

Corporate Ownership, Profitability, and Bank–Firm Ties: Evidence from the American Occupation Reforms in Japan

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Received July 23, 1993; revised June 19, 1994

Yafeh, Yishay—Corporate Ownership, Profitability, and Bank–Firm Ties: Evidence from the American Occupation Reforms in Japan

This paper uses data from a report submitted to General MacArthur in order to examine the effects of a large scale reform in corporate control in Japan following World War II. The analysis indicates that reformed firms tended to perform worse than their industry peers due to diffuse postreform ownership structure and limited monitoring of managers. Evidence on the reappearance of corporate groups in Japan a few years after the end of the American reforms suggests that the *keiretsu* and their Main Banks are economically rational institutions. Furthermore, Main Banks may have served as a mechanism through which new, postreform, ownership-monitoring was created. *J. Japan. Int. Econ.*, March 1995, 9(1), pp. 154–173. Harvard Academy for International and Area Studies, 1737 Cambridge Street, Cambridge, Massachusetts 02138. © 1995 Academic Press, Inc.

Journal of Economic Literature Classification Numbers G30, N25.

I. INTRODUCTION

Following the end of World War II, the American occupation forces in Japan, headed by General MacArthur, initiated a sequence of far-reaching economic reforms. One of the most important was an ambitious attempt

* I thank Josh Angrist, Eli Berman, Richard Caves, Igal Hendel, Hideaki Miyajima, Tetsuji Okazaki, Henry Rosovsky, Masu Uekusa, David Weinstein, Jeffrey Williamson, seminar participants at Harvard, Tel Aviv University, The Hebrew University, the Japan Economic Seminar, and the Cliometric Society, and two anonymous referees for extremely helpful comments and suggestions. Eleanor Hadley kindly provided some of the historical data. Financial support from the Harvard Academy for International and Area Studies and the Hebrew University of Jerusalem, as well as the hospitality of the University of Tokyo, are gratefully acknowledged. The usual caveat applies.

to create competitive markets with a “democratic” corporate ownership structure through the dissolution of the prewar conglomerates (*zaibatsu*), and the transfer of shares from holding companies and wealthy founding families to individuals. The American occupation of Japan ended barely 40 years ago, and the *zaibatsu* dissolution reform can be regarded as one of the first modern experiments in large scale ownership reform, with potentially interesting lessons for economic reforms and privatization today.¹ This paper documents some of the major components of this reform and evaluates its economic consequences using, for the first time, a statistical analysis of postreform firm performance. The main novel outcome of this analysis is strong evidence indicating that the imposition of diffuse corporate ownership resulted in limited monitoring of managers, as reflected in the poor performance of reformed firms relative to their industry peer. The analysis also suggests that the establishment of close bank–firm ties in Japan during the 1950s created a new form of corporate ownership and monitoring of managers which may have offset, in part, the negative effects of the American-led reforms. Finally, the characteristics of firms which established Main Bank ties are identified.

The economy of prewar Japan was dominated by large, diversified conglomerates (*zaibatsu*) which controlled over a quarter of all capital assets in the economy and much larger shares in modern, heavy industries (Hadley 1970). These *zaibatsu* were controlled through a holding company (HC) which held a large number of shares in a first tier of subsidiaries. First-tier subsidiaries controlled a second tier of companies, and so forth, and formed a “pyramid” of firms with the HC at its vertex. Horizontal ownership and personnel ties between group firms were also common. The leading four conglomerates incorporated hundreds of affiliates and subsidiaries in a very large number of industries. The founding family of each conglomerate held a large enough number of shares to guarantee control of the HC. Coordination within the groups was supported also by extensive intragroup personnel and trade ties.

During World War II, the *zaibatsu* groups increased their market power and played an important role in providing military equipment and supplies to the Japanese Imperial Army. Following Japan’s defeat in 1945, the American occupation authorities (The Supreme Commander of the Allied Powers or SCAP) regarded the *zaibatsu* groups as an important part of the Japanese social structure which led to the war. In particular, the market power of the *zaibatsu* and the tremendous wealth of the founding families made the conglomerates one of the first and most important targets of American reforms in Japan. Along with large scale social and constitutional reforms, the *zaibatsu* dissolution was to play an important role in

¹ For example, see Hoshi *et al.* (1993).

the creation of a competitive (less oligopolistic) market structure in Japan, in the spirit of American antitrust legislation. Equally important was the attempt to redistribute the wealth and capital of a few wealthy families and create a more equal income distribution with diffusely held capital assets.

The *zaibatsu* dissolution reforms ended in 1950, with the HCs dismantled and prohibited by law, the founding families stripped of their shares, and the prewar managers purged and prohibited from taking office.² Instead, a new phenomenon of large scale individual shareholding appeared in Japan for the first time. This phenomenon was accompanied by a large degree of managerial independence as the prewar *zaibatsu* control mechanisms were abolished (Suzuki, 1992; Okazaki, 1993; Teranishi, 1993b). Yet as early as spring 1949, with the reopening of the Tokyo Stock Exchange (TSE),³ a gradual process of "counterreform" began, with individuals selling their recently acquired shares to large corporations and financial institutions.⁴ By the mid-1950s individual shareholding declined to its prewar level, and new corporate groups appeared in Japanese markets. While in many ways very different from their prewar counterparts, the postwar Japanese corporate groups, or *keiretsu*, preserve the features of multimarket operations and close ties between manufacturing firms and leading financial institutions. This "regrouping phenomenon" is of special interest for two main reasons. First, should it be regarded as an efficient market response to an externally imposed inefficient reform, or was it nothing more than a resurrection of prewar group ties in a new guise? Second, many recent empirical studies have examined differences in performance between group-affiliated and independent firms in Japan today.⁵ In order to adequately evaluate the results of such empirical studies, it is important to identify the characteristics of firms which chose to join one of the newly formed corporate groups, and the early 1950s provide an exceptional opportunity for such an analysis.

