

Accepted Manuscript

Title: Does Equity Holding of the Main Bank Influence Earnings Quality of its Client Firms? Empirical Evidence from Japan

Authors: Koji Kojima, Bishnu Kumar Adhikary, Ranjan Kumar Mitra



PII: S1042-444X(17)30123-8
DOI: <https://doi.org/10.1016/j.mulfin.2017.10.003>
Reference: MULFIN 539

To appear in: *J. of Multi. Fin. Manag.*

Received date: 24-6-2017
Revised date: 29-9-2017
Accepted date: 7-10-2017

Please cite this article as: Kojima, Koji, Adhikary, Bishnu Kumar, Mitra, Ranjan Kumar, Does Equity Holding of the Main Bank Influence Earnings Quality of its Client Firms? Empirical Evidence from Japan. *Journal of Multinational Financial Management* <https://doi.org/10.1016/j.mulfin.2017.10.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Does Equity Holding of the Main Bank Influence Earnings Quality of its Client Firms?
Empirical Evidence from Japan**

Koji Kojima

Professor

School of International Studies

Kwansei Gakuin University

1-155 Uegahara ichiban-cho, Nishinomiya, Hyogo,

Japan 662-8501

Email: kojima@kwansei.ac.jp

Bishnu Kumar Adhikary

Associate Professor

Graduate School of Business Administration

Kobe University

2-1, Rokkodai, Nada, Kobe,

Japan 6578501

Email: bishnu_adhikary@people.kobe-u.ac.jp
adhikarykobejp@gmail.com

Ranjan Kumar Mitra

Assistant Professor

Department of Accounting & Information Systems

University of Dhaka

Fuller Road, Dhaka 1000, Bangladesh

Email: ranjandu@yahoo.com

Corresponding Author: Bishnu Kumar Adhikary, Associate Professor, Graduate School of Business Administration, Kobe University, 2-1, Rokkodai, Nada, Kobe, Japan 6578501, Email: aishnu_adhikary@people.kobe-u.ac.jp; adhikarykobejp@gmail.com, Ph: +81-80-3985-4615, Fax: +81-78-803-6977

April 2017

Highlights

- Shareholding of the main bank significantly enhances earnings quality of its client firms.
- Equity holding of the main bank can subsume the role of foreign shareholders.
- Role of institutional shareholders wanes when the main bank extends equity.
- Role of executive shareholders disappears when the main bank extends equity.
- Cross-shareholding does not inhibit the role of main banks.

Abstract

This paper empirically investigates the role of the main banks in enhancing earnings quality of their client firms in Japan and unveils some intriguing results. First, equity holdings of the main banks improve earnings quality of their client firms. Second, such shareholdings help attenuate the adverse effect of foreign shareholdings on earnings quality, indicating that the main banks can substitute the monitoring role of foreign shareholders. Third, the effect of institutional, executive and dominant shareholdings on earnings quality disappears when the main banks inject equity, implying that the main banks can significantly reduce agency problem in financial intermediation even in Japan's contemporary financial setup where the market-based monitoring system for firms has been encouraged. Furthermore, the role of the main banks remains significant when the cross-shareholding and stable shareholding are taken into account, suggesting that the equity ownership of the main banks help improve earnings quality through effective monitoring.

Keywords: Equity ownership, Main bank, Earnings quality, Governance, Japan

JEL Classification: G21, G32, E51, C33

Does Equity Holding of the Main Bank Influence Earnings Quality of its Client Firms? Empirical Evidence from Japan

1. Introduction

Unlike banks in the US, Japan relied on a particular set of relationship embedded in regulators, banks and corporate firms in its catching-up period to promote industrial finance and to mitigate investment inefficiencies caused by market imperfections, what came to be known as “Japan Incorporated” or a “Convoy System” (Wu and Yao, 2012; Suzuki et al., 2011; Prowse, 1990). One of the unique features of this convoy style financing was the “main bank system” where the main bank was allowed to perform the role of a quasi-insider monitor of the client firms by giving them both loans and equity (Sheard, 1989; Aoki, 1990; Aoki et al., 1994; Ueda, 1994; Kawai et al., 1996; Hoshi and Kashyap, 2001). The main bank, as a creditor and shareholder, had strong incentives to monitor financial transactions of the borrowing firms and their investment opportunities to ensure that managers make optimal decisions (Suzuki, 2011; Douthett Jr. and Jung, 2001, Hoshi et al., 1991). Besides, the main bank maintained a close relationship with clients, sometimes taking a seat on the board of the client firms, to mitigate information asymmetry and moral hazards in intermediating long-term finance (Diamond, 1984; Hoshi et al., 1990; Sheard, 1994). Other private financial institutions and non-main banks relied on the monitoring function of the main banks to reduce transaction cost (Kawai et al., 1996). Simultaneously, the Ministry of Finance (MOF) ensured credibility in financial transactions by adopting different sanctions against the main bank when it was judged to be poorly managed and needed radical organization and asset restructuring (Suzuki, 2011). As a whole, the main bank system was hailed as a catalyst for the industrial development in Japan during its “Heydey” period until around the mid-1970s.

However, after the burst of the bubble in the year 1990, the main bank system received severe criticism from many scholars and academics in that the main banks failed to assess risks of the borrowing firms when they exposed to greater uncertainties with their traditional relationship mode of finance and promulgated inefficiency of many sick firms by injecting additional loans and equity instead of bailing out them (Allen, 1996; Weinstein and Yafeh, 1998; Yamori and Murakami, 1999; Kang and Stulz, 2000; Hoshi and Kashyap, 2001; Wu and Xu, 2005). Consequently, Japan accepted the US style of bank monitoring and governance by undertaking a “big bang economic and accounting reform” program in the year 1997. Indeed, the overall impact of the reform program helped increase funding cost of the banks, reduced significantly equity holdings of the main banks, and lured foreigners to hold substantial equity stakes.

To this end, some papers empirically investigated the impact of the financial reform program on corporate financing and governance in Japan (Guo et al., 2015; Mazumder, 2014;

Sakawa et al., 2014; Wu and Yao, 2012; Baik and Choi, 2010; Kutsuna et al., 2007; Wu and Xu, 2005; Kang and Shivdasani, 1999). A few papers also studied the link between ownership structure including shareholding by main banks and firm performance. For example, Miyajima and Kuroki (2007) used NLIR-Waseda database and studied the relationship between ownership structure and firm performance for the nonfinancial firms in the First Section of the Tokyo Stock Exchange covering the period 1985-2002 and contended that the main bank shareholding significantly inhibits firm's performance (measured by ROA and Tobin's Q). Similarly, Morck et al. (2000) investigated the link between banks, ownership structure, and firm value for 373 firms in Tokyo Stock Exchange in 1986, and unveiled that bank equity stake has a negative effect on Tobin's Q. Morck and Nakamura (1999) claimed that the joining of a bank officer in the board has no relationship with firm's stock market performance. Shinada (2009) added that foreign shareholding helps increase firms productivity in Japan.

Notably, the above papers applied ROA and Tobin's Q as measures of firm performance that are determined by the complex interaction of multiple factors such as technology, firm's life cycle, competitive intensity, exchange rate, inflation, and so on some of which are beyond management control. Besides, due to myriad accounting conventions, managers can manipulate earnings by altering revenue expenditure into capital expenditure or by shifting accruals to serve their own needs, as evidenced by accounting scandals of some corporate stalwarts such as Enron, Tyco, World Com, Satyam, and Toshiba. Precisely, a firm may have high performance in terms of ROA or Tobin's Q, but they do not necessarily reflect that the firm has high-quality earnings—earnings that have higher predictive power for future operating performance and fairly annuitize the intrinsic value of the company (Dechow and Dichev, 2002; Dechow and Schrand, 2004). Earnings quality is directly related to management behavior, which can be affected by banks shareholding. Moreover, the fraudulent activities of the management can be better checked through shareholding by banks in countries that lack effective takeover market for corporate control such as Japan. However, until date, no paper has investigated the link between bank's shareholding and earnings quality in Japan's contemporary financial setup.

We filled this gap by examining the role of the main bank in monitoring the cunning behavior of its borrowing firms in earnings management. Precisely, we considered the following issues: (1) Does the main bank still play a significant role in enhancing earnings quality of its borrowing firms? (2) What about the role of other ownership groups in promoting earnings quality? (3) Can the main bank subsume the role of other classes of owners of firms' such as domestic, institutional, foreign, executive, small or dominant shareholders in improving earnings quality? (4) More importantly, can an increase of equity holdings by the main bank help promote earnings quality of the client firms when different patterns of ownership structure are taken into account? We empirically address those issues by using data from Nikkei-CGES, and Nikkei Needs Financial Quest database for the manufacturing firms in Japan covering the period 2006-2012.

The paper intends to add value because it specifically focuses on how shareholding of the main bank improves the quality of reported earnings of the borrowing firms by mitigating the

conflict of interest between shareholders, creditors, and managers through enforcement of rigorous monitoring. We emphasize on the monitoring rationale because we expect that the strong interrelationship between main banks and their clients arising from close and symbiotic financial and business ties serve as a dynamic and dedicated monitoring vehicle in reducing information gap between managers and shareholders and in alleviating moral hazard problem.

The economic rationale of equity holding by the main bank (in addition to financing the largest chunk of total borrowings of its client firms) is that it provides opportunities for the bank officials to take a seat on the board of client firms which serves as an added incentive to exchange credible information between managers and shareholders (reduction of information asymmetry), reinforces the monitoring of managerial performance and opportunistic behavior to divert funds (quazi insider monitor), and constraints managerial discretion in the choice of accounting methods for self-serving purpose, all of which are deemed to contribute towards superior earnings quality of the borrowers.

The paper unfolds some intriguing results. First, equity holdings of the main banks significantly enhance earnings quality of its client firms, meaning that the traditional features of the main bank system such as close relationship and delegated monitoring are still pronounced in Japan. Second, the role of foreign investors in undertaking monitoring activities of firms, which was encouraged in the big bang reform, is found to work in the opposite direction, implying that they erode the earnings quality of firms instead of improving it. Besides, the adverse impact of foreign shareholding on earnings quality diminishes when the equity holdings of the main bank is considered. This implies that the main bank can counteract the undesirable effect of foreign shareholding by increasing equity holdings in firms. Third, the influence of institutional and executive shareholders on earnings quality disappears when the main bank extends equity. Altogether, this indicates that the regulatory authorities' desire to move the Japanese financial system from a convoy system to a market-based system where foreign investors and other domestic institutions are expected to take more active role in disciplining management has not been proved fruitful. Fourth, the power of the main banks to influence quality earnings tends to decline slightly, but remains significant, when cross-shareholdings and stable shareholdings are taken into account. Most importantly, the effects of stock ownership by main banks on different measures of earnings quality remain highly positive and significant when the equity holdings of different classes of shareholders are considered, suggesting that the integrated monitoring role of the main bank as pointed out by Aoki (1994) in Japan's catching-up period, and the efficiency of the main bank in reducing firms' under-investment problem as mentioned by Prowse (1990) and Rajan (1992) are still pronounced in Japan's revamped financial system.

