Shareholder Monitoring and Regulation: The Japanese Banking Experience

Kenneth A. Kim[*], Sang-Hyop Lee[**],

and S. Ghon Rhee[***]

The views expressed are those of the authors and do not necessarily reflect the official views of the Bank of Korea. When reporting or citing it, the author's name should always be stated explicitly.

[*] School of Management, State University of New York at Buffalo, Buffalo, NY 14260
Corresponding author: Tel: (716) 645-3266, Fax: (716) 645-3283, E-mail: kk52@buffalo.edu.
[**] Department of Economics, University of Hawaii, Honolulu, HI 96822
[***] College of Business Administration, University of Hawaii, Honolulu, HI 96822

The authors thank Rosita Chang, Don Fraser, Akiyoshi Horiuchi, Jun-Koo Kang, Gene Lai, Piman Limpaphayom, Jung Wook Shim, Tim Tyrell, John Wagster, Masahiro Yoshikawa, seminar participants at the University of Wisconsin-Milwaukee, Southern Illinois University at Carbondale, and Hitotsubashi University for comments on earlier versions of this paper. The usual disclaimer applies.

<Contents>

Shareholder Monitoring and Regulation: The Japanese Banking Experience

During a period where Japanese banks operated under a less restrictive regulatory environment, 1986-88, we find positive relations between bank risks and ownership concentration. This empirical evidence suggests that shareholder monitoring is present when the potential return to monitoring is high (the "shareholder monitoring hypothesis"). During the periods before and after this particular period, which are characterized by stricter regulatory environments, we do *not* observe evidence of shareholder oversight. Taken together, these results are consistent with the argument that regulation (an external governance mechanism) and shareholder monitoring (an internal governance mechanism) are substitutes for one another (the "substitution hypothesis"). Finally, tests on bank performance lend supporting evidence to both hypotheses.

Keywords: Large shareholders; Japanese banks; bank risk; shareholder monitoring; regulation

JEL Classification: G21; G28; G32

Ⅰ. Introduction

Researchers contend that regulation and shareholder monitoring are *substitute* governance mechanisms. For example, Demsetz and Lehn (1985) suggest that "systematic regulation restricts options available to owners" and "regulation also provides some subsidized monitoring and disciplining of the management of regulated firms." Therefore, for example, financial firms and utility firms probably do not have active shareholders. Black (1998) also argues that regulation obstructs the potential for effective shareholder oversight. When a firm operates in a regulated industry or environment, the gains to shareholder monitoring may be limited. The implication of these contentions is that an internal governance mechanism (e.g., shareholder monitoring) can be a substitute for an external governance mechanism (i.e., regulation).

Concentrated ownership is often used to identify shareholder monitoring (e.g., Demsetz and Lehn, 1985; Shleifer and Vishny, 1986; La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998). When a public firm's ownership is concentrated into the hands of a few large shareholders, then these large shareholders (who forgo holding diversified portfolios) should have both the desire and the power to monitor the firm's operations and management. Firms with high risk often have large shareholders, as the payoff potential to shareholders is larger with riskier firms (Demsetz and Lehn, 1985). In empirical tests, Demsetz and Lehn (1985) find that firms in regulated industries have lower ownership concentrations. For unregulated firms, they find the relation between ownership

concentration and firm risks to be positive. Their finding that ownership concentration and regulation are negatively related supports the "substitution hypothesis". Their finding that ownership concentration and firm risks are positively related supports the "shareholder monitoring hypothesis".

Other researchers find support for the substitution hypothesis. Kole and Lehn (1999) find that controlling shareholders in the U.S. airlines industry instituted numerous governance mechanisms after the industry was deregulated. Anderson and Fraser (2000) study U.S. banks during more regulated and less regulated periods and find managerial shareholdings and risk-taking are positively related only during the less regulated period. Konishi and Yasuda (2004) study risk-taking by Japanese banks after its capital adequacy requirement was increased. They find that risk-taking by the banks' stable shareholders declined after the capital adequacy requirement was increased. All of these papers' findings can be viewed as being consistent with the substitution hypothesis. Owners are more active when there is less regulation. Booth, Cornett, and Tehranian (2002) find that two *internal* governance mechanisms, board quality (proxied by the fraction of independent directors) and officer/director stock ownership, are substitutes for each other. However, for regulated industries (banks and utilities), they find that independent boards and officer/director stock ownership are not substitute governance mechanisms. Therefore, they also contend that an external governance mechanism (i.e., regulation) serves as a substitute for internal governance mechanisms (i.e., independent directors and stock ownership).

La Porta et al. (1998) conduct a cross-country test of the substitution hypothesis. They find that firms in countries with relatively weak shareholder protection laws have relatively high ownership concentrations, which supports the substitution hypothesis – shareholders look out for their own interests when laws do not. Caprio, Laeven, and Levine (2003) also conduct a cross-country test while specifically focusing on the relation between bank governance and bank value. They find that banks in countries with strong legal environments are often widely held, which is consistent with La Porta et al. (1998) and the substitution hypothesis.[1]

In general, the literature has tested the substitution hypothesis in one of three ways. Papers have either (1) contrasted periods before and/or after a change in the regulatory environment (e.g., Kole and Lehn, 1999; Anderson and Fraser, 2000; Konishi and Yasuda, 2004), (2) contrasted firms from regulated industries to firms from nonregulated industries (e.g., Demsetz and Lehn, 1985; Booth et al., 2002), or (3) contrasted the internal governance of firms from countries with different regulatory environments (e.g., La Porta et al., 1998; Caprio et al., 2003), We offer additional evidence on the substitution hypothesis taking the first approach mentioned above. However, in our paper, we study an industry that experiences a significant deregulation,

[1] González (2005) studies bank risk-taking in 36 countries and argues that the relation between bank risk-taking and bank regulation is conditioned on the bank's charter value. To test his hypothesis, he uses a market-to-book ratio of total assets as a proxy for the bank's charter value and interacts it with a high regulation dummy when explaining bank risk-taking. He finds risk-taking is higher when regulatory restrictions are higher, but primarily when charter values are low. Barth, Caprio, and Levine (2004) study bank regulations from more than 60 countries and find that banks in less regulated countries have a higher probability of suffering a major banking crisis. They also study bank ownership, but their focus is on state-ownership, which they find is harmful to the financial system.

and then experiences a significant increase in regulation (we will discuss other aspects of our study that differentiates our study from others, shortly). Therefore, we will be able to test the substitution hypothesis surrounding two shifts (in opposing directions) in the regulatory environment, within the same industry. Specifically, we study large shareholders of Japanese banks under three different regulatory regime periods. According to the substitution hypothesis, when deregulation occurs we should observe oversight by large shareholders, which, in turn, implies a positive relation between bank risk and ownership concentration during the deregulated period. When an increase in regulation subsequently occurs, then the positive relation between risk and ownership concentration is expected to disappear.[2]

The Japanese bank environment during the mid-to-late 1980s provides an excellent setting to examine the relation between regulation and shareholder oversight. In 1986, Japanese bank regulators lowered the bank capital adequacy ratio requirement and increased deposit insurance. These two significant changes potentially create a flexible and conducive environment for bank shareholders to exercise oversight. A lower capital ratio requirement and higher deposit insurance give banks more freedom and ability to engage in value maximizing activities. In 1988, however, the Bank for International

[2] There are at least three dimensions to private (i.e., internal) monitoring: (i) ownership structure, (ii) boards of directors, and (iii) executive compensation contracts. Prowse (1992) finds that large owners of nonfinancial Japanese firms are active monitors of firm-specific risk, while Kang and Shivdasani (1999) find that board composition of nonfinancial Japanese firms is *not* related to firm-specific risk. Due to these prior findings for nonfinancial Japanese firms, we only focus on ownership concentration as a potential internal monitoring mechanism for Japanese banks. An effective incentive-inducing compensation contract is another viable mechanism used to motivate managers to monitor risk and to engage in profit-maximization. However, under the Japanese Commercial Code, executive stock options only became available in the mid-1990s.

Settlements (BIS) passed the Basle Accord that required a specific minimum capital ratio for all member banks. For almost all Japanese banks, this meant a significant increase in their capital ratios (Wagster, 1996). As a result, this "tighter" regulatory regime after 1988 may have diminished the incentives for bank shareholders to be active. The Japanese experience before, during, and after 1986-1988, therefore, offers a unique opportunity to examine the impact of regulation on shareholder oversight.