This paper is an attempt to examine the effects of the dramatic reform in corporate control on firm performance, and the reappearance of corporate groups which largely offset these reforms only a few years later. It is organized in chronological order, starting with the American reform, through the early 1950s, and ending with the reappearance of the postwar corporate groups: Section 2 contains a brief historical documentation of the reforms, and a description of the unique data set used for this study.

² See Bisson (1954), Hadley (1970), and Okazaki (1993) for a detailed description.

³ The TSE closed on August 1945 and was not allowed to reopen until April 1949.

⁴ The sales were often made indirectly through securities houses.

⁵ For example, Nakatani (1984), Hoshi *et al.* (1991), Montalvo and Yafeh (1993), and Weinstein and Yafeh (1993).

In Section 3, which contains the major results of the paper, the effects of SCAP reforms on firm performance in the early 1950s are examined. Managers of diffusely held, reformed firms were likely to be poorly monitored by shareholders. Historical and statistical evidence is consistent with this view, as reformed firms performed poorly relative to their industry peers in the early 1950s. This limited monitoring by shareholders was apparently corrected with the appearance of Main Bank relationships in the mid-1950s. In Section 4 an attempt is made to identify why some firms established Main Bank ties while others did not. A historical discussion of postreform changes is followed by an investigation of the economic reasons for regrouping and some empirical tests. The establishment of Main Bank relationships seems consistent with economically rational behavior of both firms and banks. The typical firm which established bank ties is characterized as a "not too big" firm in a modern, capital intensive industry. Section 5 concludes.

2. HISTORICAL BACKGROUND

The *zaibatsu* dissolution reforms have been described by many authors, including both contemporary observers (Bisson, 1954; Hadley, 1970), and others (e.g., Uekusa (1978), Miwa (1993), and Miyajima (1990, 1994)). The discussion here draws from all these sources.

2.1. *Reformed Firms and Reform Measures*

Although the American occupation authorities did not follow clear guidelines in designating firms for reform (Hadley, 1970), there were generally two types of firms which were targeted. First, there were core *zaibatsu* firms such as the HCs themselves, or first-tier subsidiaries in the four major conglomerates and in some smaller *zaibatsu* groups. Shares held by these firms in other corporations were to be transferred to the Holding Companies Liquidation Commission (HCLC) and then transferred to their new owners. The major HCs were to be dissolved. A second set of firms was designated for reform as part of "deconcentration" efforts, i.e., based on antitrust considerations. This set typically included large firms with some (loosely defined) monopoly, or "excessive economic" power. In addition, shares held by "designated individuals" (members of the *zaibatsu* families) were to be transferred to the HCLC and resold as well. Consequently, a large number of firms (both "designated" and other) had a significant number of their shares transferred from their original owners (designated firms and individuals) to the American occupation authorities and then to new owners. In addition, some designated firms were to be

reorganized, a term which meant shedding off subsidiaries or assets, as well as measures of administrative reorganization. Finally, some firms were forced (or allowed) to issue new stock and raise capital either as a mechanism to overcome war losses or as a means of diluting the old ownership structure.

Although shares transferred were resold by HCLC using several methods, preference was given to firm employees and local residents who could purchase stock at predetermined prices, or at auction prices above a certain predetermined minimum (Hadley, 1970). These accounted for over half of all sales and were under close supervision designed to guarantee a postreform diffuse ownership structure and to prevent reconcentration of capital ownership (Bisson, 1954; Miyajima, 1994; Okazaki, 1993).

The SCAP ownership reforms were of enormous scale, much like some privatization attempts today, with overall shares transferred to HCLC (and a few other government agencies) accounting for over 40% of all corporate assets in Japan at the time (Bisson, 1954). Following the conclusion of the reforms, shareholding by individuals reached an all time high of approximately 70% in 1949–1950. This figure compares with roughly 50% share ownership by individuals before the war, a figure mainly consisting of shareholding by the wealthy *zaibatsu* founding families, with few shares held by other private investors. With the reopening of the TSE in 1949, individual shareholding began to decline, and a trend of reversal back to corporate and financial institutions as major shareholders became evident by the early 1950s. A surge in share repurchasing by corporations and financial institutions is particularly evident in 1951, and then again after 1953, when the limit on bank shareholding was raised from 5 to 10% (Aoki, 1988).

2.2. *The Sample and Data Sources*

The sample used in this study for the evaluation of SCAP reforms (157 firms) is taken from a report submitted to SCAP at the end of HCLC's operations, entitled "The Japanese *Zaibatsu* and Their Dissolution"⁶ [HCLC (1950)]. It includes firms designated for reform as part of the *zaibatsu* dissolution program or the Deconcentration Law. In addition, the sample includes other firms whose shares were transferred from their original owners (a designated company or individual) to new owners through the HCLC. This sample is essentially a sample of large prewar firms, often conglomerate-affiliated, and other large firms.