The results obtained in this paper should not be misinterpreted with the findings obtained by Miyajima and Kuroki (2007), Morck et al. (2000), Morck and Nakamura (1999), and Shinada (2009) because our dependent variable is earnings quality, not the ROA or Tobin's Q applied in those papers as measures of firm performance. We note that earnings quality of a firm may be one of the important drivers of firm performance, but higher ROA or Tobin's Q do not necessarily reflect that firms have high-quality earnings or earnings persistence. However, it is

not suggested that Japan should restore every feature of the main bank system but the role of the main bank as a quasi-insider monitor should not be denied and overlooked. Therefore, among other things, Japan may allow the main banks to inject equity in its client firms above the present 5% permissible level, which might contribute to the enhancement of reported earnings quality and efficient monitoring of managers' discretionary behavior.

The rest of the paper is organized as follows. Section 2 briefly provides a survey of extant literature and hypotheses of the study. Section 3 outlines data and stylized facts. Section 4 provides results of empirical analyses followed by a robustness check of the estimates. Section 5 concludes with some policy implications.

2. Extant Literature and Development of Hypothesis

2.1 Literature review

Extant literature on the role of main bank in Japan reveals that equity holdings of the main banks ease moral hazard and adverse selection problems by improving information sharing and effective monitoring between the bank and the borrowing firm (Diamond, 1984; Sheard, 1989; Aoki, 1990; Hoshi et al., 1990; Sheard, 1994). The shareholdings by the main banks also reduce the cost of debt, remove liquidity constraints, and promote higher lending. For example, Hoshi et al. (1990) examine the role of bank relationships in aiding corporate investment and show that investment by group firms is less sensitive to their liquidity than it is for non-group firms. In another study, Hoshi et al. (1990) provide evidence that strong ties with the main bank avoid more effectively the problems associated with financial distress for firms that are a part of the larger industrial structure, known as the keiretsu. Kawai et al. (1996) unveil that firms with a stable and long-term relationship with a bank receive favorable financial treatments from the bank in a period of financial distress in the form of reduced interest rate premium than do banks with zero borrowing. Similarly, Wu and Yao (2005) and Suzuki (2011) argue that the main bank, as a quasi-insider monitor, obtains substantial private information about their client firms that help to mitigate investment inefficiencies caused by market imperfections. Notably, these studies highlighted the favorable impact of a close and stable financial relationship of Japanese firms with their main banks with a little attention to curbing managers' cunning behavior.

On the other hand, a growing body of literature has examined whether and how different aspects of a firm's ownership structure can influence the financial reporting quality in Japanese firms. For example, Bae and Kim (1998) evaluate the usefulness of two primary products of an accrual accounting system, such as earnings and book value of equity, in predicting stock returns for a sample of Japanese firms to provide empirical evidence on the value-relevance of earnings and book value in Japan. Their findings show that both earnings and book value have the ability to predict future returns, but the predictive ability of book value dominates that of earnings. Furthermore, they investigate whether the valuation relevance of earnings versus book value is differentially affected by two firm-specific variables unique to Japan, namely the degree of cross-corporate ownership and the level of real estate holding relative to total assets. Their

results show that the predictive ability of book value is sensitive to the degree of cross-corporate ownership, while it is not susceptible to the level of real estate holdings.

Darrough et al. (1998) study the effect of ownership on the choice of accounting accruals for a large sample of Japanese companies. They find that companies with higher degrees of ownership by trust companies and stockbrokers tend to choose income-increasing accruals to provide a more positive picture of the firm, and the opposite effect is observed for firms with high level of ownership by financial institutions. However, the effect of ownership by individual investors, management, or corporations on the choice of accruals is not consistent across different periods with varying economic conditions such as before and after the stock market crash of 1990.

Cheung et al. (1999) examine the impact of institutional characteristics on return-earnings associations in Japan, and report that the strength of return-earnings associations in Japan is inversely affected by the extent to which a firm's shares are cross-held, the degree of a firm's holding of real estate assets relative to other assets, the amount of a firm's investment in equities of other firms, and the degree of a firm's reliance on debt financing, while it is positively affected by the extent to which a firm's shares are owned by foreign investors.

Douthett Jr. and Jung (2001) investigate the effect of Japanese corporate groupings, keiretsu, on the informativeness of earnings by examining earnings response coefficients in the regression of stock returns on earnings. The results show that keiretsu firms have higher earnings response coefficients than those of non-keiretsu firms, earnings informativeness increases as the strength of the keiretsu relationship increases and the discretionary accruals of keiretsu firms are smaller than discretionary accruals of non-keiretsu firms. All of these results are consistent with the notion that the strong interrelations of keiretsu ownership structure enhance the informativeness of earnings through efficient monitoring of managerial performance.

Jiang and Kim (2004) find a positive association between the level of foreign ownership and disclosure quality as measured by the timeliness of earnings performance in the Japanese market. They interpret their findings as consistent with the argument that firms with high foreign shareholding provide strong monitoring, and reveal more credible and timely financial information to the recipients. They also show that the level of information asymmetry is low for firms with higher foreign ownership of shares.

Teshima and Shuto (2008) examine the association between managerial ownership and opportunistic managerial behavior (measured by discretionary accruals) relating to earnings management in Japan and find that a significant non-linear relationship exists between managerial ownership and discretionary accruals suggesting that earnings quality improves (earnings management decreases) for both high and low level of managerial ownership, while earnings quality decreases (earnings management increases) for intermediate levels of managerial ownership.

Mazumder (2014) examines the role of three important categories of ownership of Japanese companies on quality of accounting earnings, and finds that higher domestic institutional ownership improves earnings quality, while higher foreign institutional ownership

and higher insider ownership deteriorate earnings quality after taking into account the endogenous nature of ownership categories and controlling for the effects of other firm characteristics influencing earnings quality.

In a most recent paper, Guo et al. (2015) investigate the role of a particular ownership category namely foreign ownership in curbing earnings management through manipulation of operating activities for a sample of Japanese firms. They find that Japanese firms with greater foreign ownership engage less in real earnings management as captured by abnormal cash flow from operations, abnormal discretionary expenses, abnormal production costs, or a composite of the measures above than do those firms with lower foreign ownership. Their findings indicate that, consistent with the hypothesis of knowledge spillover effect, sophisticated foreign investors with relatively few business ties to local management improve the accounting quality of domestic firms by curtailing earnings management via real activities manipulation.

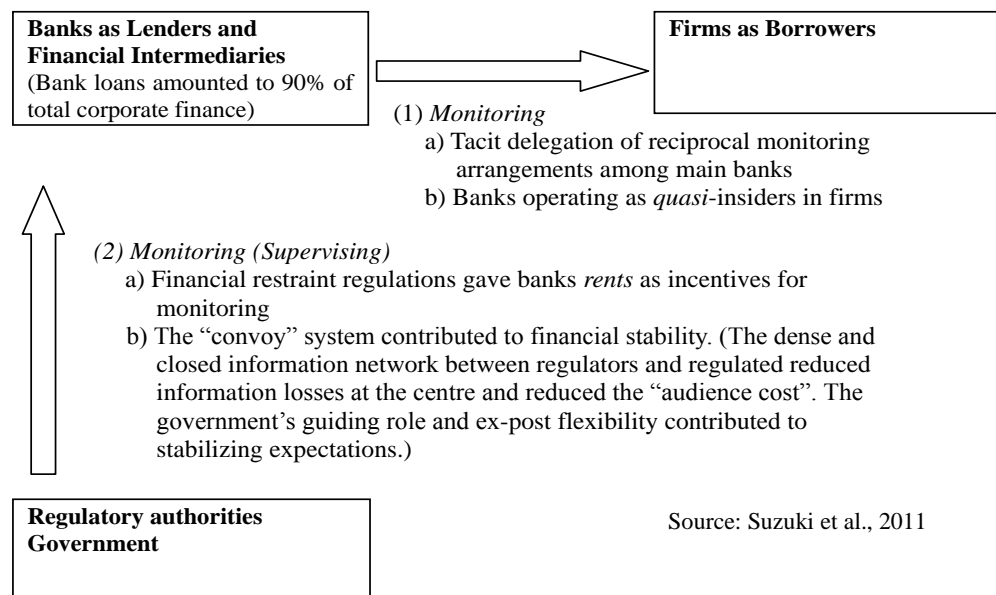
2.2 Testable hypothesis

One of the distinctive institutional features of the capital market organization in Japan is the main bank system of industrial finance (Hodder and Tschoegl, 1985). Traditionally, large firms in Japan have relied heavily on indirect bank finance, rather than equity or bond issues, and have maintained a close relationship with a particular bank, known as the firm's 'main bank' (Sheard, 1989). A curious feature of the main bank system is that the main bank is a principal shareholder of its borrowing firms alongside having largest loan share. As a lender, it attempts to ensure that borrower firms repay the outstanding loan with interest, and as an owner, it tries to force the firm managers to pursue profit-maximizing policies (Kawai et al., 1996). This dual role encourages the main bank to develop a close information sharing relationship between the main bank and its borrower. As Aoki et al. (1994) note, the main banks, delegated by other lenders, performed the role of a *quasi*-insider monitor of the borrowing firms and often acted for as a mediator when borrowers fall into a financial difficulty. In tandem with this, Douthett Jr. and Jung (2001) argue that the main bank has the authority to demand inside information from the firm resulting from better monitoring based on superior information. This information sharing between the main bank and the firm may act as a deterrent to fraud and manipulation of earnings information by management with discretionary accruals. Moreover, such information sharing becomes prominent in an environment where the external audit is relatively weak.

Besides assuming creditor role, the ownership role of the main bank provides additional incentives to evaluate the firm's real investments and to monitor managers' risk-taking behaviour. The main bank system thus plays a pivotal role in the Japanese capital market by imposing strong supervision on the firms and by intervening in their management as and when needed. Kawai et al. (1996) argue that the main bank can monitor the firm with ease and at a low cost due to its close and efficient information sharing relationship with the borrowing firm. This also alleviates the potential scope for conflicts of interest between the bank and shareholders, and mitigate agency problem. Besides, by holding shares, the main bank gains inside information about the firms' dealings and gains the power to act on that information as well.

In addition, the main bank was substantially involved in providing various banking services such as accounts settlements, co-underwriter and trusty administrator in issuing bonds, foreign exchange trading, and provision of bank deposits to its clients (Wu and Yao, 2012). Thus, the term “main bank system” encompasses not only the corporate financing relationships but also various monitoring and governance-related practices and institutional arrangements that serve as a lubricant to reduce transaction costs, and help corporations, banks, and regulatory authorities to build a stable long-term relationship (Aoki, 1994). Figure 1 summarizes the distinctive features of the Japanese relationship-based monitoring system, based on the convoy system.

Fig. 1: Japanese Traditional Monitoring System



The information sharing and monitoring role of the main bank system suggest that the main bank may be in a position to correct the wrong behavior of management when the firms’ performance deteriorates badly or when the incumbent managers’ objectives deviate from those of profit maximization. Similarly, the main bank can exercise its power to oversee and control the opportunistic behavior of management over discretionary reporting choices when it suspects that being driven by self-interest maximizing motive, managers might go recklessly in pursuit of private gain at the cost of shareholders. In a more severe condition, the main bank can intervene in the management of the firms, send in its executives to restructure the entire firms or oust incompetent managers. Finally, in the absence of a market for corporate control, the main bank monitoring can effectively substitute for the missing external takeover market in Japan (Sheard, 1989). Hence, the potential threat of takeover by the main bank can play an important monitoring function when the financial system is viewed as a whole (Aoki, 1990).

