely argue that firms there will more likely succeed if they rely heavily on bank debt and have their stock closely held by a controlling investor. Erik Bergloef nicely summarizes the claim: in transitional economies, “[s]tock and bond markets are not going to play a major role in the provision of funds during the early phases of economic transition.” Instead, “[h]oldings of debt and equity will be concentrated, with little turnover in control blocks.”⁶

These transitional economies, observers explain, lack honest courts, informed investors, shrewd regulators, and sophisticated accounting and legal professionals. Within such an environment, the scarcity of information, the high coordination costs, and the relentless logic of

⁶ Bergloef [1995: 81-82] (orig. in ital.). Similar claims, often stressing the importance of concentrated debt finance, can be found in Aoki and Kim [1995 xi, xiii] or Frydman, Phelps, Rapaczynski and Shleifer [1993: 200]

the prisoners' dilemma will together prevent dispersed shareholders from effectively monitoring the managers. Only when a few investors hold controlling interests will agency costs stay within manageable levels.

At least tentatively, two aspects of our data contradict this hypothesis [see also Miwa and Ramseyer [2000]]. First, in all Table 2 regressions, the coefficient on **Listed** is positive and significant at the 1 percent level. Firm size (**Total_Spin**) held constant, the firms that listed their stock on an organized exchange had higher profits than their competitors. Second, firms with more shareholders were more profitable than those with fewer. Again, the coefficient on **Total_S/h** is positive and statistically significant in all Table 2 regressions. Obviously, the point is not that a firm could raise profitability by listing its stock or finding more shareholders. Instead, it is more modest: that the data from Japanese spinning firms provide no evidence that firms in transitional economies can survive the incentive misalignments between shareholders and managers only by relying on concentrated finance.

E. Results -- Board Composition Variables:

1. Introduction. -- To explore the role directors may have played on spinning firm boards, we regress the log of a firm's profits (**LnProfits**) on a variety of indices of board composition: whether firms had directors with banking backgrounds (**Banker**), whether they had directors with multiple spinning firm appointments (**Spinner**), whether they had nationally prominent directors (**Prominent**), and the total reported tax liability of the prominent directors (**Total_Tax**).⁷ We hold constant measures of firm size (**Total_Spin**), of shareholdings

⁷ Using profits rather than the **LnProfits** on the LHS produces a similar effect, though the results are less robust. More specifically, in the equivalents to regressions (a) and (c), only the coefficient on **Total_Tax** is statistically significant -- it is positive; none of the board composition variables is statistically significant in the

(**Total_S/h** and **Largest5S/h**), of whether the firm's stock was Listed on an exchange (**Listed**), and of where the firm was headquartered (**Osaka, Tokyo, Nagoya**). Additionally, in regressions (c) and (d) we add year fixed effects.⁸

The results are striking. First, bank and multiple spinning firm affiliations do not add value. Director prominence held constant, bank-affiliated directors do not raise profits. Rather, they lower it, as the consistently negative and statistically significant coefficients on **Banker** reflect. Similarly, director prominence held constant, spinning-firm-affiliated directors seem not to have increased profitability either. In regressions (a) and (b) the coefficients on the dummy variable for **Spinner** are not statistically significant; in (c) and (d), the coefficient on the number of such directors is negative and significant at the 10 percent level.

Just as strikingly, the coefficients on simple national prominence are consistently positive. First, in all specifications, the coefficients on **Prominent** are positive and statistically significant at the 1 percent level. Firms with directors who served simultaneously on six or more boards (in any industry) did earn higher profits than their peers. Second, the coefficients on **Total_Tax** are also positive, and in regressions (c) and (d) statistically significant at the 1 percent level. The richer the board, the higher the profits at the firm.

2. Credit access. -- (a) The logic. For directors to boost firm profitability by facilitating access to bank loans, credit would have had to have been critically important in an industry. For the credit-access hypothesis to apply, in short, a spinning firm's ability to borrow money would

equivalents to regressions (b) and (b). For a study using profits as the dependent variable, see Miwa and Ramseyer [2000].

Using profits/spindle rather than **LnProfits** (and removing **Total_Spin** from the RHS) similarly produces less robust results. In the equivalents to regressions (a) and (c), the coefficient on **Banker** is negative and significant, the coefficient on **Total_Tax** is positive and significant, and the coefficients on the other board composition variables are not significant; in the equivalents to regressions (b) and (d), none of the coefficients on the board composition variables is statistically significant.

⁸ Firm fixed effects change the magnitude of the principal coefficients, but not the signs.

need to have been vital. According to Table 2, the credit-access hypothesis does not apply -- and the reason lies in the apparent ease with which spinning firms could raise equity.

Cotton spinning firms simply did not borrow. Instead, they sold stock. Take the classic Hitotsubashi University study of long-term Japanese economic growth. The study divides spinning firms into four groups, roughly on the basis of descending size. For three selected years, the firms in these four categories had debt-to-total assets ratios (total assets in parentheses at x1000 yen) of:⁹

Group:	I	II	III	IV
1905	10.9% (50,071)	3.3% (1,988)	N.A.	N.A.
1910	17.1 (102,060)	17.5 (4,430)	N.A.	N.A.
1915	15.1 (138,721)	8.6 (8,106)	4.8 (3,107)	22.1 (488)

Although the firms did borrow, in all size groups they mostly financed their operations through equity. In doing so, they seem not to have faced serious problems. Time and again, they raised capital by issuing new stock [Miwa and Ramseyer 2000]. Perhaps only the most established firms could issue new stock. If so, then perhaps the smaller firms recruited banker directors to offset that disadvantage by raising debt instead. Even that, however, seems not to have happened. As the data show, smaller firms did not borrow more heavily than large firms.

(b) Implications for main bank theory. Careful readers will note the way these results apparently contradict contemporary accounts of Japanese “main banks.” According to many observers, having access to such a bank matters crucially to a modern Japanese firm. Not only will a main bank lend it funds. It will facilitate access to outside capital by serving as a delegated monitor for other lenders and agreeing to stand last in line should the firm default.

⁹ Debt includes bank debt and bonds; total assets are the sum of paid-in capital, accumulated reserves, debt, current reserves, and carryforwards [Fujino, Fujino & Ono 1979: 76-77]. Note that banks did lend to individuals, sometimes taking stock as collateral. To the extent that spinning firm investors used their stock to borrow from banks, banks would indirectly have funded the industry.