Sixty-three firms in the sample had over 10% of their shares held by one of the major four prewar conglomerates prior to the reform, with a

⁶ "Nihon Zaibatsu to Sono Kaitai."

sample average of conglomerate shareholding of just under a fifth of firm shares. Prewar bank shareholding was extremely small and amounted to 0.6% on average. Twenty firms in the sample were "reorganized" in some form, and 18 issued new shares during the reform process.⁷ Firms in this sample had 30% of their shares transferred to new owners on average, a number which corresponds to the description of the *zaibatsu* dissolution by contemporary observers as an extremely large scale reform (Bisson, 1954; Hadley, 1970). Since coherent firm data on the method of stock sales and on stock ownership not affected by SCAP reforms are not available, and in view of the difficulties involved in correct measurement of shareholders control (Leech and Leahy, 1991), it will be assumed throughout the ensuing analysis that the larger the percentage of shares sold through HCLC, the more diffuse firm ownership became. This assumption is reasonable when dealing with a sample of reformed firms whose major owners and control mechanisms were removed (Okazaki, 1993).⁸ Data on personnel purge, taken from Hadley (1970), indicate that 58 of the firms in the sample had some officers purged by SCAP authorities. Finally, Miyazaki *et al.* (1982) provide data on "special losses" suffered by firms due to the war and the subsequent reforms.⁹

The variables used are defined in Table I. Table II presents some descriptive statistics. Further examination of the reformed firms in the sample suggest that firm size, prewar affiliation with a major *zaibatsu*, and war-related production (reflected in high special losses at the end of the war) are positively correlated with the scale of ownership reform the firm underwent.

Firm performance and financial data for the years following the conclusion of SCAP reforms are taken from annual publications of the Mitsubishi Research Institute entitled "Hampo Jigyo Seiseki Bunseki" (Performance Analysis of Japanese Corporations), as well as from "Jojo Kaisha Soran" (Survey of Listed Firms), published by the TSE.

Data on postreform ownership changes and regrouping are taken from the first volume of "Keiretsu no Kenkyu" (Study of Japanese Corporate Groups), from "Kabushiki Gaisha Nenkan" (Annual Report on Joint Stock Companies), both with data for the late 1950s, and from the first Dodwell Marketing Consultants report on Industrial Groupings in Japan (data for the late 1960s). Combined, these sources provide reliable data

⁷ Following the conclusion of the reforms, many other firms also tried to raise capital in the newly opened TSE.

⁸ Controlling for some prewar firm ownership characteristics (such as *zaibatsu* affiliation), this assumption means that a given change in ownership through HCLC transfer of shares will have a similar effect on all firms.

⁹ In order to enable firms to continue smooth operation, some tax benefits due to "special wartime losses" were allowed.

TABLE I
VARIABLE DEFINITIONS

(i) Prewar	
MJDUM	Dummy; equals 1 if shares held by a prewar group exceed 10%.
PWSHR	Percentage of shares held by prewar group.
BNKSHR	Percentage of prewar shares held by largest bank shareholder.
(ii) Reform	
HCLC	Percentage of shares sold during reform.
FLOT	Dummy; equals 1 if firm issued new shares.
ORG	Dummy; equals 1 if firm "reorganized."
PURGE	Dummy; equals 1 if firm personnel was purged.
LOSSCAP	"Special (war-related) losses" over capital (late 1940s).
(iii) Postwar performance and regrouping	
CAP51	Total capital assets, 1951.
PROF	Profits/sales: Percentage for 1951, 1953, and 1960.
SALES	Sales for 1951, 1953, and 1960.
SHR	Market share (4-digit level): Percentage for 1951, 1953, and 1960.
q (1953)	Market value over book value of fixed capital. ^a
CAPINT	Capital intensity: SALES53*(CHEM+ELEC+MACH+METAL+TRNSP).
LENDER1	Percentage of total debt owed to largest bank creditor (1952).
MBSHR ^b	Percentage of shares held by postwar Main Bank (1960 or 1971)

^a Calculated from "Jojo Kaisha Soran."

^b As defined in the Dodwell reports.

TABLE II
SOME SAMPLE STATISTICS

Variable	Obs	Mean	Standard deviation	MIN	MAX
PWSHR (%)	157	18.34	26.73	0	100
BNKSHR (%)	157	0.61	2.95	0	33
HCLC (%)	155	29.56	27.41	0.1	100
LOSSCAP	153	0.55	1.15	0	6.54
CAP51 (billion yen)	112	6.93	8.01	2.60	39
PROF51	112	5.68	5.00	-23.51	20
SHR51	112	0.17	0.13	0.001	0.62
PROF53	117	3.55	4.05	-14.98	13.13
SHR53	116	0.15	0.13	0.003	0.93
PROF60	91	4.39	3.95	-23.01	15.13
SHR60	91	0.17	0.15	0.01	0.89
MBSHR	110	3.42	3.38	0	10

on bank and other corporate shareholding within the corporate groups. As postreform regrouping did not end before the late 1950s, these data sources reflect the equilibrium levels of bank and corporate levels of shareholding at the conclusion of the regrouping process. It is important to note that after regrouping occurred in the second half of the 1950s, bank shareholding in existing firms remained quite stable, and relatively little change in bank shareholding occurred during the 1960s.¹⁰ Firms in the sample had, on average, 3% of their shares held by their Main Bank in the late 1950s and slightly more in the late 1960s.¹¹

3. EVALUATION OF REFORM OUTCOME

SCAP reforms resulted in a new generation of managers (as old managers were purged), running companies whose shares were diffusely held. Kiyonari and Nakamura (1980), Miyajima (1994), Okazaki (1993), Suzuki (1992) and Teranishi (1993a, b) all emphasize the great degree of managerial independence brought about by the abolition of prewar control mechanisms, such as HCs or personnel exchange, and the removal of large shareholders.¹² Consequently, "managerial control" of firms and divergence of interests between managers and shareholders were quite possible in the early 1950s.