We form three periods to conduct our hypothesis tests. Specifically, we examine the 3-year periods from 1983 to 1985, from 1986 to 1988, and from 1989 to 1991. The first and last 3-year periods represent periods before and after the less restrictive regulatory "event period," 1986-1988. According to the substitution hypothesis, the period 1986-1988 represents the only period where the less restrictive regulatory environment could have allowed shareholder oversight to matter in an economically meaningful sense, and thus for shareholder monitoring to take place. To test this hypothesis, we empirically identify the relation (using regression analyses) between ownership concentration and bank-specific risk during the 1986-88 period. A positive relation would reveal monitoring by large shareholders. (There is an issue as to which, ownership or risk, should be the dependent variable. Because our focus is on monitoring, we treat ownership structure as the dependent variable, consistent with the *monitoring* literature (e.g., Demsetz and Lehn, 1985; Grossman and Hart, 1986; La Porta et al., 1998). We will discuss this issue in greater detail later.) Consistent with the monitoring hypothesis, we find a positive relation between ownership and risk during the 1986-88

period. This positive relation does not exist in the prior period, 1983-1985. With the introduction of the Basle Accord in 1988, however, it marks the beginning of a stricter regulatory environment. Consequently, during this latter period, from 1989 to 1991, we find that the positive relation between ownership concentration and bank risk virtually disappears.[3]

We also examine the relation between shareholder concentration and bank performance. Economic incentives are an important driving force behind shareholder oversight.[4] For banks in particular, Barth et al. (2004) suggest that strict banking regulations may limit bank agents from exerting corporate control that would promote bank profitability. We expect that Japanese bank shareholders that become active when the regulatory environment becomes less restrictive will be the most profitable. Consistent with our expectation, our empirical results reveal a stronger positive relation between ownership concentration and bank performance (accounting profits) during the less restrictive regulatory environment (1986-88) when compared to the other periods.

Overall, the observed relations between bank risk and ownership concentration and between ownership concentration and bank performance, during the less restrictive regulated period and more regulated periods, lend support for the substitution hypothesis

[3] It is important to note that the substitution hypothesis does not necessarily imply that ownership structure will change from one period to the next. Instead, the hypothesis implies that the relation between ownership concentration and bank risk will change.

[4] There are many papers that claim that "good" governance can lead to higher valuations and/or profitability. For example, Black, Jang, and Kim (2005) is a good recent paper and Morck, Shleifer, and Vishny (1988) is a classic paper that make this claim. However, there are some papers that contend there is no relation between governance and firm value (e.g., Demsetz and Villalonga (2001) and Demsetz and Lehn (1985) are

and the shareholder monitoring hypothesis. That is, regulation and shareholder monitoring appear to be substitute governance mechanisms. During a less restrictive regulatory period where the capital ratio requirement was decreased and deposit insurance was increased, shareholder monitoring was present in banks with greater risk, and those shareholder-monitored banks captured more profits than other banks. Because we focus on a single industry that experiences a significant decrease in regulation and then a significant increase in regulation, our findings provide important additional empirical support for the thesis that shareholder oversight and regulation substitute for one another.

Our paper is most similar to Anderson and Fraser (2000) and Konishi and Yasuda (2004). The first paper examines the relation between managerial shareholdings and risk-taking during more and less regulated periods for the U.S. banking industry. The second paper studies stable shareholders and risk-taking after a higher capital adequacy ratio was imposed in Japan. Though their papers and our paper study bank risk and bank ownership, theirs focus on risk-taking, while ours focuses on monitoring. Their papers rely on capital market measures of risk (i.e., the variance of stock market rates of returns). In our study, in addition to stock return variance, we introduce additional risk measures specific to the banking industry such as write-offs for loans losses, a data item that is typically difficult to obtain. In addition, we also study the relation between ownership and profitability. Finally, while our paper studies Japanese banks, as Konishi and Yasuda (2004) do, we conduct cross-sectional tests during different periods, with some emphasis on the

representative of a good recent paper and a classic paper, respectively).

deregulated period, while they conduct a time-series test focusing more on the regulated period. Overall, we believe we are offering important additional empirical evidence on the substitution hypothesis.

The rest of our paper is organized as follows. The next section describes the regulatory environment for Japanese banks. Section 3 discusses our data and empirical design. Section 4 presents the empirical results and Section 5 concludes.

Ⅱ. The Japanese Regulatory Environment

Throughout the 1960s and 1970s, Japan's banking structure was characterized by strict regulation.[5] During the early 1980s, however, Japan underwent significant financial markets deregulation, which included the relaxation of bank lending practices (Marsh and Paul, 1997). Throughout the rest of the 1980's, the Japanese banking environment continued to experience distinct regime shifts characterized by significant changes in its regulatory environment. We describe the most salient changes that occurred during this time period, and their potential implications on shareholder behavior, in the following subsections.

1. Changes in 1986: Capital Adequacy and Deposit Insurance

In 1985, the Financial System Research Council, under the Ministry of Finance,

[5] See Kitagawa and Kurosawa (1994) for an excellent overview of the history of Japanese bank egulation.

recommended significant revisions to the capital ratio. Traditionally, capital was viewed as security on deposits, but the Council suggested that capital should be viewed as the last reserve to prevent asset deterioration (Sasaki, 1994). In light of this recommendation, the Ministry of Finance re-evaluated the capital adequacy requirement and made major revisions that took effect in May 1986. Originally, the capital ratio was based on a capital-to-deposit ratio and was set at 10 percent. Under the new requirement, the ratio became a capital-to-asset ratio and was set at 4 percent, but 70 percent of hidden reserves was allowed as capital (Sasaki, 1994). Hidden reserves are unrealized capital gains on equity that Japanese banks carry at cost on their books. Wagster (1996) finds that in 1987, Japanese banks' capital-to-assets ratio was 12.35 percent when including hidden reserves, but only 2.11 percent without including these hidden reserves. Prior to 1986, banks were usually undercapitalized, but by allowing hidden reserves into the capital ratio, banks suddenly became overcapitalized. Therefore, in effect, 1986 represents a year in which significant deregulation took place in the Japanese banking industry. As a result, bank shareholders gained additional flexibility, as the regulatory capital adequacy ratio requirement became easier to manage.

In addition to the relaxing of the capital ratio requirement, another major event that took place in 1986 was the raising of the Japanese banks' deposit insurance. The Deposit Insurance Corporation raised deposit insurance, to a single depositor, to 10

million yen from its original 3 million yen.[6] This 233 percent increase is higher than the increase that occurred in the United States in 1980 where it went from $40,000 to the current $100,000. An increase in deposit insurance is a particularly relevant event for our study because it is well known that deposit insurance provides banks with risk-taking incentives.[7] As specifically stated by Wheelock and Kumbhakar (1995), "deposit insurance subsidizes risk-taking, therefore, creating a 'moral hazard' in that banks with insured deposits will find it optimal to assume more risk than they would otherwise." Therefore, in the context of higher deposit insurance, shareholders may encourage bank management to engage in more risk taking (Crawford, Ezzell, and Miles, 1995). At the same time, shareholders will voluntarily expend a monitoring effort because if the risk pays off, then they are the ones that ultimately enjoy the benefits, while losses are limited to the little equity that exists. Consequently, these contentions suggest that some Japanese bank shareholders (those that can best respond to the costs and benefits of monitoring) will engage in more risk-taking after the 1986 increase in deposit insurance. In fact, Benston (1986) and Kane (1985) argue that the increase in deposit insurance that occurred in the U.S. contributed to additional risk-taking during the 1980s.[8]

[6] With the enactment of the Deposit Insurance Law of 1971, the Japanese Deposit Insurance Corporation was established and modeled after the U.S. Federal Deposit Insurance Corporation (Tatewaki, 1991).

[7] Refer to Demirgüc-Kunt and Kane (2002), Noe, Rebello, and Wall (1996), Keeley (1990), Kareken and Wallace (1978), Merton (1978), and Sharpe (1978).