In sum, the main bank system can effectively deploy the integrated monitoring theory (*ex-ante*, *in trim*, and *ex-post* monitoring functions) of firms to ensure creditability and trust in financial intermediation. We posit that the incentive to apply strict monitoring and controlling the power of the main bank increases with its proportion of shareholding in the borrowing firms. This strong monitoring competency of the main bank on incumbent management motivates us to predict that firms with higher shareholdings of the main bank will report high-quality earnings information. Therefore, we formalize this expectation in the form of following alternative hypothesis:

H₁: Firms with greater share ownership by the main bank will report high-quality earnings.

3. Data and Stylized Facts

3.1 Variables Measurement

To test the influence of shareholdings of main banks on earnings quality, we selected two measures of earnings quality commonly used in contemporary accounting literature: Dechow and Dichev (2002) accrual quality and Kasznik (1999) version of modified Jones (1991) absolute abnormal accruals (Table 1). Shareholdings of the main banks represent the percentage of shares owned by main banks. The main bank, however, has been defined in two ways: mainbank1 (BANKOWN1) which indicates shareholdings of the main banks as identified by Nikkei, and mainbank2 (BANKOWN2) which represents the main bank for a firm based on the amount of borrowing. For other independent variables, we considered domestic institutional shareholding, foreign shareholding, executive shareholding, small shareholdings, dominant shareholding, cross-shareholding, and stable shareholding to check the efficiency of our estimates. Based on the empirical literature, we also considered a set of control variables such as firm size, leverage, market to book value, profitability, and ownership concentration to check whether those variables affect our estimates or not. Table 1 portrays definition and measures of the variables used in the study.

[Insert Table 1 here]

3.2 Sample and Data Collection

We collected financial statement data from Nikkei NEEDS Financial Quest database to calculate earnings quality for the sample period 2006-2012. The initial sample for the study included only manufacturing firms listed in any one of the Japanese Stock Exchanges (Tokyo, Osaka, Nagoya, JASDAQ, etc.). The manufacturing firms were further classified into 17 industry grouping as per Nikkei two-digit industry codes. To be included in the sample, we required that industry must have at least 20 firms in each year, which resulted in the deletion of petroleum and shipbuilding industry. Thus, the final sample covered all firms from 15 industries. We also deleted firm-year observations with missing values of accounting data required to estimate earnings quality. We winsorized the earnings quality variable at the top and bottom 1% to remove the influence of outliers. We excluded firms from financial services, utility and other

service industries because we believed that the earnings quality empirical models used in this study do not adequately reflect their activities. Since estimation of parameters for the Dechow and Dichev (2002) model requires lead and lag values of cash flows from the operation, and the related earnings quality measure is based on the standard deviation of five annual residuals, we collected necessary data for the 14-year period (2000-2013) to compute earnings quality. This process results into 10,116 and 10,197 firm-year observations for DDSTD and KZABS measures of earnings quality representing 1,490 individual firms across 15 industries. Then, we collected data on shareholdings of main banks and other ownership categories from Nikkei CGES (Corporate Governance Evaluation System) database. It is to be noted that the number of observations for various ownership structure variables is different (see Table 2) because data is not available for all firm-year. Finally, we obtained stock price data from Nikkei Portfolio Master Database to calculate control variables such as size, leverage, and market-to-book ratio. All the ownership variables and control variables were winsorized at 2% to control outliers.

3.3 Empirical Models

We used the following regression model to test the hypothesis regarding the effect of main bank shareholding on reported earnings quality of borrowing firms:

$$EQ_{i,t} = \alpha_0 + \alpha_1 \text{BANKOWN}_{i,t} + \alpha_2 \text{SIZE}_{i,t} + \alpha_3 \text{LEV}_{i,t} + \alpha_4 \text{MB}_{i,t} + \alpha_5 \text{ROA}_{i,t} + \alpha_6 \text{LOSS}_{i,t} + \alpha_7 \text{OWNCON}_{i,t} + \zeta_j \quad \text{Eq. (1)}$$

Where EQ is a measure of inverse earnings quality calculated from the modified Dechow and Dichev (2002) model and Kasznik version of modified Jones (1991) model. BANKOWN refers to the percentage of shareholding by the main bank (the main bank is defined using two different criteria). All other variables are defined in Table 1.

We used a time-series cross-sectional pooled regression in the expectation that calculating a well-specified standard error or test statistics that correct for both cross-sectional and time-series dependence in the dataset is essential for drawing the valid inference. This is because relying on methods that are robust to a single form of dependence may produce misspecified test statistic with spurious inference. Therefore, we calculated tests statistics and significance levels based on the standard errors adjusted for the two-dimensional clustering at the firm and year levels (Gow et al., 2010; Petersen, 2009). Since the higher value of earnings quality measure indicates lower earnings quality, we expected a negative sign for α_1 , which suggests that higher shareholdings by the main banks will improve the quality of reported earnings of their client firms.

Next, we included other ownership categories in the above regression model separately to test whether other ownership categories attenuate the effect of main bank shareholdings. Specifically, we estimate the following regression model:

$$EQ_{i,t} = \alpha_0 + \alpha_1 \text{BANKOWN}_{i,t} + \alpha_2 \text{OWNERSHIP}_{i,t} + \alpha_3 \text{SIZE}_{i,t} + \alpha_4 \text{LEV}_{i,t} + \alpha_5 \text{MB}_{i,t} + \alpha_6 \text{ROA}_{i,t} + \alpha_7 \text{LOSS}_{i,t} + \alpha_8 \text{OWNCON}_{i,t} + \zeta_j \quad \text{Eq. (2)}$$

Where EQ is a measure of inverse earnings quality calculated from the modified Dechow and Dichev (2002) model and Kasznik version of modified Jones (1991) model. BANKOWN refers

to the percentage of shareholding by the main bank under the two different definitions. OWNERSHIP represents different categories of owners of firms' shares. All other variables are defined in Table 1. We expected α_1 to be significantly negative to support our primary hypothesis.

4. Discussion of Results

4.1 Descriptive Statistics

Table 2 shows the descriptive statistics. Panel A under Table 2 presents summary statistics for earnings quality variables. For ease of exposition, we multiplied earnings quality variables by 100. Both measures indicate substantial range over which values are cross-sectionally distributed, but DDSTD measure has less variation compared to KZABS measure as reflected in the standard deviation. It is also noted that the mean (median) absolute discretionary accrual for a typical firm is 2.84% (1.99%) of average total assets according to KZABS measure. We do not observe any systematic pattern suggesting that Japanese firms on average use positive or negative discretionary accruals over the sample period. The descriptive statistics on main banks shareholding data and other ownership variables are mentioned in Panel B.

Notably, the Antimonopoly Law of Japan limits shareholding in any one firm by each bank and insurance company. In 1987, the limit was lowered from 10 to 5 percent for banks. Nevertheless, banks in Japan do often place themselves among the leading shareholders in the firms to which they lend and gain representation on the board of directors.¹ Panel B shows that on average, the main bank holds 3.17% (3.33%) of total outstanding shares of its borrowing firms according to the first (second) definition of the main bank. For both cases, the maximum shareholding percentage is well below the prescribed ceiling of 5%. The shareholding pattern of other ownership categories reveals that on average, domestic institutional shareholders, foreign investors, and executives hold 6.9%, 9.6%, and 6.2% respectively of the equity shares of a firm. The average shareholding of small shareholders lies at 22% while that of dominant or large shareholders is 11.4%.² Finally, cross-corporate shareholders hold on average about 9% of equity shares of a firm while the stable shareholders capture about 41.5%. The summary statistics for the main control variables are presented in Panel C. The result shows that a typical firm has the financial leverage of 69.4% of market value of equity, a market-to-book ratio of 1.14, and return on asset of 4.77%. On average, 20% firms report negative earnings in a year and ownership is highly concentrated as the top 10 shareholders own 51.47% of total outstanding shares of a firm. This highly concentrated ownership is the manifestation of the common feature of the ownership structure of East Asian countries (Fang and Wong, 2002). The untabulated result shows that an average firm has a market capitalization of 128,624 million yen.

¹ For the largest companies a 1-3 percent equity interest suffices.

² The mean value of share ownership by dominant shareholders is not meaningful here since dominant shareholders are defined as those who hold more than 15% of outstanding shares of a firm. This reduced number is due to the fact that the median value is 0.00% which suggests that more than half of the firms in the sample have no dominant shareholders. When we recalculate the average after eliminating these firms, we find that the average shareholding is 33.21% (unreported) for dominant shareholders with minimum value of 15%.

[Insert Table 2 here]

Table 3 presents the Pearson correlations of the variables. The correlation between the two proxies of earnings quality is 0.50 over the sample period. The correlation is not high enough to make one of those proxies redundant and suggests using both proxies in empirical analyses. The shareholding of main banks (according to both definitions of the main bank), which is our core variable of interest, is significantly negatively correlated with both measures of earnings quality. As earnings quality proxies are inverse measures of earnings quality, the significant negative correlation with the interested variables is indicative of higher quality earnings for firms with a higher shareholding of the main bank. This univariate correlation lends primary support for our hypothesis. For other categories of ownership, both measures of earnings quality are significantly negatively correlated with domestic institutional, foreign and cross-shareholding, but significantly positively associated with executive, small and dominant shareholding. However, the correlation with stable shareholding is not significant. The correlation of earnings quality measures with control variables demonstrates that the size and profitability are negatively connected with earnings quality while the leverage, market-to-book ratio, loss dummy, and ownership concentration are positively associated with the same. All the correlation coefficients are statistically significant at 1% level.

[Insert Table 3 here]

4.2.1 Test Results for the Impact of Share Ownership by the Main Bank on Reported Earnings Quality

Table 4 reports the regression results (coefficients with associated t-statistics presented in parentheses) from the estimation of the empirical model (1) where we used the two accruals-based measure of earnings quality and shareholding of the main bank using the two definitions of the main bank. We begin the analysis with running a regression of our earnings quality proxies on control variables to show the association of earnings quality variables with control variables. The result of the base version is presented in the Base Model column. The result shows that the coefficients of SIZE, LEV, and ROA are significantly negative, indicating that large firms have better information environment, highly leveraged firms are subject to strong supervision by the lenders, and profitable firms have higher earnings quality. On the other hand, MB and LOSS have significant positive coefficients, implying that firms with higher growth opportunities and firms with negative earnings have low-quality earnings. The coefficient of OWNCON is positive but significant only for KZABS measure suggesting that firms with concentrated ownership report higher level of discretionary accruals. The control variables jointly explain 14.75% (8.65%) of the variation of DDSTD (KZABS) measure of earnings quality as reflected in adjusted R². Then, we added the shareholding of the main bank variable in the regression model. Column Mainbank1 provides the result for a shareholding of the main bank where the main bank is identified by Nikkei Research, and Mainbank2 provides the result for shareholding of the main

bank where the main bank is defined as the bank that supplies the largest share of borrowing to a firm among all other banks from which the firm takes loans. The result shows that the coefficient of the main bank shareholdings is significantly negative, consistent with our primary hypothesis. This suggests that the main bank's equity holding improves the earnings quality of the borrowing firms, and supports the argument that the main bank provides effective monitoring to prevent managerial opportunism.