Consistent with such commitments, it will regularly second bank officers to the boards of financially troubled debtors.¹⁰

Crucially, the spinning firms with banker directors were the very firms that -- according to this main bank literature -- were least likely to have them. Take a simple probit estimate of the likelihood that a firm will have a banker on the board as a function of the firm's profits (in 1 million yen) and total spindles. The coefficient on **Profits** is 8.54 (with a z value of 1.71), the coefficient on **Total_Spin** is 0.00148 (0.83), and the pseudo R² is 3 percent. According to contemporary "main bank" theory, "main banks" send their men to the boards of troubled debtors. In the turn-of-the-century cotton industry, bankers (as the positive and statistically significant coefficient on **Profits** shows) went to the boards of the profitable firms.¹¹

3. Technological access. -- The lack of positive coefficients on **Spinner** reflects the ease with which technological information flowed among firms in the industry.¹² For firms directors to have earned higher profits because their directors helped them obtain technological expertise, the expertise would have to have been scarce. In fact, it was not. Explains Gary Saxonhouse, the spinning firms openly shared technology [1974, 1991]. Because they competed on a highly competitive international market, firm A was unlikely to lose sales by aiding firm B.¹³ To the extent that firms shared technology openly, though, a firm should not earn higher profits simply because one or more of its directors knew engineers elsewhere.

Even personnel practices reflect porous character of the technology. Kuwahara was an early spinning firm in the Osaka area. Once it began operations, new firms regularly sent their

¹⁰ For skeptical views of this story, see Miwa [1996: ch. 6]; Ramseyer [1994]

¹¹ The result is consistent with the negative coefficients on **Banker** in Table 2. There the negative coefficient results from holding director prominence constant. Here, we do not attempt to do so.

¹² To be sure, it could also reflect the crudeness of our proxy for access to technological expertise. To be sure, Kyoza Kikuchi (who served on 7 boards, 4 of them in the spinning industry) knew the industry. But some of the other men who served on 3 or more spinning firm boards probably knew very little about cotton spinning.

workers there as trainees to learn how to operate the machines. Other new firms sent their workers to the Owari, Mie, and Kishiwada firms [Kinukawa 1937: v. 2, p. 214; 1944: v. 7, pp. 65-72]. Analogously, we noted the way Kikuchi simultaneously served as chief engineer for the Settsu, Hirano, and Amagasaki firms. He was not alone. While working as chief engineer for the Owari spinning firm, Shun'ichi Hattori helped plan and direct operations at the Chita, Kuwana, and Tsushima firms.¹⁴ Tanizo Kakinuma simultaneously served as president of the Shimotsuke and Tokyo boseki firms and director of the Fuji gasu boseki firm [Jitsugyo 1936: v. 1, p. 403].

3. Prominence. -- (a) Introduction. Notwithstanding the absence of any additional positive value to bank or multiple-spinning firm affiliation, firms with prominent directors did earn distinctly higher profits than their peers. Similarly, firms with richer directors earned higher profits than their peers. The puzzle is why.

(b) Certification. De Long's logic (augmented in work by Ramirez and Hoshi, et al.) suggests that the prominent directors may have been certifying spinning firm quality. Applied here, however, the hypothesis masks several fundamental problems: most basically, (i) during what period could certification have provided value, and (ii) what incentive did these prominent directors have to provide it?

First, Shibusawa had the effect he did at Mie only because of the novelty of cotton spinning. Mie needed him, in other words, only because investors were skeptical of the industry.

¹³ Nonetheless, a puzzle remains -- given that the more efficient firms acquired their less efficient competitors and helping them with technology would presumably raise the later acquisition price.

¹⁴ Id., at v. 4, pp. 320-21 (1939).

As the industry established itself, they should increasingly have abandoned their reluctance to invest. As they did, any Shibusawa effect should have disappeared.¹⁵

Second, the incentives were not there. According to De Long, the Morgan directors monitored and certified because they could charge a fee for the service through their investment banking work. Through higher investment banking fees, they could earn a return on their monitoring and certifying services. Because they could expect to continue earning those high fees in the future, they could certify quality credibly.

By contrast, prominent Japanese directors had no parallel mechanism for capturing a return on any certification service they provided. One might have thought bank-affiliated directors could charge for certifying services through the interest they earned on their loans. Yet as Table 2 shows, banking directors did not add value. In general, Japanese directors might still have had an incentive to certify if doing so helped them earn profitable directorships elsewhere. Plausible as such an incentive might be, it remains substantially weaker than the mechanism De Long posits for Morgan.

Mind you, we do not directly test for certification. De Long asked whether, profits held constant, the stock of firms with Morgan partners traded at a higher multiple of book value. Analogously, we regressed market capitalization (based on yearly average stock prices) on the presence of prominent directors, on firm profits, on firm capital stock, and on year dummies. For the relevant director variables, we obtain:

Prominent (number):	589,000 (1.54)	Adjusted R2:	83.9%
Prominent (dummy):	1,082,000 (1.24)	Adjusted R2:	83.6%

¹⁵ Consistent with this, during the first decade of the century firms increasingly abandoned their practice of naming prominent investors to the board. Instead, they turned to internal career managers -- men who knew that particular firm even if they lacked broader national prominence. See generally Morikawa [1981]

Positive, but not statistically significant. In fact, however, the figures are simply meaningless. We were able to obtain market capitalization figures only for the 7 firms traded on the Tokyo Stock Exchange, and spinning firms more commonly traded on the Osaka exchange -- for which the data are not available.

Alternatively, in Table 2 we use the log of profits as the dependent variable, and ask how board composition affected profitability. If prominent directors merely certified quality, their presence would increase profitability only tangentially if at all. Occasionally, such directors might lower capital costs, as Shibusawa apparently did at Mie. Generally, though, their presence would correlate with higher profitability but not cause it. Unfortunately for our test, because such directors probably also monitored firms and strategically intervened (as discussed below), their firms would have had higher profitability, certification or no.

(c) Monitoring and intervention. (i) Introduction. Rather than certify, we attribute the higher profits at firms with prominent directors to two factors. First, inherited wealth aside, these directors were rich in part because they had the savvy to pick future winners. Recall that (largely because of the vagaries of the data) in the Table 2 regressions we used 1898 board composition to predict 1903-1911 profits. We found that the firms with prominent directors in 1898 earned higher profits during 1903-1911. In part, these results reflect investing savvy. The prominent directors invested heavily in a spinning firm if they thought it a likely winner. They then demanded a board spot to protect their large investment. In part, the fact that the firm earned high profits over the next decade simply reflected their ability to spot future winners.

Second, these prominent directors were also rich because they knew how to monitor firms and when to intervene in management. To make undiversified investments successfully, they did not just need to know how to spot winners. They also needed to know how to monitor

and intervene. To the firms, prominent directors thus brought what we might colloquially call basic, non-technical managerial good sense.

In turn-of-the-century Japan, there was nothing obvious or straightforward about this managerial good sense. Almost all Tokugawa firms had been small. To run a cotton-spinning firm, however, managers needed to know how to organize and motivate hundreds or thousands of employees. At the larger firms, they also needed to know how to coordinate production at a multi-unit firm -- something even western managers began to understand only with the advent of the railroad (Williamson 1985, ch. 11). In many ways, this managerial talent was crucial to firm success among the spinning firms. As one of the most successful firms of all, the Kanebo firm bought the managerial expertise by aggressively recruiting non-engineer university graduates (Miwa and Ramseyer, 2000). Yet firms could also try to buy the expertise by recruiting talented senior managers to their board of directors.