Consider a firm whose profits are determined by the environment in which it operates (i.e., by its cost structure, industry conditions, etc.), as well as by the management team which runs it. As suggested by Jensen and Meckling (1976), some percentage of profits may be dissipated by

¹⁰ For example, the Dodwell figures for the late 1960s closely resemble "Keiretsu no Kenkyu"'s figures for the late 1950s: the correlation between shareholding by individual banks in the late 1950s and in the late 1960s is close to 0.8, and the means and standard deviations are similar.

¹¹ For further discussion of the difficulties involved in proper measurement of Main Bank relations, see Weinstein and Yafeh (1993). The problem is even more involved when looking for an appropriate definition of Main Bank ties around 1960. Given the limitations of "Keiretsu no Kenkyu"'s classification, the analysis that follows is largely based on the Dodwell Main Bank figures for the late 1960s as a proxy for Main Bank ties in the early 1960s. While this approximation is necessarily inaccurate in view of changes during the 1960s, the high correlation between the Dodwell figures and the actual bank shareholding figures for 1960 as reported in "Keiretsu no Kenkyu" or "Kabushiki Gaisha Nenkan" suggests that the error involved is probably small. Qualitatively similar results are obtained when using shareholding by financial institutions as reported in "Kabushiki Gaisha Nenkan" and adjusting them according to the Dodwell definition, or when using dummy variables for firms with Main Bank ties according to either definition.

¹² Okazaki (1993) emphasizes also the role of wartime government controls and postwar government policy as forces leading to increased influence of managers, labor, and financial institutions, while weakening the influence of shareholders.

managers who "shirk" or pursue objectives other than profit maximization. Evaluation of managerial behavior is likely to be costly to infer from observable economic outcomes and to require some costly monitoring effort. Such effort to monitor managerial decisions and behavior on behalf of shareholders may raise profits, but when a firm has many shareholders (each taking the behavior of the others as given), the amount of monitoring effort they will exert will be less than the (socially) optimal amount, because of the external effect of one shareholder's monitoring on the other shareholders' profits. In other words, the public good nature of managerial monitoring effort leads to its suboptimal provision, a problem which is likely to be more severe when the number of shareholders increase and their average stake in the firm falls (Stiglitz, 1985). As ownership concentration is likely to be inversely proportional to the number of shareholders, reformed, diffusely-held firms were likely to be poorly monitored, and, to the extent that managers maximize objectives other than profit maximization, their profits would, *ceteris paribus*, tend to be lower than profits of similar firms with a more concentrated ownership structure.¹³

In order to evaluate empirically the actual effects of ownership reforms in Japan on firm performance, the following measures are used. Since it is impossible to compare the change in (relative) firm performance before and after SCAP reforms for lack of suitable time series data, the test will be based on a cross-sectional comparison of postreform performance of reformed firms with their industry peers. Postreform ownership structure is measured primarily by the percentage of shares sold to individual shareholders (denoted by HCLC) which serves as a proxy for ownership dispersion (i.e., the larger the value of HCLC, the more disperse the firm's ownership structure is assumed to be, controlling for some prewar ownership characteristics such as *zaibatsu* affiliation). Other effects of SCAP reforms are also controlled for: The dummy variable FLOT equals 1 if the firm issued new stock during the reform process, a measure which may have led to some ownership concentration. The dummy variable ORG equals 1 if the firm underwent any one of four forms of reorganization (division, divestiture of assets, loss of capital, organizational changes). War-related losses of firms are measured as special (for tax purposes) losses over capital assets (Miyazaki *et al.*, 1982) and denoted by LOSS-CAP. Finally, the dummy variable PURGE equals 1 if any officers of the firm were purged.

¹³ The absence of large shareholders also reduces the likelihood of takeovers and other disciplinary mechanisms (Shleifer and Vishny, 1986). In addition employees were occasionally encouraged by firms to acquire shares (Miyajima, 1994) but may have considered their ownership temporary, and therefore had limited incentives to incur the costs of monitoring managers.

Firm performance is measured as the ratio of profits to sales (which is a measure of the price–cost markup under constant returns to scale). Poorly managed firms are likely to have lower profit margins on their sales than other firms with similar market shares in the same industry. Two conceivable mechanisms may relate observable (accounting) profits to sales ratios with managerial behavior. First, reported profit margins may be driven down if some resources are dissipated by managers, even though the firm may still produce the profit-maximizing output. Alternatively, it is possible that unmonitored managers will pick an output level other than the profit-maximizing level. For example, managers may prefer a sales volume higher than that which maximizes profits. This description may be consistent with a policy of “excessive employment” adopted by managers in the early 1950s (Okazaki, 1993).