[8] Saunders, Strock, and Travlos (1990) empirically confirm the Benston (1986) and Kane (1985) argument by showing that banks engaged in high levels of risk-taking during the period surrounding the passage of the 1980 Depository Institutions Deregulation and Monetary Control Act (DIDMCA). One of the provisions of the Act increased deposit insurance from $40,000 to $100,000. Other evidence regarding consequences to the

Overall, the period immediately following 1986 represents a less restrictive regulatory period and, consequently, it also represents a period of optimal risk-taking and "control potential" (or payoff potential) to those that can provide internal monitoring. Therefore, according to the substitution hypothesis, it is during this period where we should observe shareholder oversight. However, the 1988 Basle Accord later imposed regulations on Japanese banking that may have constrained and limited the returns to shareholder oversight. We discuss this issue in more detail in the next subsection.

2. The 1988 Basle Accord

The 1988 Basle Accord imposed international standards on bank capital requirements.[9] The overall goal was to reduce risk in the international banking system by regulating bank capital for all member countries, which included the G-10 countries along with Switzerland and Luxembourg. However, as pointed out by Wagster (1996), the ulterior motive behind the Accord was to eliminate the funding-cost advantage of Japanese banks. Before the establishment of the Accord, it was well known that Japanese banks enjoyed lower capital ratios (when excluding hidden reserves) than their international counterparts. In this paper, we argue that the additional regulatory presence created by the Accord and required increase in bank equity led bank stockholders to

1980 change in deposit insurance includes Allen and Wilhelm (1988) and Cornett and Tehranian (1989). These papers conduct event-studies and find positive returns to Federal Reserve System member banks.

[9] See Montgomery (2005), Hall (1993), Wagster (1996), and Marsh and Paul (1997) for detailed overviews on the Basle Accord.

become less active – that is, the Accord, by enforcing capital standards, provides subsidized monitoring. This idea is similar to a proposition put forth by Besanko and Kanatas (1996) where they argue that higher capital requirements will lead to a decrease in effort by bank managers. Recently, Konishi and Yasuda (2004) provide some empirical support for this contention. They find decreases in Japanese bank risk-taking following the Accord.

The Basle Accord raised the capital standard to 8 percent and it was to be met by March 1993. This was complemented with a Ministry of Finance revision to the capital ratio that was to take effect by 1991. By 1991, banks were to achieve at least a 4 percent ratio of capital-to-assets *without* including hidden capital (Kester, 1991). In response to the increase in the capital adequacy requirement, several observations have been noted. Kester (1991) and Sasaki (1994) find that banks primarily met the new capital ratio requirement by issuing new equity between January 1988 and June 1989. When banks are forced to increase equity, however, they may be moving away from their optimal capital structures, and their ability to capture subsidies from deposit insurance may diminish. Horiuchi and Shimizu (1998) observe decreases in loans made by Japanese banks which led to increases in the capital ratio. Hall (1993) argues that Japanese banks reduced their loans to businesses during the period 1990-93 to reduce the amount of risky assets they had on their books in order to maintain appropriate capital levels. Montgomery (2005) makes a similar observation. She finds that banks shifted away from loans and corporate bonds in their portfolios and shifted toward government bonds. Marsh and Paul (1997)

observe a slightly different outcome. They argue that some banks responded to the higher capital requirements by increasing their risky lending to capture more retained earnings as a way to meet the capital requirements. However, they also argue that owners lost the incentive to ensure profitability under a higher capital requirement regime. Therefore, the Marsh and Paul (1997) findings reveal a perverse result: riskier lending practices without complementary monitoring.

3. The Shareholder Monitoring Hypothesis and the Substitution Hypothesis

Based on our discussion, we examine three periods: 1983-85, 1986-88, and 1989-91. Due to (1) the decrease in the capital adequacy requirement and (2) the increase in deposit insurance that occurred in 1986, we argue that 1986 represents the first year when the regulatory environment was flexible and conducive for bank shareholder oversight to take place. However, we also argue that the passage of the Basle Accord that occurred in 1988 marks the end of this brief era. Based on our contentions, we expect the following results. First, we should observe a significant positive relation between bank-specific risk measures and ownership concentration (i.e., the shareholder monitoring hypothesis) for the period from 1986 to 1988. That is, when the regulatory environment is less restrictive, then shareholders become more active (i.e., the substitution hypothesis). Second, we should also observe a significant positive relation between bank profitability and ownership concentration for the same period from 1986 to 1988. When the nature of the regulatory environment shifts, we expect owners and their risk-taking to respond

optimally (depending on the specific period transition) at the firm level in response to the profit opportunities that exists. Finally, for the periods before and after the 1986-1988 period, which are periods characterized by stricter regulation, we do not expect to see positive relations between ownership concentration and bank risk, and between ownership concentration and profitability, as regulation provides subsidized monitoring and restricts banks' activities and flexibilities. The following section discusses how we conduct our empirical tests.

Ⅲ. Data and Empirical Design

In our study, we test the relation between bank risk and ownership concentration by using ordinary-least-squares (OLS) regressions. We use ownership concentration as a dependent variable using three distinct measures of bank risk as explanatory variables. At this point, we should mention that some papers use bank risk as a dependent variable and ownership structure as an explanatory variable. However, because our hypothesis is based on the relation, not necessarily the directional causation, between risk and ownership, and, perhaps more importantly, because our paper's focus is on "monitoring," we treat ownership concentration as a dependent variable and various measures of risks as explanatory variables, which is consistent with the monitoring literature (we will discuss this issue again shortly).

The relation between ownership concentration and risk can be confounded by the

bank's charter value. Therefore, we include a proxy for charter value in the regression model as an important control variable. We also employ firm size as another control variable, as it has been suggested by prior research as being directly related to ownership concentration. In subsequent tests of the structural change between periods, we pool our data and include period dummies. Finally, in tests on bank profitability, we include a keiretsu dummy variable. Keiretsu banks are able to capture "rents" from their client firms, and as such they should be more profitable than other banks. A more detailed discussion of our dependent and explanatory variables follows.

1. Dependent Variables: Ownership Concentration and Profitability

Bank ownership data is collected from the Japan Company Handbooks, published by Toyo Keizai Inc., from 1983 to 1991. This source identifies the top six to top ten shareholders based on their percentage ownership. For 1991, there are 65 banks in our sample.[10] Consistent with Demsetz and Lehn (1985) and Prowse (1992), we use the following measure of ownership concentration:

$$LTOP6 = \log[TOP6/(100-TOP6)].$$

[10] Our sample includes all commercial banks that include both city banks and regional banks. The distinction between the two types of banks is based solely on the location of their headquarters. In our study, when we distinguish between these two bank types, we find that it does not affect our findings.

TOP6 represents the concentration of ownership of the top six largest shareholders.[11] The log transformation is calculated to create an unbound dependent variable.

To ensure the robustness of the LTOP6 results, we also employ the following alternative ownership concentration measure:

$$LHERF = \log[HINDEX/(1-HINDEX)].$$

HINDEX is the Herfindahl index, which is calculated in the following manner: the percent ownership stakes of each of the top six largest shareholders are individually squared and then summed. LHERF is used in regressions where ownership concentration is a dependent variable.

We are well aware that some papers that examine the relation between risk and ownership concentration treat risk as the dependent variable (recent papers that do this include Anderson and Fraser (2000), Konishi and Yasuda (2004), and González (2005)). However, how one thinks of the relation between bank risk and ownership concentration depends on one's viewpoint (see Saunders, Strock, and Travlos, 1990, page 645). Demsetz and Lehn (1985) and Grossman and Hart (1986) point out that ownership concentration is endogenous to firm-specific factors. That is, some firms, such as riskier firms, need monitoring owners. Therefore, empirical papers that study ownership monitoring have treated ownership structure as a dependent variable (e.g., Demsetz and Lehn (1985), Holderness, Kroszner, and Sheehan (1999), and La Porta et al., (1998)). Because our paper treats owners as monitors of risk rather than as risk-takers, we allow

[11] In almost 10 percent of the observations, there was a tie for fifth place. Using TOP6 completely eliminates

ownership to be the dependent variable. Note also that our paper is more focused on the relation between risk and ownership concentration rather than on the direction of causality.[12]

In subsequent analyses, bank profitability is a dependent variable and it is calculated as net income to book equity (ROE). We use accounting profits as our measure of bank profitability rather than stock market rates of return because, as stated by Demsetz and Lehn (1985), stock market returns adjust for any divergences between the interests of management and owners, while accounting measures do not. Smith (1996) and Weisbach (1988) also make similar claims in stating a preference for using accounting profit to identify the effects of active governance. Stock market valuations reflect the market's present valuation of long-run returns, while accounting returns reflect the immediate effect of shareholder oversight.