[Insert Table 4 here]

4.2.2 Test Results for the Impact of Share Ownership by the Main Bank and Other Ownership Categories on Reported Earnings Quality

Table 5 (Panel A to G) provides regression results for the impact of share ownership by the main banks and other ownership categories on reported earnings quality under model (2). Panel A presents the result for domestic institutional shareholders. There are two alternative views on the relationship between earnings quality and institutional shareholding. The efficient monitoring hypothesis assumes that institutional investors can actively monitor the actions of management and prevent managers' opportunistic behavior as they have the resources, expertise and stronger incentives to perform diligent monitoring (Jung and Kwon, 2002). They have greater access to private information, and the problem of free riders is less acute for them. Moreover, these sophisticated investors are capable of interpreting financial statements critically and detecting deliberate misstatements by top managers (Chung et al., 2005). According to this view, higher domestic institutional shareholding will result in better earnings quality. On the other hand, the private benefit of control and strategic alliance hypothesis predicts that institutional investors who hold shares for short-time gain (transient institutional investors) might collude with management to form a strategic alliance thwarting them from emerging as an effective monitor of managerial actions. This line of reasoning suggests that greater domestic institutional ownership will impair earnings quality by providing managers more latitude over discretionary choices. Our results show that the coefficient of domestic institutional shareholding is negative but marginally significant for DDSTD measure only, suggesting that domestic institutional shareholding is related to better earnings quality, consistent with efficient monitoring hypothesis. This result also approves prior findings of Darrrough et al. (1998). However, the coefficient becomes insignificant once the main bank shareholding is added to the model. Therefore, we conclude that the main bank can substitute domestic institutional investors in monitoring management behaviour on accounting choices.

[Insert Table 5 here]

As regards to the effect of foreign investors' ownership on earnings quality, prior literature offers two different hypothesis: knowledge spillover, and information asymmetry hypotheses. The knowledge spillover hypothesis argues that foreign investors are sophisticated information processors with better access to technical expertise and investment aptitude. They have the resources, expertise and incentives to improve corporate governance systems and to scrutinize the corporate reporting choices and policies of those firms in which they have an equity stake. The superior accounting knowledge and strengthened corporate governance through foreign investors will enable firms to supervise their operating activities and financial reporting systems more effectively (Guo et al., 2015). Therefore, it can be predicted that firms with higher foreign shareholding will report high earnings quality. Consistent with this hypothesis, Cheung et al. (1999) find that the strength of return-earnings association is positively related to the level of foreign ownership. Jiang and Kim (2004) find that firms with high foreign shareholdings disclose more timely accounting information than firms with low foreign shareholdings. Chung et al. (2004) conclude that discretionary accruals of firms with higher foreign shareholdings are perceived to be credible and more value-relevant by the market, and Guo et al. (2015) find that firms with greater foreign ownership engage in less real earnings management.

On the other hand, the information asymmetry hypothesis assumes that foreign investors may have information disadvantages due to geographical distance or cultural barrier, which may prevent them access to valuable information about a firm's prospects or to monitor its corporate reporting behavior effectively. Thus, it can be predicted that firms with higher level of foreign shareholding will have poor earnings quality. Consistent with this hypothesis, Mazumder (2014) finds that foreign institutional ownership is related to low-quality earnings.

We report the result of the effect of foreign stockholding in Panel B. The Base Model column shows that the coefficient is significantly positive suggesting that foreign ownership deteriorates earnings quality. This result, however, should not be misinterpreted with the findings of other studies that traced positive association between foreign shareholding and firm performance in Japan because our dependent variable is earnings quality, not the ROA or Tobin's Q. We argue that the geographical distance and the lack of sound understanding of different cultural milieu may make it difficult for foreign investors to monitor a firm's accounting performance. This finding is counterintuitive to the general expectation that foreign investors will perform the role of an independent external monitor in an environment characterized by weak corporate governance and low investor protection like Japan. When we include ownership by the main bank variable, we find that the coefficient of the main bank ownership remains significantly negative while the coefficient of foreign ownership continues to be significantly positive. This suggests that the adverse effect of foreign shareholding can be mitigated by increasing investment in the equity of the client firms by the main bank. This result also indicates that the main bank is more efficient in monitoring management behavior than foreign investors, may be due to greater access to inside information and strong financial and business relationship with the main bank with its client firms.

Panel C presents the result of the impact of executive shareholding on earnings quality. The extant literature documents two opposing effects of executive shareholding. The incentive alignment hypothesis suggests that executives' equity ownership can align the incentives of executives with that of shareholders, motivating them to report more informative accounting number. Moreover, allowing firm managers to have a large stake of shares would diminish the managers-shareholders moral hazard problem and reduce the probability of managers to pursue non-value-maximizing activities (Jensen and Meckling, 1976). As the conflict between the two parties is removed, information asymmetry would decline, and the quality of financial statements would improve (Warfield et al., 1995). In contrast, the entrenchment hypothesis predicts that more equity ownership by the executives confers extra power, which may allow them to engage in earnings management activities through discretionary choices to achieve personal benefits because executives with large ownership stakes may be so powerful that they do not have to consider other stakeholders interest (Morck et al., 1988). If entrenchment effect works, we expect that earnings quality will be low for firms with high executive shareholding. Teshima and Shuto (2008) find that incentive alignment effect works for both high and low level of managerial ownership, while entrenchment effect works for a medium level of managerial ownership, suggesting that the relationship between earnings quality and managerial ownership not be monotonic. However, we assume linear relationship for simplification and find that higher level of executive shareholding exacerbates earnings quality, consistent with entrenchment hypothesis. We also find that the significant detrimental effect of executive shareholding does not persist if the main bank holds equity, indicating that managerial use of discretion can be constrained by effective monitoring by the main bank.³

The regression result for small investors is presented in Panel D. Small investors have neither effective voice in the corporate governance nor strong incentives and adequate resources to monitor managerial actions. Small shareholders are more diffused and suffer from the free-riders problem, which precludes them from collecting private information at their cost. Therefore, small investors play a less significant role in monitoring. The lack of active involvement in corporate governance process leaves managers unrestrained in applying their discretionary power and thus results in poor earnings quality. On the other hand, demand for high-quality information increases for firms with small individual investors because the only source of public information available to small investors is accounting information provided by management through financial statements. Because of these two conflicting effects, we do not predict any relation between small investors and earnings quality. The result in Base Column shows that small individual investors have no significant influence on earnings quality. However, they can be benefited if the main bank holds shares, which is found to be associated with better earnings quality. This finding is consistent with Lichtenberg and Pushner (1994) who find no clear evidence of effective presence or voice of individual investors in improving firm performance.

³ Mainbank2 Column for DDSTD measure shows that coefficient of executive shareholding turns negative and significant when shareholding by the main bank is jointly considered, suggesting that the main bank can help achieve convergence of interest between executives and shareholders.

Panel E provides the result for dominant shareholding. For the purpose of this study, the threshold of the ownership stake of the dominant shareholders is set at 15%. Dominant shareholders actually possess control over management and its financial reporting behavior including selection and implementation of accounting policy. Hence, dominant shareholders can use their significant controlling power either to discipline managers resulting in high-quality earnings or to collude with management preventing disclosure of high-quality information. The result (Base Column) shows the coefficient of dominant shareholding is significantly positive for DDSTD measure, and positive (but not significant) for KZABS measure suggesting that dominant shareholders collude with management to promote managerial opportunism instead of serving as an informed monitor. However, the negative effect of dominant shareholding becomes insignificant with the presence of the main bank shareholding, perhaps because of strong monitoring by the main bank.

A distinguishing feature of the ownership structure of Japanese firms is cross-shareholding or intercorporate shareholding among business partners and affiliated firms. Prior research predicts two opposite effect of cross-shareholdings. The active monitoring hypothesis suggests that the cross-shareholding of ownership interest improves earnings quality by reducing the cost of information transfer between managers and shareholders, limiting managerial opportunism and increasing the monitoring of managerial performance by member firms. In support of this prediction, Douthett Jr. and Jung (2001) find that keiretsu firms have higher earnings response coefficients and smaller discretionary accruals than those of non-keiretsu firms. They suggest that strong interrelations of the keiretsu ownership structure arising from the cross holding of equity ownership and credit holding improve the informativeness of earnings through efficient monitoring. In contrast, the entrenchment hypothesis predicts that cross corporate shareholding of a firm's equity insulates management from external monitoring forces, rendering the disciplinary forces of the market for corporate control ineffectual. As a result, managers feel less pressure and get more flexibility in using their discretion over accrual choices opportunistically. Consistent with this hypothesis, some studies find that the predictive ability of earnings and book value is distorted by the degree of cross-corporate ownership (Bae and Kim, 1998), the return-earnings association is weak for firms whose shares are cross-held (Cheung et al., 1999) or value relevance is lower for cross-held firms because of managerial entrenchment and tunneling (Chung et al., 2004). Panel F presents the result for cross-shareholding. The Base Model Column shows that cross-corporate ownership significantly improves earnings quality for both measures, consistent with the argument of active monitoring hypothesis. When shareholding by the main bank is introduced in the model in addition to cross-shareholding, the result shows that both variables have incremental monitoring efficiency as reflected in superior earnings quality.

Panel G reports result for stable shareholding. Stable shareholders are mainly interested in long-term benefits from their investments. It is well known that these shareholders rarely trade these shares in the market, and they hold shares primarily for maintaining long-term business alliances, not for the sake of short-term capital gains (Chung et al., 2004). Stable shareholders

can either contribute to better earnings quality by disciplining managers or promote managerial discretion by protecting top management from hostile takeover and stock market pressures. Thus, the effect of stable shareholding on earnings quality is not clear. The result shows that stable shareholding is significantly related to high-quality earnings either individually or jointly with the main bank shareholding. This positive effect of stable shareholding and the main bank could be due to efficient monitoring of opportunistic managerial behavior.

In sum, we find that institutional shareholding, cross-shareholding, and stable shareholding are associated with higher earnings quality. In contrast, foreign shareholding, executive shareholding, and dominant shareholding are found to be related to poor earnings quality. We do not find any relation between small shareholding and earnings quality. These results are observed when we put different ownership variables one at a time with control variables in the regression. When ownership by the main bank is introduced in the analysis, we find that the effect of institutional, executive and dominant ownership on earnings quality becomes insignificant while foreign, cross, and stable ownership retain their significant influence on earnings quality. In all cases, ownership by the main bank enters the model with significant negative coefficient suggesting that share ownership by the main bank improves the quality of earnings because the main bank can effectively deter the opportunistic use of managerial discretion over financial reporting.