The spinning firms went out of their way to help managers, directors, and investors monitor performance. For its monthly newsletter, the spinning trade association required each firm to submit a variety of crucial data: the number of operating spindles, the days worked per month, the hours worked per day, the average count of the yarn produced, the quantity of yarn produced, the quantity of cotton consumed, the quantity of coal consumed, the number of workers employed, the average wage paid [Dai-Nippon, Geppo]. This association included most of the spinning firms (as of 1927, firms representing 94 percent of the spindles), and coordinated cotton imports through the N.Y.K. (Mitsubishi) trading firm [Ramseyer, 1996: 142-43]. As a result, it generally knew how much raw cotton each firm had imported, and could gauge the accuracy of the production figures firms submitted. Because most firms used virtually identical machines to manufacture a virtually identical product, an investor could in turn use the public

association data to gauge productive efficiency across the industry. Several decades ago, George Stigler [1964] suggested that firms had an incentive to disclose information in order to compete more successfully in the capital market. In Japan, the spinning firms disclosed with a vengeance.

(ii) Incentives. Unlike certification, monitoring and intervention were activities on which these industrialists could readily earn a return. At some firms, for example, they collected compensation tied directly to firm performance. Indeed, some firms promised by charter to pay a stated percentage of profits to their incorporators [Kurashiki 1953]. Even when not on profit-based compensation packages, most of these men had non-trivial equity investments in the firm. Obviously, their return on that investment depended on how well the firm did.

These performance-based compensation arrangements and equity interests gave directors incentives to monitor and intervene, even when the directors had no incentive to certify. If a director certified quality (as De Long claims the Morgan partners did), he acted as agent on behalf of the other investors. He could certify credibly only if he could expect to earn an ongoing return on his reputation for probity -- and only if he had posted that reputation as a forfeitable bond. According to De Long, Morgan earned exactly such return on its reputation, and did so through its unusually high investment banking fees. As explained earlier, the Japanese directors had no such parallel mechanism.

If an industrialist invested large sums in a few firms, though, he had a strong incentive to monitor and intervene wholly apart from any reputation for probity he might have. It may take a businessman like Shibusawa who is nationally admired for his probity to certify. But even the slimiest scumbag can have an incentive to monitor and intervene. He has that incentive simply to protect his own investment.

(iii) Caveats. We do not claim Japanese directors monitored or intervened at efficient levels, whatever that might have been. Given positive transactions costs the optimal level of mismanagement and fraud would not have equaled zero, to be sure. Zero it emphatically was not. Instead, accounts of turn-of-the-century firms suggest many spinning firms went bad in a costly way, and did so while directors stood idly by. Sometimes, the problem involved mismanagement. Sometimes, it involved fraud.

Take the Naniwa boseki firm, formed in 1889 [Kinukawa 1942: v. 6, ch. 13]. From the start, its founders dreamed that it would rival the 60,000-spindle Osaka boseki. Its first factory would have 17,000 spindles, they suggested. Soon they would build a second with another 40,000. The firm did seem to know what it was doing. It sold equity to the major Osaka-area industrialists, and even to the Sumitomo family. Its key officers had senior management experience at a prominent spinning firm. Its chief engineer went to England to study production, and it hired two English engineers to work on site.

Soon after its formation, however, the firm suffered two pieces of extraordinary bad luck. In 1890, a financial panic hit. Many shareholders had bought stock on credit and had not yet paid the full amount of par. As interest rates spiked, they found themselves unable to make the required additional capital contributions. The following year, the firm lost its factory in an earthquake.

With these calamities, fraud and mismanagement proceeded apace. At the 1890 shareholders meeting, the board announced that the president had already stolen 9,275 yen (the capital allocated for the first factory was 250,000 yen). The directors resigned, but the money was gone and they never offered to make good the loss.

Concurrently, Naniwa also discovered that its equity solicitation agent had lost the money he had held in trust. For a variety of firms, he had collected from investors the required capital contributions. Rather than immediately deliver the money to the firms, however, he had invested it in his own business. Caught in the 1890 panic, he went insolvent and disappeared -- and Naniwa lost the money due it. Alas for Naniwa, the Settsu spinning firm lost its money too. Unlike Naniwa, though, Settsu moved quickly and took all the leviable assets the agent had left behind. By the time Naniwa arrived, it found nothing left to take. Once again, the firm lost money while the directors slept. Once again, the directors did nothing to make good the loss they caused.

By 1891, Naniwa stock representing paid-in capital of 50 yen per share just two years earlier, now traded for 24-28 yen per share. The firm continued to operate erratically for several years, but by 1898 dissolved.

(iv) Suggestive tests. Some directors sometimes monitor and intervene; others miss the point. Some directors do their job well; others, as Churchill said about Clement Attlee, are “modest [men] who ha[ve] a good deal to be modest about.” As haphazardly as prominent directors may sometimes perform, however, provided they monitor and intervene more effectively than the other directors, they will raise profits. Such, we posit, is part of the point of Table 2.

Of course, the positive coefficients on **Prominent** in Table 2 are also consistent with the claim that the prominent directors simply pick winners well. To examine tentatively whether they also monitor and intervene, we divided the prominent directors into two groups: those who served on 16 or more boards (20 directors), and those who served on fewer (6-15 boards). We then hypothesized that (i) those serving on 16 or more boards would be able to pick investments

well but would usually be too busy to monitor or intervene with much care, while (ii) those on 6-15 boards would be able both to pick winners and to spend time monitoring performance.

For this test, we created a new variable: the number of directors serving on 16 or more boards (**HighProm**). We placed **LnProfits** on the left, and **Prominent(number)** (recall that this is the number of directors serving on 6 or more firms) and **HighProm** on the right. We then added the control variables and year fixed effects used earlier. The coefficient on **Prominent** is positive and significant (0.308, with a t-statistic of 7.05). By contrast, the coefficient on **HighProm** is significantly negative (-0.357, with a t-statistic of -3.98). Among the spinning firms, those with more nationally prominent directors earned higher profits than others, but those profits reflected the presence of directors on only a modest number of boards (6-15 boards). Among the nationally prominent directors, in short, those who focused on a relatively few firms contributed more to firm profitability than those who served on 16 or more.¹⁶

(v) Conclusion. In turn-of-the-century Japan, cotton-spinning firms with prominent directors earned higher profits, probably for two separate reasons. First, the prominent directors were prominent in part because they were rich, and they were rich because they spotted winners well. They invested heavily in the firms they thought would succeed, and demanded directorships to protect those investments. Because they had the business savy to predict firm performance, the firms on which they served out-performed their competitors. Second, these prominent directors were also rich because they monitored carefully and knew when to intervene. They did not always monitor or intervene. Sometimes they failed egregiously. But because they did better than their less prominent peers, the firms with the prominent men out-performed the rest.