2. Explanatory Variables

The financial statements data and stock returns data used in this study are retrieved from the PACAP Database-Japan.[13] To test for the relation between bank risk and ownership concentration we employ three distinct, but most commonly cited measures of bank risk. Prior literature provides justification for each measure as an appropriate proxy

any potential problems that ties might introduce.

[12] Incidentally, the results remain qualitatively the same when risk is the dependent variable.

for bank risk. A discussion of each bank risk variable, and a discussion of our control variables, is provided below.

A. Bank Specific Risk Measures

The variance of stock returns (VRET) is a commonly used measure of bank risk (e.g., Demsetz and Lehn (1985), Saunders, Strock and Travlos (1990), Houston and James (1995), among others). Demsetz and Lehn (1985) state that stock return volatility measures the instability of the firm's environment. In fact, Saunders, Strock, and Travlos (1990) state that stock return variance is the most appropriate indicator of risk for commercial banks. Similar to Houston and James (1995) and Anderson and Fraser (2000), we also use the variance of daily stock returns (VRET) and we calculate this for each year.[14] We expect a positive relation between stock return volatility and ownership concentration. If stock return variance is high, then shareholder monitoring should be present.

The equity to asset ratio (EA) is also one of the most commonly used proxies for bank risk-taking. When equity levels are low, bank risk is high because capital represents collateral against bank liabilities and protects banks from insolvency when asset values

[13] PACAP Database-Japan is created in cooperation with Daiwa Institute of Research and Toyo Keizai.
[14] We have also considered various forms of firm-specific risk derived from market models, such as standard errors or betas, but including these risk measures would represent a dual test of our hypothesis and of the capital asset pricing model for banks. In addition, Saunders, Strock, and Travlos (1990) specifically state that stock return variance represents a superior risk measure to beta.

decline.[15] Conservative owners or managers will maintain high levels of capital. Barth, Bartholomew, and Bradley (1990), Cebenoyan, Cooperman, and Register (1995), and Knopf and Teall (1996) suggest that these capitalization ratios are also a good measure of thrift risk-taking. Gibson (1995) also uses the capital ratio as a proxy for bank risk-taking in his study of Japanese banks. Using annual observations, we calculate the capital ratio (EA) as the total value of book equity to the total value of book assets.[16] Because a low capital ratio reflects high bank risk, we expect a negative relation between the capital ratio variable and the ownership concentration variable.

Finally, we also use write-off for loan losses (WR) as a measure of bank risk (Gorton and Rosen, 1995). Most empirical studies are unable to use this risk measure due its unavailability (Sharpe (1994) makes a similar contention). When borrowers default on their bank loans, banks will write off these defaults on their balance sheets. For our write-off measure (WR), we use the ratio of total write-offs to total investments, loans, and receivables.[17] Because a higher amount of write-offs reveals risky lending behavior, we expect a positive relation between the write-off variable and the ownership concentration variable. The next subsection discusses control variables.[18,19]

---

[15] See Pringle (1974), Santomero and Watson (1977), Taggart and Greenbaum (1978), Buser, Chen, and Kane (1981), Marcus (1983), and Houston and James (1995).

[16] We discuss results using variants of our capital ratio measure later in the paper.

[17] We discuss results using variants of our write-off ratio measure later in the paper.

[18] Houston and James (1995) and Knopf and Teall (1996) provide additional discussions on financial institution risk measures that are employed in our study.

B. Control Variables

If the bank's charter value is high, then bank shareholders may own more of the bank's stocks. Therefore, a bank's charter value may represent an important explanatory variable for ownership concentration. In addition, because banks with high charter values have low risk, as risk-taking might jeopardize high charter values (Keeley, 1990; Anderson and Fraser, 2000; Konishi and Yasuda, 2004; González, 2005), it implies that some large shareholders may be present in banks with low risk. That is, a bank's charter value could confound the hypothesized positive relation between risk and ownership concentration. To control for these possibilities, we include a dummy variable equal to one if the bank has a "high" charter value (i.e., above the median charter value) in the ownership concentration regression. Our measure of charter value follows Keeley's (1990) adaptation of Tobin's Q, which is calculated as the sum of the market value of equity plus the book value of liabilities divided by the book value of assets. This measure of charter value (KEELEYSQ) is also used in Anderson and Fraser (2000) and Konishi and Yasuda (2004).

The natural log of the market value of equity represents our proxy for firm size (LMVE). Larger firms will have lower ownership concentrations simply because, as succinctly stated by Prowse (1992), "the larger the firm, the greater is the cost of obtaining a given fraction of ownership." What this implies is a wealth constraint. However,

[19] It has been suggested that the degree of derivative exposure would represent another excellent measure of bank risk. However, a developed derivative market does not exist in Japan. Japanese banks may invest in the U.S. derivative market, but we do not have this data.

Prowse (1992) argues that institutional investors are *not* wealth constrained. To verify his contention, Prowse (1992) examines a sample of firms with high institutional ownership and finds *no* significant relation between firm size and ownership concentration. In our bank sample, we observe that large shareholders of banks are institutional investors. Therefore, we also predict no significant relation between bank size and ownership concentration. Consistent with Prowse (1992), this would reveal that large shareholders are not wealth constrained.

We use dummy variables, PERIOD1 and PERIOD3, to represent the periods 1983-85 and 1989-91, respectively. We include these period dummies, and interactions with these dummies, when we pool our data to include all periods in order to assess the statistical significance of any structural changes. In our profitability tests, where ROE is a dependent variable, we also include a keiretsu dummy variable (KEIRETSU) equal to one if the bank is one of the keiretsu main banks. Keiretsu banks are known to extract rents from their client firms (Weinstein and Yafeh, 1998). In exchange for maintaining close relationships with client firms, keiretsu banks "pressure" client firms to maintain high levels of bank debt at high interest rates (Weinstein and Yafeh, 1998). Therefore, keiretsu banks are likely to be more profitable than other banks.

[Insert Table 1 Here]

All variables that are employed in this study are described in Table 1. Summary statistics are also reported in the table. The six largest shareholders (TOP6) own, on

average, 18.415 percent of the banks in our sample. The standard deviation is 4.294 percent (the table presents log transformations of these ownership statistics).[20] The mean ROE of 7.3 percent shows that Japanese banks were profitable during the 1980s. The low 3.2 percent equity ratio reflects the low level of capital that Japanese banks were known to maintain during this time period. We also see that these banks had relatively little write-offs during this period (the WR variable is adjusted by 10^3 for presentation purposes), which is in contrast to what these banks would experience during the subsequent 1990s. Approximately 10.5 percent of our bank-year observations are keiretsu banks.

Ⅳ. Regression Results

1. Ownership Concentration

In Table 2, we present OLS regression results examining the relation between risk and ownership concentration for each period. LTOP6 and LHERF are the dependent variables, and our three risk measures are the key explanatory variables. From these results, we see that all three bank-risk variables are significant with the correct signs *only* during the middle period from 1986 to 1988, regardless of which ownership concentration

[20] The banks' ownership "composition" is quite homogenous. Insurance companies are invariably the primary large shareholders of banks followed by other financial institutions (which consists of other banks and long-term credit banks), and nonfinancial corporations. There are no cases where an inside shareholder, or any individual, is among the top six shareholders. Due to the observed homogeneity with regard to the banks' ownership composition, we do not report separate results by owner-*type*. Prowse (1992) finds that when Japanese financial institutions (including insurance companies) are large shareholders then they are active monitors. Kim and Nofsinger (2005, page 220) find that Japanese institutional owners (in particular, financial institutions such as insurance companies and nonfinancial corporations) are equally active in their investing behavior.

variable is used as the dependent variable. When volatility of bank stocks is high, when bank equity is low, and when write-off for loan losses is high, the relation between bank risk measures and ownership concentration is strong.[21] During the middle period, the three risk measures are not only significant, but they also have larger parameter coefficients (for the most part) as compared to the other periods, suggesting that the relation between ownership concentration and risk is most sensitive during the middle period. To ensure the robustness of these results, we also conduct several specification checks, including the consideration of several alternative measures of EA[22], and by deflating write-offs (WR) by total loans only. However, regardless of how we measure risks, the findings remain qualitatively the same.[23]

Thus far, our empirical results support the shareholder monitoring hypothesis. When risk is high, there will be more control potential and higher payoff potential accrued, and, as a result, shareholders will maintain a significant ownership presence to facilitate oversight and to enjoy the potential payoff from their risk-taking. In addition, the fact that the relation between ownership and risk is strongest for the 1986-88 period lends support

[21] Even though three proxies of bank risk-taking are introduced in a regression model, we confirm that multicollinearity is *not* affecting our parameter estimate results on the basis of a variance-inflation-factor (VIF) test. We also execute a two-factor model using each risk measure and our LMVE control variable. The results are qualitatively the same as those of our multiple regression model. In addition, we also conduct our analysis using intra-firm means of all variables. However, the drastically reduced sample size and statistical power of this analysis leads to increases in significance levels of our parameter estimates.