4.3.1 Firms with Shareholding by the Main Bank Vs. Firms Without Shareholding by the Main Bank

Our main analyses are based on firm-year observations that have shareholding by the main bank where the main bank is identified using two different criteria mentioned in Table 1. According to the first definition of the main bank, we have been able to identify 7,525 firm-year observations (See Table 2) that have equity holding by the main bank. A closer examination reveals that there is no borrowing from the main bank for some of these observations. This suggests that a bank is considered to be the main bank by Nikkei even if the firm has no borrowing from that bank or the firm has repaid its loan. If we drop these firm-years from our sample⁴, we find that our main results remain unchanged (results not reported). According to the second definition, which is based on the amount of borrowing, we have been able to trace 6,858 firm-year observations that have a main bank. All of these firm-years have loans from the main bank, but some firm-years have borrowing but no equity investment by the main bank. For our main analyses, we use only those firm-years (4,211 in our case) that have shareholding by the main bank. However, this definition provides an opportunity to divide the sample into two groups: (a) firm-years with shareholding by the main bank (4,211) and (b) firm-years without shareholding by the main bank (2,647). Similarly for the first definition, if we impose a condition that a firm must have borrowed from the main bank (not necessarily the maximum amount of borrowing), the sample reduces to 6,393 firm-year observations of which 5,232 firm-years have

⁴ Dropping these firm-years will leave us with a sample where every observation has both lending and equity holding by the main bank.

equity holding by the main bank, and 1,161 firm-years have no equity holding by the main bank. To examine whether earnings quality varies between these two sub-samples, we create an indicator variable (BANKOWND) which takes the value of 1 if a firm-year has shareholding by the main bank and 0, otherwise. Then, we replaced the continuous variable for a percentage of shareholding by the main bank (BANKOWN) with the indicator variable (BANKOWND) in the regression equation (1) and estimated the following model:

$$EQ_{i,t} = \alpha_0 + \alpha_1 \text{BANKOWND}_{i,t} + \alpha_2 \text{SIZE}_{i,t} + \alpha_3 \text{LEV}_{i,t} + \alpha_4 \text{MB}_{i,t} + \alpha_5 \text{ROA}_{i,t} + \alpha_6 \text{LOSS}_{i,t} + \alpha_7 \text{OWNCON}_{i,t} + \zeta_i \quad \text{Eq. (3)}$$

The result is presented in Table 6. The coefficient of the indicator variable represents the difference in earnings quality between two sub-samples. The result shows that the coefficient is significantly negative, suggesting that firms with shareholding by the main bank have higher earnings quality than firms without shareholding by the main bank. This result bolsters our main findings implying that shareholding in the client firms motivates efficient monitoring of managerial opportunism by the main bank.

[Insert Table 6 here]

4.3.2 Concern for Endogeneity

We cannot rule out the possibility that the main bank's decision to invest in the equity of its client is affected by whether the firm reports better earnings quality. This raises concern for endogeneity that can confound the results of our paper. It is possible that some of the determinants of the main bank shareholdings, which is a choice variable by itself, can be correlated with earnings quality variable. Therefore, we employed instrumental variable estimation approach using the two-stage-least-squares (2SLS) method to deal with such endogeneity.

Following prior literature (Guo et al., 2015), we used lagged main bank shareholding as an instrument in the first-stage regression for current main bank shareholding. The unreported result shows that the coefficient of lagged main bank shareholding is significant (the coefficient is 0.967 for Mainbank1 and 0.937 for Mainbank2) in the first stage regression suggesting that previous main bank shareholding is highly correlated to current main bank shareholding. In the second stage regression, we used the predicted value of main bank shareholding from the first stage regression as an instrumental variable (independent variable) in the baseline regression, equation (3), where earnings quality is the dependent variable. We reported the second stage regression coefficients in Table 7. The result shows that the coefficients of the instrumental variables are still significantly negative, providing evidence that our main results are not driven by the alleged endogenous relation between earnings quality and shareholdings by the main banks.

[Insert Table 7 here]

4.3.3 Additional Analyses— Shareholders' Benefits

Previous discussion confirmed that unlike traditional commercial banks shareholdings of the main bank promotes earnings quality of its client firms as main bank can simultaneously exercise creditor's right and ownership right to check the excessive risk-taking behaviour of firms and encourage the value-maximizing activities as well. However, whether equity holding of main banks that promote earnings quality of client firms provides benefits to outside investors or firms themselves remain an issue. This is because banks usually prefer stable cash flows and don't necessarily want good but risky investment projects which might be desirable for firms' growth and hence for shareholders.

To resolve this issue, two streams of research that are related to the spirit of this paper can be considered. One stream identifies the factors that influence the quality of earnings of a firm. The other stream examines the consequences of earnings quality for the firm itself (reduced cost of debt and equity capital, Francis et al., 2005; Francis et al., 2004) or for the outside investors (reduction in information asymmetry, Bhattacharya et al., 2011, Brown and Hillegeist, 2007; and firm-specific return volatility, Mitra, 2016; Li et al, 2014; Rajgopal and Venkatchalam, 2011). Our paper has a direct connection with the first stream as it focuses on the determinants of earnings quality. Nevertheless, the main finding of this paper can be logically extended to the second stream to conjecture that equity holding by the main bank in its client firms will lower the cost of capital (debt and equity), information asymmetry (reduction in trading cost) or return volatility by improving earnings quality. To test one of these ideas, we examined the association between main bank ownership and idiosyncratic volatility. The idiosyncratic volatility of a particular stock may increase because of mispricing in securities or noise trading by irrational investors. Prior studies have found an inverse relation between earnings quality and idiosyncratic volatility implying that high-quality earnings lead to a reduction in return volatility and thereby making arbitrage trading less riskier (Mitra, 2016; Li et al., 2014; Rajgopal and Venkatchalam, 2011).

We used a widespread method of idiosyncratic return volatility that uses the residual variance from standard capital asset pricing model (CAPM). Specifically, we estimate the following market model of CAPM and take the residuals to calculate volatility of return:

$$R_i = \alpha_i + \beta_i R_m + \varepsilon_i$$

Here, R_i represents a return on stock i ; R_m indicates the return on a market index. We used TOPIX return as the benchmark market return. We estimated this model for each firm included in our sample for each sample year taking daily firm-specific return and market return data. We measured idiosyncratic volatility by taking the variance of the error term (ε_i) from the market model. Finally, we run the following regression models.

$$VOL_{i,t} = \alpha_0 + \alpha_1 BANKOWN_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 LOSS_{i,t} + \alpha_7 OWNCON_{i,t} + \zeta_i \quad \text{Eq. (4)}$$

$$VOL_{i,t} = \alpha_0 + \alpha_1 BANKOWND_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 LOSS_{i,t} + \alpha_7 OWNCON_{i,t} + \zeta_i \quad \text{Eq. (5)}$$

[Insert Table 8 here]

Table 8 reports our regression results. Under the equation (4), columns Mainbank1 and Mainbank 2 provide the result for a shareholding of the main bank for all sample firms. The result confirms that the coefficient of the main bank shareholdings is significantly negative, indicating that the main bank's equity stake reduces idiosyncratic return volatility leading to a reduction in mispricing in securities or noise trading. Akin to equation (4), the coefficients of Mainbank1 and Mainbank 2 under the equation (5) show a significant negative association between shareholdings of the main bank and idiosyncratic return volatility, suggesting that firms without a loan from the main bank but having equity from the main bank have lower idiosyncratic return volatility. This result further strengthens that shareholding in the client firms by the main bank improves shareholders benefits by reducing noise trading and mispricing of securities.

5. Conclusion and Policy Remarks

This study empirically examined the influence of the main banks' shareholdings on the earnings quality of their borrowing firms in the contemporary institutional and financial set up in Japan that seemingly encouraged Western-style governance system to replace the traditional bank-centered monitoring system for corporations. We find that equity holdings of the main bank significantly enhance earnings quality of its client firms through efficient monitoring of managerial discretionary behavior, suggesting that the effectiveness of the main bank monitoring not wither away in Japan. Moreover, the influence of the main bank continues to prevail even when different classes of shareholders such as domestic institutional, foreign, executives, small, dominant, cross and stable shareholders are included separately in the regression model with the main bank's shareholdings. We also find that the role of foreign investors in undertaking monitoring activities of firms, which was encouraged in the big bang reform, tend to work in the opposite direction, implying that they erode the earnings quality of firms instead of improving it. Besides, the adverse impact of foreign shareholding on earnings quality diminishes when the equity holdings of the main bank are considered. This implies that the main bank can counteract the undesirable effect of foreign shareholding by increasing equity holdings in firms. Most importantly, the influence of institutional and executive shareholders on earnings quality disappears when the main bank extends equity. However, cross-shareholding and stable shareholding are found to be associated with higher earnings quality in the presence of the main bank shareholding. These findings are consistent with monitoring rationale that postulates that the stringent monitoring of the main bank is effective in mitigating agency conflicts and information asymmetry, the existence of which provides the managers good opportunity to use their discretion over accounting choices opportunistically. Additionally, we found that shareholding by the main bank tends to reduce idiosyncratic return volatility meaning that it leads to a reduction in mispricing in securities or noise trading by irrational investors. These

findings have important implications for the commercial banks and policymaking institutions as well.

First, the commercial banks (in this case, the main bank) can augment the earnings quality of their borrowing firms if they hold equities simultaneously with loans. This also implies that the ex-ante, interim, and ex-post monitoring functions, which Aoki (1994) called for the integrated monitoring system, can be effectively exercised even on an arm's length mode of finance when commercial banks become a lender and a shareholder. In other words, the efficiency of the main bank in controlling companies and reducing firms' underinvestment problem as mentioned by Prowse (1990) and Rajan (1992) are still pronounced in Japan's concurrent financial setup, indicating that the regulatory authorities' desire to move the Japanese financial system from a convoy system to a market-based system may not be as successful as it is expected.

Second, it is not necessarily true that foreign shareholders would help improve earnings quality of a firm, particularly in a corporate culture that does not allow subordinates to oppose their bosses and most of the board members are internally promoted. This also creates little incentive for the foreign shareholders to develop the takeover market. Thus, foreign shareholders may collude with the management or can be a free rider. In contrast, the main bank is highly capable of getting access to sensitive information about their borrowing firms that can be exploited to monitor the managerial decision-making. Precisely, the main banks can assume the role of foreign shareholders, indicating that the trust and the long-term relationship that the main banks used in intermediating finance during the Heydey period are a more powerful instrument than foreign shareholders in monitoring opportunistic managerial behavior and enforcing the stockholders' interest.

Third, the role of institutional and executive shareholders may be insignificant when main banks hold equity. This is because lending and monitoring are separate activities although they are linked closely. Main banks tend to have incentives for monitoring firms as a residual claimant. Even the firms increase their reliance on stock market financing; incumbent managers may not place all their funding at the mercy of the unpredictable stock market to avoid potential loss of managerial control. On the other hand, main banks relationship guarantees flexibility, meaning that they would rescue firms in the event of financial tumult. Therefore, although the current trend is to encourage market-based governance system, firms in Japan are likely to retain bank loans as a prime source of their finance.

Finally, the main bank system is not doomed even in the refurbished financial structure in Japan. Besides the corporate bodies, it expects to provide strategic support to the smaller firms because such firms expect to seek a larger portion of their finance from bank loans. In fact, in the present financial setup, the role of main banks has become more important for promoting the growth of firms than it did in the early development phase. However, it is not suggested that the main bank should be a principal shareholder of the firm, as it may prevent firms to undertake value added but risky projects, but the role of the main bank as a quasi-insider monitor should not be overlooked in Japan's cultural context. Thus, policymakers may allow the main bank to

hold equity in its client firms above the present 5% permissible level so that it gets adequate incentives to deploy its superior monitoring capabilities effectively to enhance the financial reporting quality of its borrowers. Future studies may check the trade-off point at which bank's shareholding will promote earnings quality of the firms and simultaneously encourage managers to engage in risky but value maximizing activities for firms and shareholders.