¹⁶ In this regression, the coefficient on the number of bank-affiliated directors remains significantly negative, but the coefficient on the number of spinning-firm-affiliated directors now becomes significantly positive.

Elsewhere, Miwa and Ramseyer [2000] describe the way firms worked hard to attract prominent industrialists to their boards. The firms did not do so because the industrialists self-consciously certified firm performance -- ala De Long and the house of Morgan. Instead, they did so because (even absent purposeful certification) having a prominent director still raised profits and lowered the cost of capital. If successful industrialist X invested heavily in firm A, that very act provided crucial information: (i) that someone with unusual business savy thought firm A was a good investment, and (ii) that someone with unusual business judgment who might intervene in times of crisis was on the board of firm A.

III. Prominent Directors in Aichi Prefecture

A. Introduction:

To check our conclusions against a very different data base, turn to a non-statistical, detail-intensive account of one prefecture. Located 200 miles west of Tokyo and 100 miles east of Osaka, Aichi prefecture lies in many ways at the center of Japan. Birthplace of Tokugawa Ieyasu and his two brutal 16-century predecessors, Oda Nobunaga and Toyotomi Hideyoshi, it has been central for centuries. Today as 100 years ago, it commands an important though not dominating demographic and economic presence. Today, it has a population of 6 million out of a national population of 120 million. Its capital Nagoya has a population of 2.1 million, while Tokyo has 8.1 million, Yokohama 3.2 million, and Osaka 2.5 million. At the turn of the century, Aichi had a population of 630,000 out of a national population of 47 million. Nagoya had a population of 240,000, while that of Tokyo had 1.4 million, Osaka 820,000, and Kyoto 350,000.

Traditionally prosperous and conservative, Aichi today is home to Toyota Motor and the many firms that trade with it. Honda and Suzuki began nearby. At various times, it has also

been home to the aircraft (particularly during World War II) and machine tool industries. During the first half of the century, it was home to a thriving textile industry. As of 1891 it produced about 5 percent of the total national textile output -- 4.6 million yen out of about 100 million yen's worth. Only Gunma prefecture (near Tokyo), Kyoto, and Osaka produced more.

B. Banks:

1. Aichi banks. -- Aichi records clarify why bank-affiliated directors seldom added value to spinning firms: banks lacked the means to fund them [data from Shogyo 1897]. As of 1898, there were 57 banks and the following six cotton spinning firms in Aichi:¹⁷

	Founded	Paid-in capital (1898)
Nagoya boseki	1885	800,000 yen
Owari boseki	1887	600,000
Tsushima boseki	1893	350,000
Ichinomiya boseki	1895	350,000
Chita boseki	1896	310,000
Kamesaki boseki	1896	125,000

Unable to raise the capital it needed, Kamesaki soon folded without ever spinning thread [Kinukawa 1944: v. 7, p. 98].

Of the 57 banks in 1898, most were small, recently opened enterprises.¹⁸ Indeed, so small were they that they could not have funded the spinning firms except through widespread collaboration. When Nagoya boseki began in 1885, only 6 of the 57 1898 banks were around.

¹⁷ We focus on 1898 to coincide with the study by Wada, *et al* [1992a].

¹⁸ Paid-in capital refers to "haraikomi shihon kin." Bear in mind several obvious caveats. First, we examine the records as of 1898; presumably, there had been other banks earlier that had already failed by 1898. As we note earlier, however, as of 1881 there were only 90 banks in the entire country. Second, firms can increase paid-in capital over time, such that their capital in 1898 might exceed what it had been earlier. Third, the usual warnings about using capital accounts to judge firm size apply.

Tokyo banks might have had sufficient capital to fund the Aichi spinning firms, but would have lacked the information necessary to evaluate credit risks in Aichi.

The largest was the Nagoya bank, but even it had (1898) paid-in capital of only 320,000 yen. Even the biggest, it seems, was capitalized at less than half the size of the first spinning firm.

By the end of 1887 when Owari began, only one more bank (the Toyohashi bank, with paid-in capital of 200,000 yen) was in business. By the beginning of 1893 when Tsushima began, the 1898 directory discloses 11 banks. Still, the largest remained the Nagoya bank with (1898) paid-in-capital of only 320,000 yen.

Not until the time of the last three spinning firms had many of the 1898 banks begun to operate. According to the 1898 directory, 10 banks opened in 1893, 16 in 1894, and 4 more in 1895. Nonetheless, most remained far smaller than the spinning firms. As of the end of 1895, for example, the biggest was the Kamesaki bank with (1898) paid-in capital of 800,000 yen. Second came the Nagoya bank with its 320,000 yen, followed by the 134th bank (300,000 yen), the Tsushima and Shogyo banks (225,000 yen each) and the 11th and Toyohashi banks (200,000 each).¹⁹ By 1895, several banks had finally begun to rival the spinning firms in size. Even they, though, still did not dominate the spinning firms.

2. Lessons for transitional economies. -- That the banks could not finance the spinning firms has obvious implications for the current transitional economies. Before a bank can fund industrial investment, it must attract shareholders and depositors. Yet if manufacturing firms operate within a legal and institutional framework that makes it hard to attract investors, banks will find it hard to attract them as well. Bank shareholders and depositors too, after all, entrust their funds to risky and opaque institutions. In return, they receive nothing more than a legal claim. As a result, if the combination of managerial moral hazard and legal incapacity stops investors from buying manufacturing stock, it will also stop them from buying bank stock or

¹⁹ In 1896, the Aichi bank and the Meiji bank were formed, with paid-in capital of 1 million yen and 750,000 yen, respectively.

depositing in savings accounts. Absent investors, banks will have little to lend. In late-19th century Aichi, they had little indeed to lend.

The problem goes beyond managerial moral hazard. Even with fundamentally honest managers, banks are risky institutions. Of the 57 Aichi banks in 1898, only 45 were in business in 1907. By 1920, only 23 were still around, and by 1941 only 3. That year, those 3 merged into 1, the Tokai bank.²⁰ Even the Meiji bank, flagship bank to the prosperous Okuda group (discussed below) and capitalized in 1896 with 750,000 yen, failed in 1938. In a world without deposit insurance, investors deposit their money in banks at their peril.

For reasons tied to economic regulation under the communists, many eastern European countries entered the 1990s with substantial banks. Whether, without well-functioning legal systems, other transitional economies can grow similarly large banks is an open question. Whether, without well-functioning legal systems, even the countries with these large banks can keep them is an open question.

C. Capital Markets:

1. Wide investor range. -- That spinning firms could not borrow what they needed from banks did not necessarily stop them from raising the funds they needed. They simply issued stock. As with Kamesaki, they sometimes failed at the attempt (though we have little reason to think a large bank would have been more generous than individual investors). But often they succeeded. And the other 5 Aichi spinning firms raised massive amounts of equity capital indeed.