[22] See Pettway, Kaneko, and Young (1991) for a discussion on calculating these alternative ratios.

[23] We initially include year dummies in each regression model, but these dummies are statistically insignificant and they had no material affect on the other results. Therefore, we do not report results that include year dummies. In tables where the observations are pooled from across all of our sample periods,

to the substitution hypothesis, that shareholder oversight emerges when regulatory scrutiny diminishes. An additional noteworthy observation: while it may not be surprising that the market-based measure reacted as it did, given our hypotheses, it is somewhat impressive that the accounting based measures also show up as significant given the short 1986-88 period. Therefore, we view our evidence supporting the substitution and monitoring hypotheses as being quite strong. Finally, it is also noteworthy that the R^2 and F-statistics are highest during this middle period and that the risk variables are jointly significant *only* during the middle period (the F-statistics for the risk measures are statistically significant at the 1 percent level).[24]

[Insert Table 2 Here]

Charter value (KEELEYSQ) is not significantly related to ownership concentration for any subpeiod. Just as important, whether or not we include charter value in the regression model does not affect the reported empirical relation between ownership concentration and risk. Therefore, while charter value and risk may be negatively related to each other, their potential relation does not seem to confound the relation between ownership and risk. In additional tests where charter value and risk are used as interaction variables, the results again do not qualitatively differ from what is reported.

---

however, we report results with and without year dummies.

[24] We also restricted our sample to banks that had available data for every period. This restriction ensures that differences in results among the periods are due to regulatory changes and *not* due to the comparison of a different mix of banks. Overall, the regression results of the restricted sample are qualitatively similar to the reported results, but due to the issue of survival bias we do not report them.

The bank size variable (LMVE) is not statistically significant for any period. The insignificant LMVE finding is consistent with prior literature. When the largest owners are institutional shareholders, as is the case for our bank sample, then we should observe no significant relation between firm size and ownership concentration because institutional shareholders are usually not wealth-constrained (Prowse, 1992).[25]

In order to assess the structural stability of the relation between ownership concentration and risk, we conduct additional analyses. Our procedure for conducting this important robustness test is as follows: We pool the data to include all periods and we test to see if there is a statistically significant structural *change* in the ownership-risk relation over the periods.[26] For this purpose, we include dummy variables for the periods 1983-85 (PERIOD1) and 1989-91 (PERIOD3) as explanatory variables, and we interact these dummy variables with our risk measures. The base category is the middle period, 1986-88. Table 3 presents these results.

[Insert Table 3 Here]

The first and third columns of results from Table 3 show model estimates without year dummies, and the second and fourth columns show estimates with year dummies.

[25] We should also mention that Prowse (1992) shows that keiretsu nonfinancial firms and independent nonfinancial firms have different governance structures. However, we are not sure if his findings imply that keiretsu banks and nonkeiretsu banks will have different ownership concentrations, as banks are often the primary monitors of both keiretsu and independent nonfinancial firms in Japan. In an unreported table, we included a keiretsu dummy into the regression models and we find that the dummy is not statistically significant. Because keiretsu banks and nonkeiretsu banks appear to have similar ownership concentrations, and because we also find that the keiretsu dummy variable is highly correlated with the bank size variable (the correlation coefficient is over 0.7), we choose not to report the keiretsu dummy result.

[26] The period dummy interaction model is similar to a Chow type test. However, the dummy variable approach might show the source of the structural change more easily [Wooldridge (2006)].

The inclusion of year dummies may represent an important sensitivity check in our model given that we are pooling nine years of data; hence year dummies can potentially capture the effects of year-specific macroeconomic shocks. From the first column of results, we see that the parameter coefficient on the volatility variable (VRET) is positive and significant, consistent with Table 2, and that the period interaction terms with VRET are all negative. The interaction variable VRET*PERDIOD3 by itself is statistically significant at the 5 percent level, and both interactions are jointly significant at the 10 percent level. These results again suggest that the positive relation between VRET and ownership concentration is strongest in the middle period.

The equity ratio variable (EA) is again negative, as in Table 2. As expected, the period interaction terms with the EA variable are generally positive, albeit they are not statistically significant. Finally, the write-off variable (WR) is again positive, as in Table 2. As expected, the interaction terms with WR are negative, but only the WR*PERIOD1 interaction is statistically significant. This result suggests that the ownership-risk results become significantly stronger for the WR measure when moving from period 1 to period 2. All of the interaction results remain qualitatively the same when we include year dummies (columns 2 and 4) and when we use LHERF as the dependent ownership variable (columns 3 and 4). Overall, based on the strong pattern of "correct" signs on the period interaction

terms, the pooled regression models indicate that the ownership-risk relation is strongest under the less restrictive regulatory environment from 1986 to 1988.

2. Profitability

In this section, we provide some additional results on shareholder oversight by looking at bank performance (profitability). According to our hypothesis, we would expect banks with active shareholders to be the most profitable under the less restrictive regulatory environment from 1986 to 1988. To empirically examine the ability of large bank shareholders to improve profitability, we use LTOP6 as an explanatory variable in a regression model that uses accounting profits (ROE) as a dependent variable.[27] If shareholders engage in profit maximizing behaviors during 1986-88, then the relation between ROE and LTOP6 should be most sensitive during this middle period as compared to the other periods.

Along with the ownership variable (LTOP6), we control for other factors that are related to bank profits. Specifically, we use write-offs (WR) as a risk variable.[28] We also include the bank's charter value (KEELEYSQ) as an important control variable. Banks with higher charter values are likely to have higher accounting profits, and this might be especially true during more heavily regulated periods where banks have less freedom to

[27] See section 3.1 for a discussion on using accounting profits (ROE) as our measure of bank profitability as opposed to market measures such as stock returns.

engage in a range of their own activities leaving factors such as charter value as potentially having greater explanatory power on performance than otherwise. Because keiretsu banks can capture rents from their client firms (see our discussion in subsection (Ⅲ.2.B), we also include a keiretsu dummy variable (KEIRETSU). We also consider including LMVE as a control variable, in order to capture any economies of scale effects, however, as mentioned earlier (in footnote 25) the correlation between the keiretsu dummy variable and the LMVE variable is very high (over 0.7). In determining which of these two variables to use, we decided to go with the KEIRETSU dummy variable as the keiretsu banks' ability to capture rents is well-established in the academic literature (e.g., Weinstein and Yafeh, 1998).

In Table 4, we present regression results on the relation between accounting profit and ownership concentration. For all periods, the ownership concentration variable (LTOP6) is positively related to profitability. However, the estimated coefficient is largest in the middle period, suggesting that ROE responds to LTOP6 most sensitively under a less restrictive regulatory environment.[29] This finding again lends support to the substitution hypothesis. When the regulatory environment is less restrictive, shareholders will exert more active oversight as the potential gains to control and oversight are larger.

[28] The write-off amount is not directly related to reported profits, as write-offs only reduce the allowance for loan losses. Large write-offs do often lead to an increase in the provision for loan losses, which does lower reported profits, but that happens with a lag. We acknowledge Don Fraser for pointing this out to us.