In Table III profitability in 1951 and 1953 are regressed on firm characteristics and the extent of reform. The equations take the general form

$$\frac{\text{Profit}_i}{\text{Sales}_i} = \alpha + \beta X_i + \gamma \mathbf{REF}_i + U_i, \quad (1)$$

where X is a vector of firm attributes (market share, postwar industry affiliation defined at a two-digit level, prewar attributes, etc.), \mathbf{REF} is a vector which contains the reform-related variables described before which measure postreform ownership diffusion and control for other effects of SCAP reforms, β and γ are vectors of parameters to be estimated, and U is an error term. The possibility of size-based heteroscedasticity is addressed by using corrected standard errors in OLS regressions, or by using weighted least squares (with firm sales as weights). The results indicate that reformed firms (with large values for HCLC) tended to (overproduce and) perform worse than their nonreformed peers. Any 10% shares transferred to HCLC lowered profits on sales by 0.4% points, or over 11% of the average profits on sales in 1953. The results are significant even though reformed firms tended to be among the leading prewar enterprises, a feature which is likely to make the negative effects of ownership dispersion harder to identify empirically in this sample.¹⁴ The evidence on early monitoring by debt (rather than share) holders suggested by Oka-

¹⁴ The nonrandom selection of firms for reform can also be addressed by using two-stage least squares. In the first stage HCLC is regressed on exogenous firm characteristics which affected the scale of reform such as prewar ownership, firm size at the end of the war, and war-related losses. In the second stage, fitted values for HCLC are used as regressors in the profit equation (not shown). The negative correlation between HCLC and profitability is present in this regression as well. In addition, the results remain virtually unchanged when absolute firm size (measured as assets or sales) is included in the regression.

TABLE III
THE EFFECTS OF REFORM ON PROFITABILITY^a

Dependent variable	PROF53 (OLS) (3.1)	PROF53 (OLS) (3.2)	PROF51 (OLS) (3.4)	PROF53 (WLS) ^b (3.5)
Explanatory Variables				
Constant	Yes	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes
HCLC	-0.041* (0.016)	-0.034** (0.020)	-0.031* (0.014)	-0.028* (0.012)
FLOT	1.41 (1.10)	0.78 (1.33)	1.82 (1.27)	0.78 (0.89)
ORG	3.41* (1.33)	2.77* (1.30)	0.41 (1.37)	1.52** (0.87)
PURGE	-0.75 (0.79)	-0.55 (0.87)	-1.84* (0.72)	-1.14** (0.71)
LOSSCAP	-1.52* (0.62)	-1.19** (0.65)	0.14 (0.41)	-1.27** (0.42)
SHR	-0.84 (2.86)	2.98 (3.57)	3.02 (2.78)	1.44 (2.43)
LENDER1		0.99 (1.06)		
MJDUM			0.61 (0.81)	
PWSHR		-0.003 (0.017)		
BNKSHR		0.11 (0.23)		
R ²	0.21	0.29	0.27	0.39
Adjusted R ²	0.17	0.15	0.17	0.30
N	111	110	106	111

Note. Heteroscedastic-consistent standard errors are in parentheses.

^a The vector of reform variables **REF** includes HCLC, FLOT, ORG, PURGE, and LOSSCAP.

^b Weighted by firm sales.

* Significant at a 5% level.

** Significant at a 10% level.

zaki (1993) is mixed. While the coefficient on LENDER1, the share of total debt held by the biggest lender is positive (Regression 3.2), it is not significantly different from 0 (but see below for further discussion of Okazaki's hypothesis).

TABLE IV
PERSISTANCE OF REFORM EFFECTS AND THE APPEARANCE OF MAIN BANKS

Dependent variable	PROF60 (OLS) (4.1)	PROF60 (OLS) (4.2)	PROF60 (OLS) (4.3)	PROF60 (TSLS) ^a (4.4)	PROF60 (WLS) ^b (4.5)
Explanatory Variables					
Constant	Yes	Yes	Yes	Yes	Yes
Industry Dummies	No	Yes	No	Yes	Yes
HCLC	-0.024* (0.011)	-0.021 (0.014)	-0.021 (0.014)	-0.015 (0.17)	-0.015 (0.012)
FLOT	1.86* (0.76)	0.99 (0.71)	1.03 (0.75)	-0.06 (1.48)	0.97 (0.82)
ORG	-0.76 (0.99)	-0.61 (0.90)	-0.80 (1.12)	1.30 (1.89)	-1.09 (0.84)
PURGE			-0.63 (0.84)	-0.98 (1.12)	
LOSSCAP			0.49** (0.28)	-0.29 (0.74)	
SHR60		1.13 (2.24)	1.83 (1.43)	4.83 (4.27)	3.57 (2.29)
MBSHR	0.295* (0.123)	0.33* (0.14)	0.342* (0.149)	0.90** (0.47)	0.235* (0.114)
R ²	0.11	0.18	0.20	0.16	0.43
Adjusted R ²	0.07	0.06	0.05	0.00	0.35
N	90	90	86	81	90

Note. Heteroscedastic-consistent standard errors are in parentheses.

^a Two-stage least squares, where MBSHR is endogenously determined as in Section 4.

^b Weighted by firm sales.

* Significant at a 5% level.