References

- Allen, F. 1996. The future of the Japanese Financial System. The Wharton School, University of Pennsylvania, available at <http://fic.wharton.upenn.edu/fic/papers/96/9656.pdf>
- Aoki, M. 1990. Toward an economic model of the Japanese firm. *Journal of Economic Literature* 28: 1-27.
- Aoki, M. 1994. Monitoring characteristics of the main bank system: An analytical and developmental view. In: M. Aoki and H. Patrick (Eds.), *The Japanese main bank system*. Oxford: Oxford University Press.
- Aoki, M., H. Patrick, and P. Sheard. 1994. The Japanese main bank system: An introductory overview. In: M. Aoki and H. Patrick (Eds.), *The Japanese main bank system*. Oxford: Oxford University Press.
- Bae, K. H., and J-B. Kim. 1998. The usefulness of earnings versus book value for predicting stock returns and cross-corporate ownership in Japan. *Japan and the World Economy* 10: 467-485.
- Baik, B., and Choi, W. 2010. Managing earnings surprises in Japan: Perspective from main bank relationships and institutional ownership. *Journal of Business, Finance and Accounting* 37(5-6): 495-517.
- Bhattacharya, N., Desai, H., and Venkataraman, K. 2011. Does earnings quality affect information asymmetry? Evidence from trading costs. *Contemporary Accounting Research* 30(2):482-516.
- Brown, S., and Hillegeist, S. A. 2007. How disclosure quality affects the level of information asymmetry. *Review of Accounting Studies* 12(2-3): 443-477.
- Cheung, J. K., J-B. Kim, and J. Lee. 1999. The impact of institutional characteristics on return-earnings associations in Japan. *The International Journal of Accounting* 34 (4): 571-596.
- Chung, R., M. Firth, and J-B. Kim. 2005. Earnings management, surplus free cash flow, and external monitoring. *Journal of Business Research* 58 (6): 766-776.
- Chung, R., S. Ho, and J-B. Kim. 2004. Ownership structure and the pricing of discretionary accruals in Japan. *Journal of International Accounting, Auditing and Taxation* 13: 1-20.
- Darrrough, M. N., H. Pourjalali, and S. Saudagaran. 1998. Earnings management in Japanese companies. *The International Journal of Accounting* 33 (3): 313-334.
- Diamond, D. W. 1984. Financial intermediation and delegated monitoring. *Review of Economic Studies* 51: 393-414.
- Douthett, Jr, E. B., and K. Jung. 2001. Japanese corporate groupings (keiretsu) and the informativeness of earnings. *Journal of International Financial Management & Accounting* 12 (2): 133-159.

- Dechow, P., and I. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement) 35–59.
- Dechow M.P., and Schrand, C.P. 2004. Earnings quality. *Research Foundations Publications* 3, CFA Institute.
- Francis, J., LaFond, R., Olsson, P., and Schipper, K. 2004. Cost of equity and earnings attributes. *The Accounting Review* 79(4): 967-1010.
- Francis, J., LaFond, R., Olsson, P., and Schipper, K. 2005. The market pricing of accruals quality. *Journal of Accounting and Economics* 39(2):295-327.
- Gow, I., G. Ormazabal, and D. Taylor. 2010. Correcting for cross-sectional and time-series dependence in accounting research. *The Accounting Review* 85 (2): 483-512.
- Guo, J., P. Huang, Y. Zhang, and N. Zhou. 2015. Foreign ownership and real earnings management: Evidence from Japan. *Journal of International Accounting Research*. Forthcoming.
- Hodder, J. E., and A. E. Tschoegl. 1985. Some aspects of Japanese corporate finance. *Journal of Financial and Quantitative Analysis* 20: 173-191.
- Hoshi, T., A. Kashyap, and D. Scharfstein. 1990. Bank monitoring and investment: Evidence from the changing structure of Japanese corporate banking relationships. In: R. Glenn Hubbard, (Eds.), *Asymmetric information, corporate finance, and investment*. University of Chicago Press, Chicago, IL: 105-126.
- Hoshi, T., A. Kashyap, and D. Scharfstein. 1990. The role of banks in reducing the costs of financial distress in Japan. *Journal of Financial Economics* 27: 67-88.
- Hoshi, T., A. Kashyap, and D. Scharfstein. 1991. Corporate structure, liquidity, and investment: evidence from Japanese industrial groups. *Quarterly Journal of Economics* 106: 33-60.
- Hoshi, T., and A. Kashyap. 2001. *Corporate financing and governance in Japan: The road to the future*. Cambridge, MA: The MIT Press.
- Jensen, M. C., and W. H. Meckling. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics* 3 (4): 305-360.
- Jiang, L., and J-B. Kim. 2004. Foreign equity ownership and information asymmetry: evidence from Japan. *Journal of International Financial Management and Accounting* 15 (3): 185-211.
- Jones, J. 1991. Earnings Management during Import Relief Investigations. *Journal of Accounting Research* 29: 193-228.
- Jung, K., and S. Y. Kwon. 2002. Ownership structure and earnings informativeness: Evidence from Korea. *The International Journal of Accounting* 37 (3): 301-325.
- Kang, J., and Shivdasani, A. 1999. Alternative mechanism for corporate governance in Japan: An analysis of independent and bank-affiliated firms. *Pacific-Basin Finance Journal* 7(1):1-22.
- Kang, J. K., and R. Stulz. 2000. Do banking shocks affect borrowing firms performance? An analysis of the Japanese experience. *Journal of Business* 73: 1-23.
- Kawai, M., J. Hashimoto, and S. Izumida. 1996. Japanese firms in financial distress and main banks: Analyses of interest-rate premia. *Japan and the World Economy* 8: 175-194.

- Kutsuna, K., Smith, J.K., and Smith, R, L. 2007. Banking relationship and access to equity capital market: evidence from Japan's main bank system. *Journal of Banking and Finance* 31:335-360.
- Lichtenberg, F. R., and G. M. Pushner. 1994. Ownership structure and corporate performance in Japan. *Japan and the World Economy* 6: 239-261.
- Li, B., Rajgopal, S., and Venkatachalam, M. 2014. R^2 and idiosyncratic risk are not interchangeable, *The Accounting Review* 89(6):2261-2295.
- Mazumder, M. M. M. 2014. *Corporate ownership structure and the quality of accounting earnings: Evidence from Japanese listed firms*. Ph.D. Dissertation. Tohoku University, Japan.
- Mitra, R. K. 2016. The association between earnings quality and firm-specific return volatility: Evidence from Japan. *Review of Accounting and Finance* 15(3):294-316.
- Miyajima, H., and Kuroki, F. 2007. The unwinding of cross-shareholding in Japan: causes, effects and implications. In Aoki, Jackson, and Miyajima (Eds), *Corporate Governance in Japan: Institutional Change and Organizational Diversity*, Oxford University Press.
- Morck, R., A. Shleifer, and R. Vishny. 1988. Management ownership and market valuation: An empirical analysis. *Journal of Financial Economics* 20: 293-315.
- Morck, R., Nakamura, M., and Shivdasani, A. 2000. Banks, ownership structure, and firm value in Japan. *Journal of Business* 73(4):539-567.
- Morck, R., and Nakamura, M. 1999. Banks and corporate control in Japan. *Journal of Finance* 54 (1):319-349.
- Petersen, M. A. 2009. Estimating standard errors in finance panel data sets: Comparing approaches. *Review of Financial Studies* 22: 435-480.
- Prowse, S. D. 1990. Institutional investment patterns and corporate financial behavior in the U.S. and Japan. *Journal of Financial Economics* 27: 43-66.
- Rajan, R. 1992. Insiders and outsiders: The choice between relationship and arms-length debt. *Journal of Finance* 47: 1367-1400.
- Rajgopal, S., and Venkatachalam, M. 2011. Financial reporting quality and idiosyncratic return volatility. *Journal of Accounting and Economics*, 51(1/2): 1-20.
- Sakawa, H., Ubukata, M., and Watanabel, N. 2014. Market liquidity and bank dominated corporate governance: evidence from Japan. *International Review of Economics and Finance* 31:1-11.
- Sheard, P. 1989. The main bank system and corporate monitoring and control in Japan. *Journal of Economic Behavior and Organization* 11: 399-422.
- Sheard, P. 1994. Main banks and the governance of financial distress. In: M. Aoki and H. Patrick, (Eds), *The Japanese main bank system: its relevance for developing and transforming economies*, Oxford University Press, Oxford, 188-230.
- Shinada, N. 2009. Stock ownership and corporate performance in Japan. *RIETI Discussion Paper Series* 10-E-005.
- Suzuki, Y., M. K. Barai, B. K. Adhikary, and M. K. Wanniarachchige. 2011. The Grameen Bank

- “empowering the poor” model of microcredit: an institutional comparison with the traditional mode of the Japanese banking system. *The Journal of Comparative Asian Development* 10(1): 129-156.
- Suzuki, Y. 2011. *Japan’s Financial Slump: collapse of the monitoring system under institutional and transitional failures*. Palgrave Macmillan, UK.
- Teshima, N., and A. Shuto. 2008. Managerial ownership and earnings management: Theory and empirical evidence from Japan. *Journal of International Financial Management & Accounting* 19 (2): 107-132.
- Ueda, K. 1994. Institutional and regulatory framework for Japanese main bank system. In: M. Aoki and H. Patrick (Eds.), *The Japanese main bank system: Its relevance for developing and transforming economies*. Oxford: Clarendon Press.
- Warfield, T. D., J. J. Wild, and K. L. Wild. 1995. Managerial ownership, accounting choices, and informativeness of earnings. *Journal of Accounting and Economics* 20 (1): 61-91.
- Weinstein, D. E., and Y. Yafeh. 1998. On the costs of a bank-centered financial system: Evidence from the Changing main bank relationships in Japan. *Journal of Finance* 53: 635-672.
- Wu, X., and J. Yao. 2012. Understanding the rise and decline of the Japanese main bank system: The changing effects of bank rent extraction. *Journal of Banking and Finance* 36: 36-50.
- Wu, X., and L. Xu. 2005. The value of information of financing decisions and corporate governance during and after the Japanese deregulations. *Journal of Business* 78 (1): 243-280.
- Yamori, N., and Murakami, A. 1999. Does bank relationship have an economic value? The effect of main bank failure on client firms. *Economic Letters* 65:115-120.