[29] We recognize that the denominator in the ROE measure will be affected by regulation. In fact, we observe that the mean ROE is lowest in the third period, as one might expect given the regulatory increase in the capital ratio. However, because our ROE regression analysis is cross-sectional and not a time-series, our analysis does not suffer significantly from this measurement bias, at least not in an unambiguous way.

Somewhat surprisingly, the risk variable (WR) is not positively significant in the first two periods, though it is positively significant in the third period. As expected, charter value (KEELEYSQ) is positively related to accounting profits, but this relation only holds during the more regulated periods, i.e., before and after the 1986-88 period. During the less restrictive regulatory period, it appears that factors other than risk-taking and charter value (such as concentrated ownership) are contributing to accounting profits. As expected, the coefficient on the KEIRETSU dummy variable is positive and significant, however, it is not significant during the last period, when many Japanese banks began to experience financial difficulties.

[Insert Table 4 Here]

Did the relation between LTOP6 and ROE undergo significant structural shifts going from one period to the next? To answer this question, we again pool the data and test the structural stability of the regression model by using the period dummy interaction approach. Table 5 presents these results.

[Insert Table 5 Here]

The first and second columns of Table 5 show OLS regression results, without and with year dummies, respectively. We again observe that the LTOP6 variable is positive and statistically significant. The interaction terms between each of the period dummies and LTOP6 are all negative, providing consistent evidence with our monitoring results reported earlier. That is, the positive relation between profitability and ownership

is strongest during the middle period. However, unlike the ownership-risk relation, these interaction terms are not statistically significant at conventional levels.

The model also undergoes various robustness checks. The third and fourth columns of Table 5 report fixed-effects (FE) regression results. The FE method addresses endogeneity issues of the independent variables, especially with regard to the potential correlation between LTOP6 and the banks' unobserved heterogeneity which may affect the bank performance measure.[30] The results from this additional analysis yield qualitatively similar findings as the OLS results.

Ⅴ. Conclusion

We examine ownership concentration and bank risk during the period from 1983 to 1991 for a sample of Japanese commercial banks. During a specific period (1986-88) when the capital ratio requirement significantly decreased and deposit insurance significantly increased, a positive relation is exhibited between three measures of bank risks and ownership concentration. This finding reveals shareholder oversight during a period where the regulatory environment was less restrictive. We also find a stronger relation between ownership concentration and bank performance (accounting profits) under the less restrictive regulatory environment. Both these risk and profit findings do

[30] The keiretsu dummy variable is left out of the FE regression because it does not vary over periods.

not persist in the subsequent period (1989-91), which is distinguished by the Basle Accord regime.

Overall, our research reveals that large shareholders of banks can potentially be important for bank governance (shareholder monitoring hypothesis). Perhaps most importantly, our findings indicate that bank shareholders will exert oversight when the regulatory environment provides more flexibility and more freedom to shareholders. As such, our findings lend support to the substitution hypothesis that regulatory oversight (an external governance mechanism) and shareholder oversight (an internal governance mechanism) substitute for one another. While our paper does not attempt to argue that one governance mechanism is better than another, our results do echo the sentiments of Chami, Khan, and Sharma (2003), who stress that the balance between bank regulations and shareholder oversight (i.e., market discipline) is a delicate and complicated issue, and thus likely to be a difficult one to address in the on-going deliberations on the future of bank regulation.

References

Allen, P.R. and W.J. Wilhelm, 1988, The impact of the 1980 depository institutions deregulation and monetary control act on market value and risk: Evidence from the capital markets, *Journal of Money, Credit, and Banking* 20, 364-380.

Anderson, R.C. and D.R. Fraser, 2000, Corporate control, bank risk taking, and the health of the banking industry, *Journal of Banking and Finance* 24, 1383-1398.

Barth, J.R., P.F. Bartholomew, and M.C. Bradley, 1990, The determinants of thrift institutions resolution costs, *Journal of Finance* 45, 731-754.

Barth, J.R., G. Caprio, and R. Levine, 2004, Bank regulation and supervision: What works best, *Journal of Financial Intermediation* 13, 205-236.

Besanko, D. and G. Kanatas, 1996, The regulation of bank capital: Do capital standards promote bank safety?, *Journal of Financial Intermediation* 5, 160-183.

Benston, G.J., 1986, Chapter 1 in *Perspectives On Safe and Sound Banking: Past, Present, and Future*, edited by Benston et. al. Cambridge: MIT Press.

Black, B.S., 1998, Institutional investors and the case for institutional voice, in *The Revolution in Corporate Finance*, third edition, edited by Joel M Stern and Donald H. Chew, Blackwell Publishers, Ltd.

Black, B.S., H. Jang, and W. Kim, 2005, Does corporate governance predict firms' market values? Evidence from Korea, *Journal of Law, Economics and Organization*, forthcoming.

Booth, J.R., M.M. Cornett, and H. Tehranian, 2002, Boards of directors, ownership, and regulation, *Journal of Banking and Finance* 26, 1973-1996.

Buser, S.A., A.H. Chen, and E.J. Kane, 1981, Federal deposit insurance, regulatory policy, and optimal bank capital, *Journal of Finance* 35, 51-60.

Caprio, G., L. Laeven, and R. Levine, 2003, Governance and bank valuation, World Bank working paper.

Cebenoyan, A.S., E.S. Cooperman, and C.A. Register, 1995, Deregulation, regulation, equity ownership, and S&L risk-taking, *Financial Management* 24, 63-76.

Chami, R., M.S. Khan, S. Sharma, 2003, Emerging issues in banking regulation, IMF working paper.

Cornett, M.M. and H. Tehranian, 1989, Stock market reactions to the depository institutions deregulation and monetary control act of 1980, *Journal of Banking and Finance* 13, 81-100.

Crawford, A.J., J.R. Ezzell, and J.A. Miles, 1995, Bank CEO pay-performance relations and the effects of deregulation, *Journal of Business* 68, 231-256.

Demirgüc-Kunt, A., and E.J. Kane, 2002, Deposit insurance around the world: Where does it work? *Journal of Economic Perspectives* 16, 175-195.

Demsetz, H. and K. Lehn, 1985, The structure of corporate ownership: Causes and consequences, *Journal of Political Economy* 93, 1155-1177.

Demsetz, H. and B. Villalonga, 2001, Ownership structure and corporate performance, *Journal of Corporate Finance* 7, 209-233.

Gibson, M.S., 1995, Can bank health affect investment? Evidence from Japan, *Journal of Business* 68, 281-308.

González, F., 2005, Bank regulation and risk-taking incentives: An international comparision of bank risk, *Journal of Banking and Finance* 29, 1153-1184.

Gorton, G. and R. Rosen, 1995, Corporate control, portfolio choice, and the decline of banking, *Journal of Finance* 50, 1377-1420.

Grossman, S. and O. Hart, 1986, The costs and benefits of ownership: A theory of vertical and lateral integration, *Journal of Political Economy* 94, 691-719.

Hall, B.J., 1993, How has the Basle Accord affected bank portfolios?, *Journal of the Japanese and International Economies* 7, 408-440.

Holderness, C.G, R.S. Kroszer, and D. Sheehan, 1999, Were the good old days that good? Changes in managerial stock ownership since the Great Depression, *Journal of Finance* 54, 435-469.

Horiuchi, A. and K. Shimizu, 1998, The deterioration of bank balance sheets in Japan: Risk-taking and recapitalization, *Pacific-Basin Finance Journal* 6, 1-26.

Houston, J.F. and C. James, 1995, CEO compensation and bank risk: Is compensation in banking structured to promote risk taking?, *Journal of Monetary Economics* 36, 405-431.

Japanese Company Handbook, issues from 1983 to 1991.

Kane, E.J., 1985, *The Gathering Crisis on Federal Deposit Insurance*, Cambridge: MIT Press.

Kang, J-K and A. Shivdasani, 1999, Alternative mechanisms for corporate governance in Japan: An analysis of independent and bank-affiliated firms, *Pacific-Basin Finance Journal 7, 1-22.*

Kareken, J. and N. Wallace, 1978, Deposit insurance and bank regulation: A partial equilibrium exposition, *Journal of Business* 51, 413-438.

Keeley, M.C., 1990, Deposit insurance, risk, and market power in banking, *American Economic Review* 80, 1183-1200.

Kester, W.C., 1991, *Japanese Takeovers: The Global Contest for Corporate Control, Harvard Business School Press,* Cambridge, MA.