** Significant at a 10% level.

The persistence of the effects of reform on performance is tested in Table IV, by repeating the experiments reported in Table III for 1960. The results indicate that while the profitability of reformed firms continued to be relatively low even a decade after the conclusion of the American reforms, the effect of HCLC has declined. Interestingly, firms whose shares were acquired by a major bank as part of the reversal from individual, dispersed shareholding to institutional shareholding exhibit substantially higher profit margins: the coefficients on MBSHR are positive and significant in all specifications, and indicate that any 1% shares held by a major bank are associated with an increase of about 7% in profit margins

when evaluated at the mean. Viewing shareholding by a firm's Main Bank (described in more detail below) as a proxy for the bank's monitoring effort (Prowse, 1990; Flath, 1993), this result can be interpreted as evidence that close monitoring of managers by financial institutions, who are involved in firm operations and hold equity stake in it, "corrected" for insufficient postreform monitoring by shareholders and hence led to increased profitability. This interpretation is consistent with many descriptions of the Japanese Main Bank system as a mechanism of disciplining managers, much like takeovers and other means of corporate control which are common in the United States (Aoki, 1990; Sheard, 1989; Teranishi, 1993b). Main Bank monitoring can also be interpreted as a capital market evolution in response to an exogenously imposed ownership structure. Both the TSE and transactions through securities houses (Suzuki, 1992) played an important role in enabling the evolution of this new form of corporate control, which characterized the period of high growth which followed.¹⁵

Before proceeding to the examination of the question why Main Bank ties were established only by some but not all firms, it is important to consider the robustness of the preceding analysis. First, while the negative correlation between HCLC and firm profits is consistent with the hypothesis of limited monitoring of managers, it is important to consider an alternative explanation. Could this correlation be due to employee ownership? Although the data do not enable a direct investigation of the effect of employee ownership on firm profits, the estimated equation suggests that (assuming Cournot competition) higher marginal costs due to employee ownership and higher wages should be reflected in a lower market share, and hence employee ownership is unlikely to be the only driving force behind the negative correlation of HCLC and profitability. Second, it is possible to show that the positive correlation between MBSHR and 1960 profitability remains significant even when measures of firm size or capital intensity (defined in Section 4) are included in the regression. The positive correlation between MBSHR and profitability is therefore likely to reflect bank monitoring and is unlikely to be driven solely by larger capital stocks and better access to capital of bank clients. Third, in the 1960 profit regressions, MBSHR is treated as an exogenous variable. However, in Section 4 MBSHR is found to be related to some firm characteristics, and hence the coefficients in Table IV may be somewhat biased. Note that the discussion of Section 4 indicates that there is little reason to believe banks "picked winners." Furthermore, the positive correlation between PROF60 and MBSHR is maintained, even when MBSHR is determined endogenously according to the model of Section 4, and a two-stage least-

¹⁵ See Karpoff and Rice (1989) for an examination of the consequences of the absence of such mechanisms in a different context.

squares procedure is used (Regression 4.4). Fourth, a comparison of the samples for the early 1950s and the early 1960s suggests that some underperformers from the 1950s disappeared during the decade. Nevertheless, the main conclusions on the relative magnitudes of the HCLC coefficients in both periods, as well as the effect of MBSHR, are not driven by changes in the sample nor are they sensitive to the inclusion of the 1960 MBSHR variable in the 1950s profitability regressions. Finally, the determinants of change in performance between 1953 and 1960 can also be examined by “differencing” the profitability equations for 1960 and 1953, implicitly allowing for firm-specific effects, and assuming that reform variables (denoted by the vector **REF**) and Main Bank shareholding are (approximately) time-invariant and uncorrelated with the firm-specific element. The following equation can then be estimated:

$$\begin{aligned} (\text{PCM}_{i,1960} - \text{PCM}_{i,1953}) = & (\beta_{1960} - \beta_{1953})\text{SHR}_{i,1960} + \beta_{1953}(\text{SHR}_{i,1960} \\ & - \text{SHR}_{i,1953}) + (\gamma_{1960} - \gamma_{1953})(\mathbf{REF}_i) + \delta_{1960}\text{MBSHR}_i \\ & + (U_{i,1960} - U_{i,1953}). \end{aligned} \quad (2)$$

Estimated coefficients reflect changes in the coefficients of the level regressions for 1953 and 1960. The results (not shown) indicate that it was reorganization and, to a lesser extent, MBSHR which improved firm performance in the long run as Uekusa (1982) argues and offset the negative effects of the reform. The coefficient on HCLC in this analysis is not significantly different from 0, suggesting only a small decline over time in the absolute level effects of HCLC. This, together with the limited impact of MBSHR in the differenced regression relative to the level regressions, may be interpreted as (indirect) evidence of some Main Bank monitoring mitigating the effects of HCLC even as early 1953, as Okazaki (1993) has suggested (and hence the assumption that MBSHR is time-invariant is inappropriate). While more accurate data on early bank-firm ties are required to test this hypothesis directly, this result implies that firms in the sample with some bank ties in the early 1950s already performed somewhat better than other firms (and hence were more likely to survive until 1960). The gap between firms with a Main Bank and other reformed firms became significant by 1960 with the consolidation of Main Bank ties, as reflected in the cross-section (level) regressions.