²⁰ Shogyo [relevant years]. Obviously, some of the banks may simply have changed their names or merged with other banks. However, where in 1898 there were 1305 “regular” banks in Japan, from 1898-1920 there were 488 bank closures but only 193 mergers. See Ramseyer and Rosenbluth [1995: 105].

Crucially, the spinning firms did not raise their money from a small clique of rich men. Instead, they raised it broadly, and each from a different group of investors. Kazuo Yamaguchi [1968: 10-16] lists all spinning firm (other than Kamesaki) shareholders as of 1898 who held more than 100 shares:

	Yamaguchi Listed s/h	Total s/h
Nagoya	28	261
Owari	24	513
Tsushima	12	319
Ichinomiya	14	603
Chita	22	907

Of the 28 largest shareholders at Nagoya, only 3 appear as major shareholders at any of the other four firms. Of the 24 at Owari, only 4 appear elsewhere; of the 12 at Tsushima, only 2 appear elsewhere; of the 14 at Ichinomiya, only 1 appears elsewhere; and of the 22 at Chita, only 2.

Or take the 2 spinning firms in adjacent Mie prefecture: Mie boseki and Kuwana boseki.²¹ The two firms had only 1 major shareholder in common. Mie had no major shareholders in common with any of the 5 Aichi firms; Kuwana had 2 in common with Owari, but none with any other. Enough investors were willing and able to buy spinning firm stock, in other words, that each firm could form its own group of supporters.

2. Local bias. -- Importantly, 1898 capital markets were overwhelmingly local. Again, of the 28 major Nagoya shareholders, 26 were from Aichi prefecture; of the 24 Owari shareholders, 23 were from Aichi; of the 12 Tsushima shareholders 10 were from Aichi; and of the 14 Ichinomiya and 22 Chita shareholders, all were from Aichi. Consider the 2 firms in neighboring Mie prefecture. The aggressive Mie boseki firm, with national business icon Eiichi Shibusawa on the board, had 6 of its 24 major shareholders from outside Mie prefecture. Yet

²¹ For obvious reasons, we ignore Ise boseki, discussed in detail below.

here too, 3 of the 6 were from prefectures (like Aichi) that bordered on Mie. Of the 21 major shareholders at Kuwana, 16 were from Mie, 3 from Aichi, and 2 from Tokyo.

Even this discussion understates the local bias, for most spinning firms drew primarily from areas much smaller than the prefecture itself. Most of the shareholders in the giant Kurashiki firm, for example, came from the village of Kurashiki in Okayama prefecture. The Aichi firms drew not from all of Aichi prefecture, but from distinct areas within it. The Chita shareholders primarily lived in Handa, for example, while the Ichinomiya firm's shareholders came from Ichinomiya, and the Tsushima firm's shareholders from Tsushima [Yamaguchi 1968: 10-16]. Indeed, this restricted geographical scope probably explains most of the absence of investor overlap among the firms.

The reasons for the local bias lay in the risk of fraud. As in contemporary eastern Europe, so too in turn-of-the-century Japan: managers could and did hide and steal. To mitigate the problem, investors sought firms with people they knew (or of whom they knew). In the days before modern transportation and telecommunications, this meant that they invested in local firms. Earlier, we related the travails of the Naniwa firm. Turn now to the Ise spinning firm [Kinukawa 1941: v. 5, ch. 16].

Formed in 1894 in Mie prefecture (adjacent to Aichi), Ise boseki was odd.²² Of its 14 incorporators, 8 were from Kobe, 2 from Kyoto, 2 from Shiga, 1 from Okayama, and 1 from Ishikawa. None were from Mie, and of these areas only Kyoto and Shiga even abut Mie. Odd things began happening almost immediately. When they applied for the requisite operating license, for instance, the incorporators had specified by charter that they would provide 85

²² It was formed in Tokkaichi city, home to the Mie boseki firm. Presumably, the organizers were trying to rely on public enthusiasm for the success of the Mie firm.

percent of the capital. Once they obtained the license, they amended the charter and started selling the stock to the Mie public.

Curiouser and curiouser, of its initial 100,000 yen capital the Ise firm planned to spend 18,500 yen on the plant and equipment of the nearby Nippon white rice firm. Why a cotton spinning firm would want rice-cleaning equipment is anyone's guess, of course. But crucially, the leading shareholder in the Nippon firm was a Kobe machinery importer named Ryutaro Hanta. Hanta was also the leading shareholder in Ise. Nippon had earlier failed because Hanta had sold it inappropriate old machines, cleaned and polished to look new.

Of the same 100,000 capital, the Ise firm also planned to use 39,500 yen to buy spinning machines. Hanta sold it these machines too. Again, he sold inappropriate obsolete models. According to rumor, he may even have delivered used machines. Doomed from the start, Ise went nowhere. The factory began operating in July 1896, but stopped production two years later. It opened again in April 1899, but closed that September. It formally dissolved the next year, and auctioned its factory and equipment to Mie boseki for 27,665 yen.

3. Investment groups. -- To study the way investors parked their money where they knew (or knew of) many of the others involved, Wada, Kobayakawa, and Shiomi [1992a] identify overlapping boards in Aichi in 1898. They locate 12 loose corporate groupings: 5 were tied to prominent individuals, and another 7 were geographically based in smaller towns. The 3 largest groups came from Nagoya.

The biggest of the groups revolved around a nouveau riche soy sauce brewer named Seika Okuda, and included 21 firms. If we limit ourselves to those firms with at least 30,000 yen paid-in capital, we obtain the group director overlap described in Table 3 [see Wada, Kobayakawa, and Shiomi (1992a) for a fuller list].

[Insert Table 3 about here.]

The Table suggests several points. First, a minority of directors and officers worked with each other on multiple firms. Although we do not have shareholding records (other than of the spinning firms), in general directors also held significant blocks of stock. Thus, if directors and officers overlapped, the major shareholders probably did too. More to the point, people who invested large sums tended to invest in firms where they knew personally some of the other people involved. Second -- inverse to the first -- these groups were not cliques. Only a minority of the directors (and, implicitly, major shareholders) overlapped with some of the same directors at both firms. Personal knowledge mattered, but it mattered within a relatively fluid capital market.

4. Director prominence. -- We earlier showed how firms with prominent directors tended to earn high profits. Of the 5 operating Aichi spinning firms, none was terribly successful. Instead, by the middle of the first decade of the century, all sold their operations to more efficient competitors. Of these 5, only the Nagoya and Owari firms had directors sufficiently prominent to meet the standard used for Tables 1 and 2, above.

The Tsushima and Chita firms lacked nationally prominent directors, but had men with local visibility and -- importantly -- placed them in direct operating positions. The Tsushima president served at various times as prefectural governor, Diet representative, and head of a bank and a railroad [Kinukawa 1944: v. 7, p. 81]. The Chita president founded a bank and served in House of Peers; another closely involved director served in both the prefectural assembly and the national Diet [*id.*, 100]. The Ichinomiya officers were similarly prominent locally, but did not actively participate in management [*id.*, 118-19].