Kim, K.A. and J.R. Nofsinger, 2005, Institutional herding, business groups, and economic regimes: Evidence from Japan, *Journal of Business* 78, 213-242.

Kitagawa, H. and Y. Kurosawa, 1994, Japan: Development and structural change in the banking system, in *The Financial Development of Japan, Korea, and Taiwan*, edited by Hugh T. Patrick and Yung Chul Park, Oxford University Press.

Knopf, J.D. and J.L. Teall, 1996, Risk-taking behavior in the U.S. thrift industry: Ownership structure and regulatory changes, *Journal of Banking and Finance* 20, 1329-1350.

Kole, S. and K. Lehn, 1999, Deregulation and the adaptation of governance structure: The case of U.S. airline industry, *Journal of Financial Economics* 52, 79-117.

Konishi, M. and Y. Yasuda, 2004, Factors affecting bank risk taking: Evidence from Japan, *Journal of Banking and Finance* 28, 215-232.

La Porta, R, F. Lopez-de-Silanes, A. Shleifer, and R.W. Vishny, 1998, Law and finance, *Journal of Political Economy* 106, 1113-1155.

Marcus, A.J., 1983, The bank capital decision: A time series-cross sectional analysis, *Journal of Finance* 38, 1217-1232.

Marsh, T.A. and J-M Paul, 1997, BIS capital regulations and Japanese banks' bad loan problems, U.C. Berkeley working paper.

Merton, R., 1978, On the cost of deposit insurance when there are surveillance costs, *Journal of Business* 51, 439-452.

Montgomery, H., 2005, The effect of the Basle Accord on bank portfolios in Japan, *Journal of the Japanese and International Economies* 19, 24-36.

Morck, R., A. Shleifer, and R. Vishny, 1988, Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics* 20, 293-315.

Noe, T.H., M.J. Rebello, and L.D. Wall, 1996, Managerial rents and regulatory intervention in troubled banks, *Journal of Banking and Finance* 20, 331-350.

Pettway, R.H., T. Kaneko, and M.T. Young, 1991, International bank capital standards and the costs of issuing capital securities by Japanese banks, *Journal of Banking and Finance* 15, 559-580.

Pringle, J.J., 1974, The capital decision in commercial banks, *Journal of Finance* 29, 779-795.

Prowse, S.D., 1992, The structure of corporate ownership in Japan, *Journal of Finance* 47, 1121-1140.

Santomero, A.M. and R.D. Watson, 1977, Determining an optimal capital standard for the banking industry, *Journal of Finance* 32, 1267-1282.

Sasaki, T., 1994, Bank regulation, *in Capital Markets and Financial Services in Japan, Japan Securities Research Institute,* Tokyo, Japan.

Saunders, A., E. Strock, and N.G. Travlos, 1990, Ownership structure, deregulation, and bank risk taking, *Journal of Finance* 45, 643-654.

Sharpe, W., 1978, Bank capital adequacy, deposit insurance and security values, *Journal of Financial Quantitative Analysis* 13, 857-902.

Sharpe, I.G., 1994, Determinants of capital structure of Australian trading banks, *Asia Pacific Journal of Management* 12, 97-121.

Shleifer, A. and R.W. Vishny, 1986, Large shareholders and corporate control, *Journal of Political Economy* 94, 461-488.

Smith, M.P., 1996, Shareholder activism by institutional investors: Evidence from CalPERS, *Journal of Finance* 51, 227-252.

Taggart, R.A. and S.I. Greenbaum, 1978, Bank capital and public regulation, *Journal of Money, Credit, and Banking* 10, 158-169.

Tatewaki, K., 1991, *Banking and Finance in Japan*, New York: Routledge Publishers.

Wagster, J., 1996, The impact of the 1988 Basle Accord on international banks, *Journal of Finance* 51, 1321-1346.

Weinstein, D.E and Y. Yafeh, 1998, On the costs of a bank-centered financial system: Evidence from the changing main bank relations in Japan, *Journal of Finance* 53, 635-672.

Weisbach, M.S., 1988, Outside directors and CEO turnover, *Journal of Financial Economics* 20, 431-460.

Wheelock, D.C. and S. C. Kumbhakar, 1995, Which banks choose deposit insurance? Evidence of adverse selection and moral hazard in a voluntary insurance system, *Journal of Money, Credit and Banking* 27, 186-201.

Wooldrige, J. M. 2006, *Introductory Econometrics,* 3rd edition, Thomson Southwestern Publishers.

Table 1
Descriptions of Variables Used in the Study

This table presents overall averages for the variables included in this study. The ownership data comes from Japan Company Handbooks and the financial data comes from the PACAP Databases. VRET and WR are adjusted by 10^3. Standard deviations are reported in parentheses.

Variables	Descriptions	Mean (s.d.)
Ownership Measure		
LTOP6	Log transformation of TOP6/(100-TOP6), where TOP6 represents the percentage of outstanding common shares owned by the top six shareholders.	-1.512 (0.288)
LHERF	Log transformation of HINDEX/(1-HINDEX), where HINDEX represents the Herfindahl index.	-5.144 (0.495)
Profit Measure		
ROE	Net income to book value of equity.	0.073 (0.021)
Risk Measures		
VRET	Annual variance of daily bank stock returns.	0.366 (0.330)
EA	Book value of total equity to book value of total assets.	0.032 (0.007)
WR	Ratio of write-off for loan losses to total investments, loans, and receivables.	0.076 (0.120)
Other Control Measures		
KEELEYSQ	Dummy variable equal to one if the bank's Keeley's Q is higher than the median Keeley's Q, zero otherwise, where Keeley's Q represents the sum of market value of equity plus book value of debt divided by the book value of assets.	0.049 (0.050)
LMVE	Log transformation of fiscal year-end market value of equity.	33.334 (1.396)
KEIRETSU	Dummy variable equal to one if the bank is a keiretsu main bank, zero otherwise.	0.105 (0.307)
PERIOD1 & 3	Dummy variables for periods 1983-85 and 1989-91, respectively. The base category is the period 1986-88.	..

Table 2
Regression Results for Ownership Concentration

This table shows regression results from three periods: 1983-85, 1986-88, and 1989-91. Ownership concentration of the top six shareholders (LTOP6 and LHERF) is the dependent variable. LTOP6 is the log of [TOP6/(100-TOP6)], where TOP6 represents the percentage of total outstanding shares held by the top six shareholders. LHERF is the log of [HINDEX/(1-HINDEX)], where HINDEX is the Herfindahl index. The explanatory variables are as follows: VRET is the variance of daily stock returns, EA is the ratio of book equity to book assets, WR is the ratio of write-offs to investments, loans, and receivables, LMVE is the log of year-end market value of equity, and KEELEYSQ is an indicator of banks with high Keeley's Q. EA is adjusted by 10^2, VRET, and WR are adjusted by 10^3. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. R^2 and F-values are also reported. N denotes the number of firm-year observations.

	Dependent Variable = LOPT6			Dependent Variable = LHERF		
	1983-85	1986-88	1989-91	1983-85	1986-88	1989-91
VRET	0.058 (0.083)	0.140*** (0.047)	0.007 (0.058)	0.125 (0.144)	0.236*** (0.079)	0.009 (0.106)
EA	-0.090* (0.046)	-0.101*** (0.038)	-0.065* (0.035)	-0.158* (0.079)	-0.141** (0.066)	-0.079 (0.062)
WR	0.038 (0.145)	0.409*** (0.147)	0.124 (0.254)	0.089 (0.253)	0.704*** (0.258)	0.227 (0.444)
KEELEYSQ	0.023 (0.097)	0.059 (0.070)	0.031 (0.045)	0.015 (0.168)	0.075 (0.121)	0.031 (0.079)
LMVE	0.004 (0.040)	0.006 (0.021)	0.002 (0.017)	0.019 (0.068)	0.032 (0.035)	0.023 (0.030)
Intercept	-1.377 (1.404)	-1.524* (0.682)	-1.383** (0.545)	-5.306** (2.348)	-5.988*** (1.310)	-5.697*** (1.133)
R^2	0.065	0.154	0.031	0.076	0.147	0.028
F-statistic for model	3.57***	8.19***	1.51	3.98***	7.71***	1.43
F-statistic for risk measures	1.54	9.14***	1.27	1.78	7.63***	0.67
N	146	172	195	146	172	195

Table 3
Test for Structural Change in the Ownership-Risk Relation: Pooled Data

Regression results using pooled data, which includes all periods, are presented in this table. Ownership concentration of the top six shareholders, LTOP6 and LHERF, are the dependent variables. LTOP6 is the log of [TOP6/(100-TOP6)], where TOP6 represents the percentage of total outstanding shares held by the top six shareholders. LHERF is the log of [HINDEX/(1-HINDEX)], where HINDEX is the Herfindahl index. The explanatory variables are as follows: VRET is the variance of daily stock returns, EA is the ratio of book equity to book assets, WR is the ratio of write-offs to investments, loans, and receivables, KEELEYSQ is an indicator of banks with high Keeley's Q, LMVE is the log of year-end market value of equity, and PERIOD1 and PERIOD3 are indicator variables for the first and the third period, respectively. EA is adjusted by 10^2, VRET and WR are adjusted by 10^3. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. R^2 and F-values are reported for results. N denotes the number of firm-year observations.