Table 1: Definition of Variables

Variable		Definition
<i>Earnings Quality Variables</i>		
Accruals quality	DDSTD	The standard deviation of residuals estimated from a modified Dechow and Dichev (2002) model for firm i over years $t-4$ through t . $TCA_{i,t} = \varphi_0 + \varphi_1 CFO_{i,t-1} + \varphi_2 CFO_{i,t} + \varphi_3 CFO_{i,t+1} + \varphi_4 \Delta REV_{i,t} + \varphi_5 PPE_{i,t} + v_{i,t}$ where $TCA_{i,t}$ is the total current accruals (using the balance sheet approach), $CFO_{i,t}$ is the cash flow from operations, $\Delta REV_{i,t}$ is the change in total revenue, $PPE_{i,t}$ is the gross value of property, plant, and average total assets. All variables in the equation are deflated by average total assets. We estimated the above model for every industry-year in each of the 15 Nikkei two-digit industry groups in which we required at least 10 firms in year t .
Absolute value of abnormal accruals	KZABS	The absolute value of abnormal accruals from Kasznik version of modified Jones (1991) model. $TA_{i,t} = \delta_0 + \delta_1(\Delta REV_{i,t} - \Delta AR_{i,t}) + \delta_2 PPE_{i,t} + \delta_3 \Delta CFO_{i,t} + \eta_{i,t}$ where $TA_{i,t}$ is the total accruals (using the balance sheet approach), $\Delta REV_{i,t}$ is the change in total revenue, $\Delta AR_{i,t}$ is the change in accounts receivable, $PPE_{i,t}$ is the gross value of property, plant, and equipment, $\Delta CFO_{i,t}$ is the change in cash flows from operation. All variables in the equation are deflated by average total assets. We estimated the above model for every industry-year in each of the 15 Nikkei two-digit industry groups in which we required at least 10 firms in year t .
<i>Ownership Structure Variables</i>		
Main bank shareholding	BANKO WN	The percentage of shares held by the main bank where the main bank is defined in two ways. Mainbank1 refers to the shareholding of the main bank as defined by Nikkei. Mainbank2 refers to the shareholding of the main bank as specified by the bank which provides a maximum portion of total borrowing of a particular firm.
Domestic institutional shareholding	INSTITUTE	The percentage of shares held by domestic institutional investors. Domestic institutional investors include annuity trust account, investment trust account and life insurance companies' special accounts.
Foreign shareholding	FOREIGN	The percentage of shares held by foreign investors (based on Yuho).
Executive/insider shareholding	EXECUTIVE	The percentage of shares held by company executives or insiders.
Small shareholding	SMALL	The percentage of shares held by small shareholders who own less than 50 units shares.
Dominant/large shareholding	DOMINANT	The percentage of shares owned by large shareholders who own more than 15% of shares.
Cross-shareholding	CROSS	The percentage of shares held by related parties and affiliated firms.
Stable shareholding	STABLE	Stable shareholding is the proportion of shares held by cross-shareholders, affiliated firms, financial institutions, insurance companies, public companies, executives, employee stock holding companies and treasury stocks.
<i>Control Variables</i>		
Firm size	SIZE	Natural logarithm of market capitalization. Market capitalization is calculated as the year-end closing price times the number of shares outstanding at year-end.
Leverage	LEV	The ratio of interest-bearing debt to market value of equity. The market value of equity is estimated as the year-end closing price times the number of shares outstanding at year-end.
Market-to-book ratio	MB	The market value of equity divided by book value of equity. The market value of equity is the year-end closing price times the number of shares outstanding at year-end.
Profitability	ROA	Return on assets is calculated as net operating income divided by lagged total assets.
Loss firms	LOSS	A dummy variable that is set to 1 if the firm-year reports negative earnings or losses and 0, otherwise.
Ownership concentration	OWNCON	Percentage of shares held by top 10 shareholders plus executives (including executive holding company's) holdings.

Table 2: Descriptive Statistics

This Table reports the descriptive statistics of all the variables used for this study. The sample period is 2006-2012. All variables are defined in Table 1.

Variable		Obs.	Mean	Std. Dev.	Min.	Q1	Median	Q3	Max.
Panel A: Earnings quality variables									
Dechow-Dichev accrual quality	DDSTD	10,116	2.426	1.875	0.346	1.228	1.922	3.029	9.586
Kasznik absolute abnormal accrual	KZABS	10,197	2.835	2.906	0.039	0.889	1.987	3.795	14.187
Panel B: Ownership structure variables									
Main bank1 shareholding	BANKOWN1	7,525	3.167	1.343	0.420	2.070	3.250	4.420	4.980
Main bank2 shareholding	BANKOWN2	4,211	3.333	1.327	0.530	2.310	3.560	4.560	4.980
Domestic institutional shareholding	INSTITUTE	9,909	6.910	7.505	0.000	0.000	4.680	11.220	29.360
Foreign shareholding	FOREIGN	9,985	9.615	11.196	0.000	0.820	5.190	15.260	45.450
Executive/insider shareholding	EXECUTIVE	9,941	6.250	10.494	0.014	0.267	1.313	7.688	48.929
Small shareholding	SMALL	9,936	21.978	15.221	3.400	11.850	20.100	29.900	54.300
Dominant/large shareholding	DOMINANT	9,987	11.371	18.125	0.000	0.000	0.000	20.610	66.240
Cross shareholding	CROSS	9,925	8.950	8.541	0.000	1.960	6.960	13.300	35.210
Stable shareholding	STABLE	9,954	41.531	16.599	6.500	29.620	41.540	53.270	78.990
Panel C: Control variables									
Firm size	SIZE	9,985	9.825	1.790	6.660	8.489	9.584	10.941	14.457
Leverage	LEV	9,957	0.694	0.964	0.000	0.067	0.340	0.898	5.160
Market-to-book ratio	MB	9,969	1.146	0.870	0.232	0.608	0.902	1.380	5.392
Profitability	ROA	9,949	4.770	7.107	-12.319	1.635	4.343	7.703	23.308
Loss firms	LOSS	10,162	0.200	0.400	0.000	0.000	0.000	0.000	1.000
Ownership concentration	OWNCON	9,939	51.470	14.533	22.300	40.500	50.000	62.100	86.100

Table 3: Correlation Matrix

This Table provides Pearson correlation coefficients. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1) DDSTD	1																
(2) KZABS	0.500 ***	1															
(3) BANKOWN1	-0.067 ***	-0.050 ***	1														
(4) BANKOWN2	-0.059 ***	-0.050 ***	0.929 ***	1													
(5) INSTITUTE	-0.168 ***	-0.096 ***	-0.153 ***	-0.142 ***	1												
(6) FOREIGN	-0.131 ***	-0.060 ***	-0.191 ***	-0.135 ***	0.343 ***	1											
(7) EXECUTIVE	0.155 ***	0.121 ***	-0.111 ***	-0.102 ***	-0.223 ***	-0.215 ***	1										
(8) SMALL	0.010 ***	0.061 ***	0.139 ***	0.093 ***	-0.190 ***	-0.358 ***	-0.038 ***	1									
(9) DOMINANT	0.081 ***	0.057 ***	-0.291 ***	-0.251 ***	-0.235 ***	-0.158 ***	-0.167 ***	-0.142 ***	1								
(10) CROSS	-0.225 ***	-0.151 ***	0.424 ***	0.374 ***	0.073 ***	-0.060 ***	-0.269 ***	0.013	-0.268 ***	1							
(11) STABLE	-0.004	0.002	-0.001	0.014	-0.405 ***	-0.426 ***	0.249 ***	-0.170 ***	0.628 ***	0.069 ***	1						
(12) SIZE	-0.233 ***	-0.144 ***	-0.186 ***	-0.113 ***	0.551 ***	0.729 ***	-0.329 ***	-0.368 ***	-0.101 ***	0.063 ***	-0.350 ***	1					
(13) LEV	0.053 ***	0.029 ***	0.090 ***	-0.006	-0.152 ***	-0.239 ***	0.025 **	0.202 ***	-0.028 ***	0.029 ***	0.034 ***	-0.327 ***	1				
(14) MB	0.137 ***	0.098 ***	-0.117 ***	-0.123 ***	0.159 ***	0.233* **	0.012	-0.071 ***	0.004	-0.137 ***	-0.151 ***	0.347 ***	-0.168 ***	1			
(15) ROA	-0.167 ***	-0.160 ***	-0.118 ***	-0.055 ***	0.186 ***	0.247 ***	0.036 ***	-0.209 ***	0.027 ***	-0.038 ***	0.012	0.308 ***	-0.285 ***	0.298 ***	1		
(16) LOSS	0.217 ***	0.210 ***	0.034 ***	0.003	-0.125 ***	-0.143 ***	0.050 ***	0.160 ***	-0.023 **	-0.053 ***	-0.034 ***	-0.235 ***	0.269 ***	-0.097 ***	-0.520 ***	1	
(17) OWNCON	0.082 ***	0.069 ***	-0.208 ***	-0.173 ***	-0.285 ***	-0.212 ***	0.353 ***	-0.323 ***	0.642 ***	-0.243 ***	0.779 ***	-0.289 ***	-0.069 ***	-0.036 ***	0.095 ***	-0.047 ***	1

Table 4: Regression of Earnings Quality on Main Bank Shareholding and Other Control Variables

This Table reports estimation of Eq. (3)

$$EQ_{i,t} = \alpha_0 + \alpha_1 BANKOWN_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 LOSS_{i,t} + \alpha_7 OWNCON_{i,t} + \zeta_i \quad \text{Eq. (1)}$$

Where EQ is a measure of inverse earnings quality calculated from the modified Dechow and Dichev (2002) model and Kasznik version of modified Jones (1991) model. BANKOWN refers to the percentage of shareholding by the main bank where the main bank is defined in two different ways. All other variables are defined in Table 1. The sample period is 2006-2012. *T*-Statistics are calculated based on two-way (firm and year) clustered robust standard errors (Gow et al., 2010; Petersen, 2009) and presented in parentheses. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.127*** (-4.98)	-0.088*** (-2.57)		-0.123*** (-5.65)	-0.010*** (-4.03)
SIZE _{<i>i,t</i>}	(-)	-0.276*** (-11.63)	-0.257*** (-10.75)	-0.285*** (-9.92)	-0.217*** (-7.71)	-0.212*** (-6.35)	-0.258*** (-6.63)
LEV _{<i>i,t</i>}	(-)	-0.113*** (-2.74)	-0.023 (-0.61)	-0.005 (-0.09)	-0.158*** (-5.42)	-0.095** (-2.45)	-0.088* (-1.70)
MB _{<i>i,t</i>}	(+)	0.570*** (9.38)	0.408*** (7.82)	0.417*** (7.47)	0.605*** (7.25)	0.442*** (5.24)	0.499*** (5.43)
ROA _{<i>i,t</i>}	(-)	-0.031*** (-3.20)	-0.022** (-2.04)	-0.029** (-2.26)	-0.045*** (-3.25)	-0.035** (-2.03)	-0.048** (-1.96)
LOSS _{<i>i,t</i>}	(+)	0.633*** (3.35)	0.466*** (3.62)	0.409*** (3.47)	1.071*** (4.91)	0.933*** (5.62)	0.833*** (3.77)
OWNCON _{<i>i,t</i>}	(+)	0.003 (1.15)	-0.001 (-0.43)	-0.002 (-0.50)	0.010*** (3.95)	0.005 (1.53)	0.003 (0.73)
Constant		4.365*** (12.84)	4.774*** (13.31)	4.924*** (11.51)	3.799*** (10.38)	4.396*** (9.89)	4.809*** (9.68)
Obs.		9,855	7,457	4,191	9,874	7,470	4,195
Adjusted R ²		14.75%	11.43%	12.28%	8.65%	6.15%	7.03%

Table 5: Regression of Earnings Quality on Main Bank Shareholding, Different Ownership Categories and Other Control Variables

This Table reports estimation of Eq. (2)

$$EQ_{i,t} = \alpha_0 + \alpha_1 \text{BANKOWN}_{i,t} + \alpha_2 \text{OWNERSHIP}_{i,t} + \alpha_3 \text{SIZE}_{i,t} + \alpha_4 \text{LEV}_{i,t} + \alpha_5 \text{MB}_{i,t} + \alpha_6 \text{ROA}_{i,t} + \alpha_7 \text{LOSS}_{i,t} + \alpha_8 \text{OWNCON}_{i,t} + \zeta_i \quad \text{Eq. (2)}$$