To compare the relative profitability of these 5 firms and the Mie and Kuwana firms next door, we regressed (using OLS) the log of 1903-11 firm profits on firm dummies, on the number of total spindles at the firm, and on year dummies. Given the small number of observations (59), the results are no more than suggestive. Nonetheless, if we omit the Mie boseki dummy to use Mie as a bench mark, we obtain the following coefficients and t-statistics (absolute values in parentheses):

Owari	-2.344 (2.30)
Nagoya	-2.509 (2.45)
Kuwana	-3.277 (2.77)
Chita	-3.433 (2.96)
Tsushima	-3.734 (3.16)
Ichinomiya	-4.753 (4.12)

The adjusted R2 is 0.70. Of the 7 firms, the most profitable was Mie, the firm that most aggressively acquired other firms. All other firms were less profitable, and the contrast with Mie is more than significant at the 5 percent level. Of the 7 firms, the 3 with nationally prominent directors (Mie, Nagoya and Owari) seem to have been more profitable than the others.

5. The wages of failure. -- The Aichi spinning firms performed less than spectacularly, but the Aichi textile industry thrived. Aichi prefecture is next to Mie prefecture, and in Mie was the Mie boseki firm. Formed in 1886, by 1893 the Mie firm had a factory in Aichi prefecture as well. By the first decade of this century (but in a process that it began soon after its formation), it was relentlessly acquiring its less successful competitors: Owari and Nagoya in 1905, Nishinari (the successor to Naniwa) in 1906, Tsushima in 1906, Chita in 1907 [Miwa and Ramseyer 2000; Fujino, et al., 1979: 39-42]. The Ichinomiya president wanted it to merge with Mie too, but the shareholders opted to merge with Nippon boseki instead [Kinukawa 1944: v. 7, p. 128].

Parenthetically, note that a local bias also appears in the acquisition strategies successful firms adopted. The Mie firm was based in Yokkaichi city in Mie prefecture, but Yokkaichi itself is only 15-20 miles from Nagoya. In planning its acquisitions, the Mie firm focused on neighbors like the Aichi firms (beginning with the Ise Chuo firm in the Aichi city of Tsu). Other efficient firms (Kanebo being a famous exception) often held a Mie-style local acquisition bias as well [Fujino, *et al.* 1979: 39-42].

If the 5 Aichi firms performed in a lackluster fashion, Aichi prefecture took its lackluster-ness all the way to the bank. In 1900, Aichi firms produced 27 million pounds of cotton thread. By 1910, it produced 55 million pounds, and by 1920 67 million. In 1900 Aichi spinning factories (cotton, silk and wool) employed 5,500 workers. By 1910 they employed 9,200, and by 1920 17,000. In 1900 Aichi weaving factories employed 1,000 workers on modern weaving machines. By 1910 they employed 13,000, and by 1920 39,000. More broadly, in 1902 890 Aichi factories had more than 5 workers, and they employed a total of 32,000 employees. By 1911 1,500 factories employed 47,000, and by 1920 4,400 employed 82,000 [Aichi 1940: 580-81, 614-15, 721-22, 725-26].

That the spinning firms faltered but the economy thrived matters for transitional economies, because many observers seem to suggest that we should try to stop the firms there from failing. Yet in competitive markets firms regularly fail -- and should. When a firm like Owari failed, its equipment did not disappear from the economy. Neither did its jobs. Instead, more efficient firms like Mie bought the factory, revamped it to better use, and hired workers to run it. As Henry Manne [1965] showed decades ago, mergers and other changes in corporate control help put workers and assets to their highest valued use. That has been true in the modern U.S.; it was true in turn-of-the-century Japan; and it is true in contemporary eastern Europe.

IV. Conclusions

Eyeing the inadequate statutes, the inept regulators, the corrupt managers, the disfunctional courts -- eyeing all this, observers of the modern transitional economies in eastern Europe urge firms there to ignore stock markets. Such markets simply will not work, they explain. The firms will need instead to rely on debt finance, particularly bank debt. Only then will they be able to keep the principal-agent slack to manageable levels.

Turn-of-the-century Japanese firms too faced bad statutes, regulators, managers, and courts. Yet there, the successful large firms did not rely on debt, much less bank debt. Instead, they raised their funds through the stock market, and took a variety of steps to mitigate the agency slack. One of those steps was to recruit prominent investors to their board of directors.

Among the cotton-spinning firms in turn-of-the-century Japan, those with prominent directors had higher profits than the others. In part, they probably had higher profits because those investors had an eye for firms that would likely succeed. In part too, however, they seem to have had higher profits because those investors knew how to monitor firms and when to intervene. For both of those reasons, a firm with prominent directors could more readily raise capital than its competitors.

Director prominence held constant, a firm did not have higher profits by having bank-affiliated directors on its board. One might have thought banker-directors would raise profits by easing access to credit. In fact, they did not. Director prominence held constant, a firm did not have higher profits by having directors who had connections to other spinning firms either. One might have thought well-connected directors would raise profitability by easing access to engineering expertise. Once again, they did not. Bank-affiliation did not matter, because banks

did not have the funds spinning firms needed anyway. Technological access did not matter, because firms could obtain that access easily anyway. What the firms needed were directors who would monitor and intervene, and that was something prominent investors could -- and did -- provide.

Table 1: Firm Profitability in Cotton Spinning
-- Summary Statistics

	n	Min	Mean	Max
<i>Dependent variable</i>				
LnProfits	480	3.497	11.147	14.260
<i>Board composition variables</i>				
Banker				
dummy	439	0	0.538	1
number	439	0	1.166	4
Spinner				
dummy	439	0	0.508	1
number	439	0	1.011	4
Prominent				
dummy	531	0	0.569	1
number	531	0	1.710	7
Total_Tax	531	0	0.879	6.056
<i>Control variables</i>				
Total_Spin	531	0	48.334	377.920
Total_S/h	388	29	404.482	907
Largest5S/h	380	0.077	0.223	0.560
Listed	531	0	0.463	1
Osaka	531	0	0.245	1
Tokyo	531	0	0.056	1
Nagoya	531	0	0.009	1

Sources: Calculated from data found in **Dai-Nippon boseki rengo-kai, ed., Menshi boseki sanko jijo [Reference Materials on Cotton Spinning]** (Osaka: Dai-Nippon boseki rengo-kai, various years); **Tokyo kabushiki torihiki sho, ed., Tokyo kabushiki torihiki sho 50 nen shi [A 50-Year History of the Tokyo Stock Exchange]** (Tokyo: Tokyo kabushiki torihiki sho, 1928); **Osaka kabushiki torihiki sho, ed., Daikabu 50-nen shi [A 50-Year History of the Osaka Stock Exchange]** (Osaka: Osaka kabushiki torihiki sho, 1928); **Shogyo koshin sho, ed., Nippon zenkoku shokaisha yakuin roko, dai 6 kai [Record of Officers of All Japanese Firms, 6th edition]** (Tokyo: Shogyo koshin sho, 1897; reprinted, Kashiwa shobo, 1988); Yoichi Kobayakawa, Tsuneo Susuki, Kazuo Wada, Meijiki no kaisha oyobi keieisha no kenkyu [A study of the Firms and Managers of the Meiji Period], 9 [Chubu daigaku] Sangyo keizai kenkyusho kiyo 1 (1999).