4. REGROUPING AROUND MAIN BANKS (MBs)

Main Bank ties evolved gradually in the 1950s as banks became closely involved in restructuring and other operations of client firms, supplied them with capital, acquired ownership stakes, and appointed some of the

client firms' personnel (Suzuki, 1992; Okazaki, 1993). Corporate groups gradually evolved around several leading banks. Miyajima (1994) argues that in view of the diffuse postreform ownership structure and the dissolution of the HCs, close monitoring by the MB became the only mechanism capable of aligning managerial behavior with debt- (and share-) holders' interests. He also suggests that immature capital markets implied that capital was to be supplied largely by financial institutions (rather than the stock exchange), and special ties with a major bank facilitated access to loans by mitigating imperfect information problems between lenders and borrowers. Gerlach (1992) suggests that such ties with a MB were especially important in capital-intensive industries with much need for capital, and for firms with limited access to nonbank capital (nonleading firms).¹⁶ Both Miyajima (1994) and Kiyonari and Nakamura (1980) suggest that the bank's motive in establishing close ties with client firms was the protection of outstanding debt.¹⁷

In order to motivate the empirical tests which follow, consider again a reformed firm, which is run by managers who dissipate some of its profits. The firm can raise capital in capital markets at a cost which reflects its credit worthiness, cash flow, and access to loans from various sources. Alternatively, it may use bank loans and establish a "special relationship" with a major bank. When supplying loans, the bank also acquires a certain interest in the firm and monitors its management in proportion to its equity state in the firm. In this environment, managers will want to establish ties with a MB only if the benefits due to cheaper capital (or larger available quantity) at least offset the decline in managerial freedom. Firm size and possibly profitability and other firm characteristics may influence the firm's access to capital and hence may also affect the desirability of MB ties. The bank would like its monitoring effort to maximize its profits, given the firm's level of debt and the bank's cost of monitoring. When managers "waste" firm resources, the bank is less likely to be paid in full and has an incentive to protect its debt by acquiring a position of influence within the firm. By purchasing shares and appointing directors in the firm, the MB obtains information, reviews firm operations, and reduces managers' ability to avoid debt payments. Given this description of the bank's objec-

¹⁶ The view of MB relations as a solution to information asymmetries between lenders and borrowers has recently been given support by Hoshi *et al.* (1991), and in Montalvo and Yafeh (1993). Miyajima (1994), Suzuki (1992), and other authors suggest that the establishment of Main Bank ties served as an antitakeover mechanism. However, in view of the diffuse postreform ownership structure, free-riding problems of the type described in Grossman and Hart (1980) would have probably made takeovers difficult even without Main Bank ties and cross-shareholding.

¹⁷ In addition, banks may also have been interested in attracting deposits of client firms and their employees (Okazaki, 1993; Teranishi, 1993a).

TABLE V
THE DETERMINANTS OF MB SHAREHOLDING

Estimation method	OLS (5.1)	TOBIT (5.2)	OLS (5.3)	TOBIT (5.4)	OLS (5.5)	TOBIT (5.6)
Constant	Yes	Yes	Yes	Yes	Yes	Yes
HCLC	0.001 (0.012)	0.005 (0.021)	-0.007 (0.012)	-0.007 (0.021)	0.003 (0.013)	0.006 (0.021)
FLOT	1.95 (0.94)	3.20* (1.60)	2.16* (0.89)	3.46* (1.59)	2.18* (0.69)	3.50* (1.53)
ORG	-1.44 (0.96)	-2.78 (1.93)	-1.55 (1.02)	-2.86 (1.89)	-1.38 (1.03)	-2.42 (1.85)
LOSSCAP	1.38 (0.43)	2.03* (0.70)	1.29* (0.45)	1.90* (0.66)	1.17* (0.43)	1.76* (0.62)
CAP51	-0.12* (0.039)	-0.22* (0.09)	-0.096* (0.044)	-0.18** (0.098)	-0.13* (0.04)	-0.24* (1.01)
PWSHR	0.024* (0.012)	0.038** (0.021)	0.024* (0.011)	0.039** (0.020)	0.024* (0.011)	0.038** (0.018)
BNKSHR	0.165* (0.082)	0.20** (0.12)	0.164* (0.068)	0.20** (0.12)	0.71* (0.19)	0.78* (0.35)
CAPINT	0.13* (0.06)	0.29* (0.125)	0.094 (0.072)	0.23** (0.13)	0.103** (0.061)	0.27* (0.13)
PROF53	0.11 (0.07)	0.146 (0.12)				
q			0.83* (0.37)	0.12** (0.60)	0.735* (0.375)	0.993** (0.566)
LENDER1					1.07 (0.86)	0.58 (2.5)
R^2	0.25		0.28		0.37	
Adjusted R^2	0.16		0.19		0.27	
Log likelihood		-172.82		-158.53		-146.14
N	84	84	77	77	72	72

Note. Heteroscedastic-consistent standard errors are in parentheses.

* Significant at a 5% level.

** Significant at a 10% level.

tives, it is likely to have higher benefits when monitoring clients with high capital needs. The bank's cost of monitoring consists of the cost of information gathering and the cost of acquiring an equity stake in the firm which is necessary for effective monitoring and influence on firm behavior. If the bank had access to inside information about the firm through prewar affiliation with the same *zaibatsu*, the cost of information gathering is likely to be lower, and bank monitoring higher. Firm size may affect the level of bank shareholding (and hence its monitoring and influence ability), as it is more costly to acquire a given equity share in a larger firm. This

discussion suggests then that observed levels of bank shareholding (the proxy for bank monitoring effort) will tend to be higher the higher is the firm's need for capital or the higher is the scope for bank loans; it will also be higher if monitoring costs to the bank are low due to prewar ties. Bank shareholding will tend to be lower in larger firms. The firm's ownership structure and profitability may affect the value of MB ties to both the bank and the managers, although the direction of these effects are *a priori* unclear.