	Dependent Variable = LTOP6		Dependent Variable = LHERF	
VRET	0.140***	0.224***	0.236***	0.372***
	(0.047)	(0.062)	(0.079)	(0.105)
EA	-0.101***	-0.102***	-0.141**	-0.142**
	(0.038)	(0.039)	(0.066)	(0.067)
WR	0.409***	0.393***	0.704***	0.678**
	(0.147)	(0.147)	(0.258)	(0.258)
VRET*PERIOD1	-0.081	-0.162	-0.111	-0.242
	(0.095)	(0.118)	(0.164)	(0.203)
VRET*PERIOD3	-0.133*	-0.199**	-0.227*	-0.335*
	(0.075)	(0.101)	(0.132)	(0.176)
EA*PERIOD1	0.011	0.012	-0.017	-0.016
	(0.060)	(0.061)	(0.102)	(0.104)
EA*PERIOD3	0.036	0.028	0.062	0.050
	(0.052)	(0.054)	(0.090)	(0.093)
WR*PERIOD1	-0.371*	-0.355*	-0.615*	-0.589*
	(0.206)	(0.208)	(0.361)	(0.364)

WR*PERIOD3	-0.285	-0.226	-0.477	-0.390
	(0.294)	(0.300)	(0.514)	(0.523)
KEELEYSQ	0.059	0.062	0.075	0.080
	(0.070)	(0.070)	(0.121)	(0.121)
KEELEYSQ*PERIOD1	-0.037	-0.041	-0.061	-0.067
	(0.119)	(0.122)	(0.206)	(0.211)
KEELEYSQ*PERIOD3	-0.028	0.005	-0.045	0.004
	(0.083)	(0.089)	(0.145)	(0.154)
LMVE	0.006	0.002	0.032	0.026
	(0.021)	(0.021)	(0.035)	(0.036)
LMVE*PERIOD1	-0.002	0.002	-0.013	-0.007
	(0.046)	(0.046)	(0.076)	(0.077)
LMVE*PERIOD3	-0.004	-0.007	-0.008	-0.012
	(0.027)	(0.028)	(0.047)	(0.048)
PERIOD1	0.147	0.021	0.682	0.489
	(1.604)	(1.619)	(2.682)	(2.704)
PERIOD3	0.141	0.209	0.291	0.378
	(1.022)	(1.043)	(1.734)	(1.772)
Intercept	-1.524*	-1.400*	-5.988***	-5.795***
	(0.783)	(0.789)	(1.310)	(1.310)
Year Dummies	No	Yes	No	Yes
R^2	0.090	0.099	0.089	0.097
F-statistic	4.33***	3.31***	4.19***	3.15***
N	513	513	513	513

Table 4
Regression Results for Profitability

This table shows OLS regression results from three periods: 1983-85, 1986-88, and 1989-91. The dependent variable is accounting profits (ROE), where it is calculated as net income to book equity. LTOP6 is the ownership concentration variable and calculated as log[TOP6/(100-TOP6)], where TOP6 represents the percentage of total outstanding shares held by the top six shareholders. WR is the ratio of write-offs to investments, loans, and receivables, KEELEYSQ is an indicator of banks with high Keeley's Q, and KEIRETSU is an indicator variable equal to one if it is a keiretsu main bank. LTOP6 is adjusted by 10^{-1} and WR is adjusted by 10^{-2}. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. R^2 and F-values are also reported. N denotes the number of firm-year observations.

	1983-85	1986-88	1989-91
LTOP6	0.064**	0.072**	0.015
	(0.025)	(0.029)	(0.034)
WR	-0.047	-0.078	0.294***
	(0.088)	(0.080)	(0.112)
KEELYSQ	0.013***	0.002	0.009***
	(0.004)	(0.002)	(0.002)
KEIRETSU	0.029***	0.045***	0.002
	(0.005)	(0.004)	(0.005)
Intercept	0.083***	0.089***	0.055***
	(0.004)	(0.005)	(0.006)
R^2	0.555	0.565	0.140
F-statistic	63.80***	45.78***	8.10***
N	152	173	195

Table 5
Test for Structural Change in the Profitability-Ownership Relation: Pooled Data

Regression results using pooled data, which includes all periods, are presented in this table. The dependent variable is accounting profits (ROE), where it is calculated as net income to book equity. LTOP6 is the ownership concentration variable and calculated as log[TOP6/(100-TOP6)], where TOP6 represents the percentage of total outstanding shares held by the top six shareholders. WR is the ratio of write-offs to investments, loans, and receivables, KEELEYSQ is an indicator of banks with high Keeley's Q, and KEIRETSU is an indicator of keiretsu main banks. PERIOD1 and PERIOD3 are indicators of the first and the third period, respectively. LTOP6 is adjusted by 10^{-1} and WR is adjusted by 10^{-2}. The Fixed-Effects (FE) model considers the endogeneity of all variables. Standard errors are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. R^2 and F-values are reported for OLS and FE. N denotes the number of firm-year observations.

	OLS		Fixed-Effects	
LTOP6	0.072**	0.074**	0.314***	0.313***
	(0.029)	(0.029)	(0.079)	(0.069)
LTOP6*PERIOD1	-0.007	-0.012	-0.047	-0.051
	(0.039)	(0.036)	(0.040)	(0.035)
LTOP6*PERIOD3	-0.057	-0.045	-0.020	-0.019
	(0.045)	(0.043)	(0.043)	(0.038)
WR	-0.078	-0.074	0.013	0.004
	(0.080)	(0.079)	(0.072)	(0.063)
WR*PERIOD1	0.031	0.037	-0.112	-0.065
	(0.119)	(0.106)	(0.096)	(0.084)
WR*PERIOD3	0.372**	0.149	0.165	-0.089
	(0.138)	(0.140)	(0.124)	(0.111)
KEELEYSQ	0.002	0.002	0.005**	0.002
	(0.002)	(0.002)	(0.002)	(0.002)
KEELEYSQ*PERIOD1	0.011**	0.016***	0.005	0.010***
	(0.005)	(0.004)	(0.004)	(0.003)
KEELEYSQ*PERIOD3	0.006**	-0.004	0.006**	-0.005*

	(0.003)	(0.003)	(0.003)	(0.003)
KEIRETSU	0.045***	0.045***	..	..
	(0.004)	(0.004)		
KEIRETSU*PERIOD1	-0.016***	-0.020***	-0.013***	-0.016***
	(0.006)	(0.006)	(0.005)	(0.004)
KEIRETSU*PERIOD3	-0.042***	-0.038***	-0.041***	-0.036***
	(0.006)	(0.005)	(0.004)	(0.003)
PERIOD1	-0.007	0.001	-0.008	-0.003
	(0.007)	(0.007)	(0.007)	(0.006)
PERIOD3	-0.035***	-0.014	-0.027***	-0.008
	(0.008)	(0.008)	(0.007)	(0.007)
Intercept	0.089***	0.088***	0.128***	0.128***
	(0.005)	(0.006)	(0.012)	(0.011)
Year dummies	No	Yes	No	Yes
R^2	0.624	0.684	0.640 (within)	0.732 (within)
F-statistic	64.15***	58.84***	60.24***	62.53***
N	520	520	520	520