Table 2: Firm Profitability in Cotton Spinning
-- OLS Regression Results

	(a)	(b)	(c)	(d)
<i>Board composition variables</i>				
Banker				
Number		-0.246 (1.83)		-0.249 (2.23)
Dummy	-0.760 (3.16)		-0.662 (3.37)	
Spinner				
Number		-0.154 (1.85)		-0.178 (2.61)
Dummy	-0.003 (0.02)		-0.096 (0.61)	
Prominent				
Number		0.360 (4.12)		0.393 (5.46)
Dummy	1.113 (6.12)		1.126 (7.62)	
Total_Tax	0.181 (3.74)	0.022 (0.33)	0.211 (5.32)	0.038 (0.69)
<i>Control variables</i>				
Total_Spin	0.009 (6.77)	0.011 (8.63)	0.0083 (7.64)	0.011 (9.41)
Total_S/h	0.001 (2.46)	0.001 (2.44)	0.0009 (3.35)	0.001 (3.38)
Largest5S/h	2.077 (3.08)	0.351 (0.57)	2.381 (4.25)	0.697 (1.34)
Listed	0.598 (3.93)	0.545 (3.39)	0.609 (4.92)	0.527 (4.00)
Osaka	0.131 (0.82)	-0.160 (0.91)	0.096 (0.74)	-0.207 (1.44)
Tokyo	0.169 (0.52)	0.191 (0.59)	0.258 (0.97)	0.294 (1.10)
Nagoya	-0.428 (0.88)	-0.530 (1.12)	-0.068 (0.17)	-0.077 (0.20)
Year dummies	No	No	Yes	Yes
Constant	8.946 (35.77)	9.508 (40.39)	8.200 (31.86)	8.706 (34.33)
Adjusted R2	0.56	0.53	0.71	0.69
n	356	356	356	356

Notes:

Coefficients, followed by the absolute value of the t-statistics.
 Dependent variable is LnProfits.

Sources: see Table 1

Table 3: The Okuda Group in 1898

	Firms													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>Founding Date:</i>	79	87	87	88	93	93	93	94	94	96	96	96	96	96
<i>Capital:</i>	150	600	249	135	95	95	30	112	85	750	300	45	45	40
<i>Directors:</i>														
Hattori	D					A			D			D	D	V
ShiraiShi		A	D		A	D	D				D			
Inoue				D				D				D	D	V
Yamazaki								D			D		D	
Miyaji	D		D				D							
Okuda		P			A	C	A				P			
Sasada					C					D	A			
Yokoi	D								P			A		
Kusugai		A					A							
Susuki										D	A	A		P
Hachisuka		A								A				
Hirako					D	A					A			
Futamura								D						
Yoshida	P													
Kamitono			A			D					D			
Ito						B			B					
Okamoto				P										
Shimogori				D										
Murase						B			B					
Nagata												D		
Isogai									D					
Yamada								P						

Notes:

Founding date: Year in 19th century.

Firms: 1 - 46th Bank; 2 - Owari Spinning; 3 - Nagoya Electric; 4 - Atsuta Bank; 5 - Nagoya Storage; 6 - Nagoya Stock Exchange; 7 - Nagoya Life Insurance; 8 - Aichi Agricultural & Commercial Bank; 9 - Nagoya Commodities Exchange; 10 - Meiji Bank; 11 - Nippoin Rail Car; 12 - Aichi Match; 13 - Chuo Brick; 14 - Aichi Lumber. Firmnames translated to disclose industry involved; transliterations available upon request.

Capital: Paid-in capital in 1,000 yen.

Offices: As terminology was not yet standardized in 1898, some ambiguity exists. Nonetheless, D -- Director (includes riji, nakagainin, jomu and senmu); C -- Chairman (includes rijicho); P -- President (includes shihainin); V -- Vice President; A -- Auditor; B -- Broker.

We exclude firms with less than 30,000 in paid-in capital.

Source: Kazuo Wada, Yoichi Kobayakawa & Haruhito Shiomi, Meiji 31 nen jiten no Chukyo zaikai ni okeru juyaku kennin [Overlapping Directorships in the Chukyo Financial World in 1898], 7 **Nanzan keiei kenkyu** 217 (1992).

REFERENCES

- Aichi ken, *Aichi ken shi [History of Aichi Prefecture]* (Tokyo: Yoshikawa kobun kan, 1940).
- Aoki, Masahiko, and Hyung-Ki Kim, "Overview," in Masahiko Aoki & Hyung-Ki Kim, eds., *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks* (Washington, D.C.: The World Bank, 1995).
- Bergloef, Erik, "Corporate Governance in Transition Economies: The Theory and Its Policy Implications," in Masahiko Aoki & Hyung-Ki Kim, eds., *Corporate Governance in Transitional Economies: Insider Control and the Role of Banks* 59 (Washington, D.C.: The World Bank, 1995).
- Black, Bernard S. and Ronald J. Gilson, "Venture Capital and the Structure of Capital Markets: Banks versus Stock Markets," *Journal of Financial Economics*, 47 (1998) 243-77.
- Dai-Nippon boseki rengo kai, ed., *Dai-Nippon boseki rengo kai geppo [All Japan Cotton Spinners Association Monthly Newsletter]* (Osaka: Dai-Nippon boseki rengo kai, various years) (Geppo).
- Dai-Nippon boseki rengo kai, ed., *Menshi boseki jijo sanko sho [Reference Materials on Cotton Spinning]* (Osaka: Dai-Nippon boseki rengo kai, appropriate years) (Sanko sho)
- De Long, J. Bradford, "Did J.P. Morgan's Men Add Value? An Economist's Perspective on Financial Capitalism," in Peter Temin, ed., *Inside the Business Enterprise: Historical Perspectives on the Use of Information* 205 (Chicago: University of Chicago Press, 1991).
- Demsetz, Harold and Kenneth Lehn, "The Structure of Corporate Ownership," *Journal of Political Economy*, 93 (1985) 1155.
- Frydman, Roman, Edmund S. Phelps, Andrzej Rapaczynski, and Andrei Shleifer, "Needed Mechanisms of Corporate Governance and Finance in Eastern Europe," *Economics of Transition* I (1993) 171.
- Fuji boseki, K.K., ed., *Fuji boseki 50-nen shi [A 50-Year History of Fuji Boseki]* 37-88 (Privately printed, 1947).
- Fujino, Shozaburo, Shiro Fujino, and Akira Ono, eds., *Sen'i kogyo [The Textile Industry]* (Tokyo: Toyo keizai shimpo sha, 1979).
- Hoshi, Takeo, Anil Kashyap and David Scharfstein, "Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups," *Quarterly Journal of Economics* CVI (1991) 33.
- Jitsugyo no sekai sha, ed., *Zaikaibutsu koketsubutsu den [Accounts of the Late Leaders of Business]* (Tokyo: Jitsugyo no sekai, 1936).