Table V presents results of heteroscedastic-consistent OLS estimates of the determinants of MB shareholding, MBSHR. Since bank shareholding is bounded to be between 0 and the legal maximum of 10%, two-sided Tobit estimates are presented as well.¹⁸ Potential bank loans (or capital use of the firm) are measured by CAPINT (SALES53 times a dummy variable for heavy industry).¹⁹ Prewar affiliation with the same conglomerate (or MB informational advantage) is measured as the percentage of shares held by the entire prewar group (PWSHR) or by the percentage of shares held by the same bank before the war (BNKSHR). Firm size is measured as overall capital assets at the end of 1951 (CAP51). Reform variables, HCLC, FLOT, and ORG, are proxies for ownership structure. Profitability is measured as profits on sales as in Section 3.

Generally, the results are consistent with the historical description and the discussion above. MB shareholding tends to be higher in capital-intensive firms; somewhat like their prewar counterparts, the postwar Japanese corporate groups tended to concentrate in heavier, more capital (and technology)-intensive sectors. As suggested above, both firms and banks tend to find MB relations more profitable if the scope of capital use (or loans) is larger.²⁰ The importance of capital needs for MB ties is also evident in the positive coefficient of LOSSCAP: firms which lost more assets during and at the end of the war had higher capital requirements and were more likely to establish MB ties.²¹ Prewar ties are positive and

¹⁸ Probit estimates, based on a dichotomous division of the sample into firms with and without MBs, are also possible and yield results similar to those of the OLS and Tobit regressions.

¹⁹ Assuming a Cobb–Douglas production function, capital expenditures will be (approximately) proportional to sales. Note, though, that in general SALES is hard to interpret, as it is likely to be correlated with capital use (which would make MB ties more desirable) and with liquidity and firm size which would make MB ties less desirable.

²⁰ Including sales of noncapital-intensive firms in the regressions (not shown) does not change this result. Note that the positive coefficient of CAPINT indicates the importance of capital intensity over and above other effects of SALES (liquidity, firm size) which would tend to reduce MB shareholding. If SALES53 is included in the regressions, its coefficient is negative, suggesting that this is not the case for firms in less capital-intensive sectors.

²¹ In addition, banks often helped organize the recovery of firms which suffered severe war-related losses and thus may have gathered more information about them.

significant, indicating the importance of prewar information.²² The effect of firm assets is negative, although it is hard to tell whether this is due to the MB acquisition cost of a desired percentage of shares in larger firms or due to the easier access to alternative sources of capital (such as internal cash flow) by large firms which may therefore be less interested in MB ties. The extent of SCAP ownership reform, HCLC, has an insignificant effect, although as Table IV indicates, reformed firms that did establish ties with a MB seem to have become more profitable. FLOT, the flotation of new shares, is positive and significant, suggesting that the TSE and newly issued shares served as the institution for the ownership transfer from individuals to financial institutions (and corporations). ORG, the organizational reform dummy, is not significant. Finally, there is little evidence that firms which establish ties with a MB tended to have high profits in the early 1950s. Nevertheless, if Tobin's q for 1953 is used as a measure of performance instead of profits, MBs seem to have picked firms with better long-run investment prospects.²³ Overall, the establishment of firm-bank ties is consistent with descriptions of the postreform era as an era of capital scarcity and managerial control of firms.

5. CONCLUDING REMARKS

This paper examines an early attempt at economic reform in postwar Japan. Ownership of a significant part of the economy's capital assets was transferred from its original owners to individuals through administrative measures in order to achieve democratic ownership of capital and competitive markets. Evidence provided for the first time in this paper can be interpreted as indicating that the attempt to guarantee widespread ownership of capital in Japan resulted in poor performance of reformed firms due to divergence of interests between independent managers and many small shareholders whose incentives to monitor managers were greatly reduced by the American reforms. This may have been one of the reasons individuals began selling their shares as soon as the TSE reopened. This paper also suggests that monitoring was provided to reformed firms by a major bank if they joined a corporate group. Firms that established such

²² If prewar ties are measured using a dummy variable which equals 1 if the firm had at least 10% of its shares held by one of the four major *zaibatsu*, its measured coefficient is also positive and significant. Note also that prewar bank shareholding has a larger effect on MSBHR than *zaibatsu* shareholding in general.

²³ However, Miyajima (1994) suggests that bank loans in the early 1950s had an effect on q and on the likelihood of subsequent establishment of MB ties. To the extent that q and profitability in 1953 were affected by early Main Bank relations, the estimates may be somewhat biased.

MB ties are characterized as smaller firms in capital-intensive industries, often with prewar ties to the same conglomerate as the postwar group's MB. The phenomenon of regrouping following the conclusion of SCAP reforms seems consistent with economically rational behavior of both firms and banks.

Drawing specific lessons from the Japanese experience for contemporary reform is beyond the scope of this paper, and yet some preliminary ideas may be in order. In the presence of a stock exchange or some other form of capital market, externally imposed capital ownership patterns are likely to be sustainable only if they are economically viable. Other forms of ownership, even if motivated by democratic ideals, will not be sustainable as individuals will tend to trade their ownership rights. In the case of Japan, the TSE and the *keiretsu* were (to some extent) the mechanisms which enabled market response to an exogenously imposed ownership structure. Similar market responses to nonviable reforms should be expected elsewhere. One possible conclusion, then, may be that the establishment of mechanisms of trade in ownership rights is of greater importance than the formation of any initial ownership structure. Such mechanisms enable the evolution of new forms of ownership which, if necessary, may replace preexisting ownership patterns.

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