- Kinukawa, Taichi, *Honpo menshi boseki shi [A History of Cotton Spinning in Our Country]* (Osaka: Nippon mengyo kurabu, v. 3 1938, v. 6 1942, v. 7 1944).
- Kobayakawa, Yoichi, Tsuneo Suzuki, and Kazuo Wada, "Meijiki no kaisha oyobi keieisha no kenkyu [A study of the Firms and Managers of the Meiji Period]," 9 [*Chubu daigaku Sangyo keizai kenkyusho kiyo IX*] (1999) 1.
- Kurashiki boseki, K.K., *Kaiko 65 nen [65-Year Recollections]* (Osaka: Kurashiki boseki, K.K., 1953).
- Kyoto daigaku bungakubu, ed., *Nihon kindai shi jiten [Dictionary of Early Modern Japanese History]* (Tokyo: Toyo keizai shimpo sha, 1967).
- Lamoreaux, Naomi R., *Insider Lending: Banks, Personal Connections, and Economic Development in Industrial New England* (Cambridge: Cambridge University Press, 1994).
- Manne, Henry, "Mergers and the Market for Corporate Control," *Journal of Political Economy* 73 (1965) 110.
- Miwa, Yoshiro, *Firms and Industrial Organization in Japan* (Houndmills: Macmillan, 1996).
- , and J. Mark Ramseyer, "Corporate Governance in Transitional Economies: Lessons from the Pre-War Japanese Cotton Textile Industry," *Journal of Legal Studies* XXIX (forthcoming 2000) ___.
- Morikawa, Hidemasa, *Nihon keiei shi [A History of Japanese Management]* (Tokyo: Nihon keizai shimbun sha, 1981).
- Murakami, Hatsu, "Mie boseki kaisha [The Mie Boseki Firm]," in Kazuo Yamaguchi, et al., eds., *Nihon sangyo kin'yu shi kenkyu [Studies in Japanese Industrial Financial History]* (Tokyo: Tokyo daigaku shuppankai, 1970).
- Nakaoka, Tetsuro, "Gijutsushi no shiten kara mita Nihon no keiken [The Japanese Experience, Seen from the Perspective of Technological History]," in Tetsuro Nakaoka, Tadashi Ishii & Hoshimi Uchida, eds., *Kindai Nihon no gijutsu to gijutsu seisaku [The Technology and Technological Policy of Early Modern Japan]* (Tokyo: Kokusai rengo daigaku, 1986).
- Nichibo, K.K., *Nichibo 75 nenshi [The 75-Year History of Nichibo]*.
- Ohkawa, Kazushi, Nobukiyo Takamatsu and Yuzo Yamamoto, *Kokumin shotoku [National Income]* (Tokyo: Toyo keizai shimpo sha, 1974).
- Osaka kabushiki torihiki sho, ed., *Daikabu 50 nen shi [A 50-Year History of the Osaka Stock Exchange]* (Osaka: Osaka kabushiki torihiki sho, 1928).

- Ramirez, Carlos, "Did J.P. Morgan's Men Add Liquidity? Corporate Investment, Cash Flow, and Financial Structures at the Turn of the Twentieth Century," *Journal of Finance* 50 (1995) 661.
- , and J. Bradford De Long, "Banker Influence and Business Economic Performance: Assessing the Impact of Depression-Era Financial Market Reforms," in Michael D. Borda & Richard Sylla, eds., *Anglo-American Financial Systems: Institutions and Markets in the Twentieth Century* 161 (Burr Ridge: Irwin, 1995).
- Ramseyer, J. Mark, "Explicit Reasons for Implicit Contracts: The Legal Logic to the Japanese Main Bank System," in Masahiko Aoki & Hugh Patrick, eds., *The Japanese Main Bank System: Its Relevance for Developing and Transforming Economies* 231 (Oxford: Oxford University Press, 1994).
- , *Odd Markets in Japanese History: Law and Economic Growth* (New York: Cambridge University Press, 1996).
- , and Frances M. Rosenbluth, *The Politics of Oligarchy: Institutional Choice in Imperial Japan* (New York: Cambridge University Press, 1995).
- Saxonhouse, Gary R., "A Tale of Japanese Technological Diffusion in the Meiji Period," *Journal of Economic History* XXXIV (1974) 149.
- , "Mechanisms for Technology Transfer in Japanese Economic History," *Managerial and Decision Economics* XII (1991) 83.
- Shogyo koshin sho, ed., *Nippon zenkoku shokaisha yakuin roko, dai 6 kai [Record of Officers of All Japanese Firms, 6th edition]* (Tokyo: Shogyo koshin sho, 1897; reprinted, Kashiwa shobo, 1988).
- Stigler, George, "Public Regulation of the Securities Markets," *Journal of Business* XXXVII (1964) 117.
- Takamura, Naosuke, *Nihon boseki gyo shi josetsu: jo [Introduction to the History of the Japanese Spinning Industry, Vol. 1]* (Tokyo: Hanawa shobo, 1971).
- Tokyo kabushiki torihiki sho, ed., *Tokyo kabushiki torihiki sho 50 nen shi [A 50-Year History of the Tokyo Stock Exchange]* (Tokyo: Tokyo kabushiki torihiki sho, 1928).
- Wada, Kazuo, Yoichi Kobayakawa, and Haruhito Shiomi, "Meiji 31 nen jiten no Chukyo zaikai ni okeru juyaku kennin [Overlapping Directorships in the Chukyo Financial World in 1898]," *Nanzan keiei kenkyu* VII (1992a) 217.
- , Yoichi Kobayakawa and Haruhito Shiomi, "Meiji 40 nen jiten no Chukyo zaikai ni okeru juyaku kennin [Overlapping Directorships in the Chukyo Financial World in 1907]," *Nanzan keiei kenkyu* VI (1992b) 215.

Williamson, Oliver E., *The Economic Institutions of Capitalism* (New York: The Free Press, 1985).

Yamaguchi, Kazuo, “Meiji 31 nen zengo boseki gaisha no kabunushi ni tsuite [Regarding Spinning Firm Shareholders at Around 1898],” [*Meiji daigaku Keiei ronshu XV(2)* (1968) 1.

-----, ed., *Nihon sangyo kin'yu shi kenkyu: boseki kin'yu hen [Studies in the History of Japanese Industrial Finance: Spinning Finance]* (Tokyo: University of Tokyo Press, 1970)