Where EQ is a measure of inverse earnings quality calculated from the modified Dechow and Dichev (2002) model and Kasznik version of modified Jones (1991) model. BANKOWN refers to the percentage of shareholding by the main bank where the main bank is defined in two different ways. OWNERSHIP represents different categories of owners of firms' shares. All other variables are defined in Table 1. Panel A to G reports regression results for each ownership category. The results for institutional shareholding, foreign shareholding, executive shareholding, small shareholding, dominant shareholding, cross-shareholding and stable shareholding are presented in Panel A, B, C, D, E, F and G respectively. The sample period is 2006-2012. *T*-Statistics are calculated based on two-way (firm and year) clustered robust standard errors (Gow et al., 2010; Petersen, 2009) and presented in parentheses. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Panel A: Domestic Institutional Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.130*** (-5.06)	-0.088** (-2.50)		-0.124*** (-5.74)	-0.100*** (-4.11)
INSTITUTE _{<i>i,t</i>}	(+/-)	-0.008* (-1.79)	-0.006 (-1.29)	-0.001 (-0.21)	-0.003 (-0.48)	-0.003 (-0.74)	0.001 (0.22)
SIZE _{<i>i,t</i>}	(-)	-0.251*** (-9.83)	-0.243*** (-8.16)	-0.282*** (-8.26)	-0.205*** (-6.36)	-0.202*** (-5.38)	-0.259*** (-6.17)
LEV _{<i>i,t</i>}	(-)	-0.113*** (-2.78)	-0.022 (-0.61)	-0.007 (-0.13)	-0.160*** (-5.44)	-0.096*** (-2.59)	-0.095* (-1.95)
MB _{<i>i,t</i>}	(+)	0.552*** (9.89)	0.404*** (7.83)	0.413*** (7.51)	0.583*** (7.31)	0.439*** (5.26)	0.498*** (5.43)
ROA _{<i>i,t</i>}	(-)	-0.031*** (-2.99)	-0.021** (-1.92)	-0.028** (-2.22)	-0.047*** (-3.06)	-0.035** (-1.96)	-0.048** (-1.96)
LOSS _{<i>i,t</i>}	(+)	0.633*** (3.37)	0.476*** (3.69)	0.415*** (3.56)	1.072*** (4.84)	0.942*** (5.60)	0.840*** (3.80)
OWNCON _{<i>i,t</i>}	(+)	0.003 (0.86)	-0.002 (-0.59)	-0.003 (-0.60)	0.010*** (3.66)	0.004 (1.43)	0.003 (0.75)
Constant		4.237*** (12.55)	4.670*** (12.28)	4.921*** (11.48)	3.738*** (9.77)	4.337*** (9.34)	4.812*** (9.34)
Obs.		9,809	7,434	4,178	9,827	7,446	4,182
Adjusted R ²		14.49%	11.48%	12.29%	8.55%	6.16%	7.07%

Panel B: Foreign Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.123*** (-4.72)	-0.081** (-2.29)		-0.116*** (-5.44)	-0.092*** (-3.77)
FOREIGN _{<i>i,t</i>}	(+/-)	0.016*** (3.59)	0.011** (2.10)	0.019*** (2.85)	0.024*** (3.94)	0.016** (2.46)	0.021*** (2.77)
SIZE _{<i>i,t</i>}	(-)	-0.349*** (-10.72)	-0.308*** (-8.53)	-0.359*** (-9.42)	-0.329*** (-7.19)	-0.284*** (-5.98)	-0.343*** (-6.61)
LEV _{<i>i,t</i>}	(-)	-0.113 (-2.73)	-0.025 (-0.67)	-0.011 (-0.22)	-0.158*** (-5.48)	-0.098** (-2.54)	-0.095* (-1.83)
MB _{<i>i,t</i>}	(+)	0.579*** (9.57)	0.418*** (7.69)	0.425*** (7.52)	0.619*** (7.54)	0.455*** (5.44)	0.509*** (5.57)
ROA _{<i>i,t</i>}	(-)	-0.033*** (-3.37)	-0.024** (-2.20)	-0.034*** (-2.64)	-0.048*** (-3.45)	-0.039** (-2.24)	-0.054** (-2.16)
LOSS _{<i>i,t</i>}	(+)	0.602*** (3.18)	0.444*** (3.36)	0.375*** (3.06)	1.025*** (4.55)	0.901*** (5.23)	0.793*** (3.45)
OWNCON _{<i>i,t</i>}	(+)	0.004 (1.16)	-0.001 (-0.44)	-0.002 (-0.54)	0.010*** (3.97)	0.005 (1.53)	0.003 (0.69)
Constant		4.931*** (12.60)	5.166*** (12.28)	5.500*** (12.39)	4.669*** (9.17)	4.953*** (8.65)	5.476*** (8.97)
Obs.		9,855	7,457	4,191	9,874	7,470	4,195
Adjusted R ²		15.19%	11.68%	12.85%	9.08%	6.34%	7.31%

Panel C: Executive Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.128*** (-5.01)	-0.092*** (-2.69)		-0.119*** (-5.55)	-0.097*** (-3.83)
EXECUTIVE _{<i>i,t</i>}	(+/-)	0.012** (2.54)	-0.002 (-0.38)	-0.010** (-2.41)	0.018*** (2.95)	0.007 (1.31)	0.005 (0.84)
SIZE _{<i>i,t</i>}	(-)	-0.252*** (-10.47)	-0.260*** (-10.27)	-0.301*** (-9.92)	-0.182*** (-7.86)	-0.199*** (-5.48)	-0.249*** (-6.63)
LEV _{<i>i,t</i>}	(-)	-0.110*** (-2.64)	-0.023 (-0.62)	-0.007 (-0.13)	-0.153*** (-5.24)	-0.095** (-2.42)	-0.088* (-1.71)
MB _{<i>i,t</i>}	(+)	0.548*** (9.58)	0.409*** (7.81)	0.417*** (7.42)	0.574*** (6.92)	0.438*** (5.26)	0.497*** (5.49)
ROA _{<i>i,t</i>}	(-)	-0.033*** (-3.33)	-0.021** (-1.97)	-0.027** (-2.05)	-0.049*** (-3.34)	-0.037** (-2.15)	-0.050** (-2.05)
LOSS _{<i>i,t</i>}	(+)	0.605*** (3.27)	0.468*** (3.56)	0.419*** (3.46)	1.039*** (4.78)	0.925*** (5.55)	0.826*** (3.78)
OWNCON _{<i>i,t</i>}	(+)	0.001 (0.38)	-0.001 (-0.32)	-0.000 (-0.03)	0.007** (2.52)	0.003 (1.10)	0.002 (0.38)
Constant		4.223 (12.41)	4.793*** (13.14)	5.033*** (11.76)	3.579*** (11.07)	4.298*** (9.35)	4.748*** (9.77)
Obs.		9,837	7,451	4,187	9,856	7,464	4,191
Adjusted R ²		14.89%	11.43%	12.53%	8.87%	6.20%	7.06%

Panel D: Small Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.125*** (-4.79)	-0.091*** (-2.57)		-0.121*** (-5.54)	-0.101*** (-3.95)
SMALL _{<i>i,t</i>}	(+/-)	-0.001 (-0.52)	0.002 (0.96)	-0.004 (-0.77)	0.001 (0.30)	0.004 (0.94)	-0.003 (-0.49)
SIZE _{<i>i,t</i>}	(-)	-0.281*** (-10.32)	-0.248*** (-9.51)	-0.305*** (-8.52)	-0.214*** (-7.09)	-0.193*** (-5.12)	-0.272*** (-5.52)
LEV _{<i>i,t</i>}	(-)	-0.112*** (-2.70)	-0.022 (-0.59)	-0.006 (-0.12)	-0.157*** (-5.32)	-0.094** (-2.40)	-0.089* (-1.71)
MB _{<i>i,t</i>}	(+)	0.572*** (9.37)	0.404*** (7.59)	0.427*** (7.31)	0.603*** (7.32)	0.432*** (5.01)	0.506*** (5.30)
ROA _{<i>i,t</i>}	(-)	-0.031*** (-3.20)	-0.022** (-1.96)	-0.030** (-2.33)	-0.045*** (-3.23)	-0.035* (-1.96)	-0.048** (-2.02)
LOSS _{<i>i,t</i>}	(+)	0.630*** (3.35)	0.465*** (3.59)	0.404*** (3.43)	1.068*** (4.90)	0.933*** (5.55)	0.829*** (3.78)
OWNCON _{<i>i,t</i>}	(+)	0.003 (0.87)	-0.000 (-0.09)	-0.005 (-0.89)	0.011*** (3.78)	0.007** (2.08)	0.001 (0.25)
Constant		4.462*** (10.18)	4.593*** (11.05)	5.332*** (8.21)	3.745*** (8.67)	4.037*** (7.54)	5.082*** (7.22)
Obs.		9,850	7,454	4,191	9,869	7,467	4,195
Adjusted R ²		14.76%	11.49%	12.33%	8.61%	6.18%	7.04%

Panel E: Dominant Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.119*** (-4.43)	-0.083** (-2.34)		-0.115*** (-5.01)	-0.094*** (-3.83)
DOMINANT _{<i>i,t</i>}	(+/-)	0.007** (2.32)	0.005 (1.51)	0.003 (0.86)	0.004 (1.46)	0.004 (1.13)	0.003 (0.69)
SIZE _{<i>i,t</i>}	(-)	-0.285*** (-11.68)	-0.261*** (-10.72)	-0.288*** (-9.89)	-0.223*** (-8.51)	-0.215*** (-6.41)	-0.260*** (-6.63)
LEV _{<i>i,t</i>}	(-)	-0.119*** (-2.88)	-0.027 (-0.75)	-0.008 (-0.16)	-0.162*** (-5.40)	-0.099** (-2.45)	-0.091* (-1.70)
MB _{<i>i,t</i>}	(+)	0.567*** (9.29)	0.406*** (7.71)	0.415*** (7.34)	0.603*** (7.20)	0.440*** (5.21)	0.497*** (5.32)
ROA _{<i>i,t</i>}	(-)	-0.029*** (-2.95)	-0.020* (-1.90)	-0.028** (-2.15)	-0.044*** (-3.08)	-0.034* (-1.91)	-0.046* (-1.86)
LOSS _{<i>i,t</i>}	(+)	0.638*** (3.33)	0.472*** (3.61)	0.414*** (3.48)	1.074*** (4.87)	0.937*** (5.56)	0.838*** (3.77)
OWNCON _{<i>i,t</i>}	(+)	-0.002 (-0.56)	-0.005 (-1.10)	-0.004 (-0.84)	0.007* (1.68)	0.002 (0.41)	0.001 (0.10)
Constant		4.680*** (12.06)	4.901*** (12.67)	5.007*** (11.09)	3.998*** (12.39)	4.507*** (9.84)	4.893*** (9.12)
Obs.		9,855	7,457	4,191	9,874	7,470	4,195
Adjusted R ²		15.02%	11.55%	12.34%	8.70%	6.18%	7.05%

Panel F: Cross Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.070** (-2.54)	-0.033 (-0.95)		-0.069*** (-2.99)	-0.052* (-1.77)
CROSS _{<i>i,t</i>}	(+/-)	-0.037*** (-10.08)	-0.021*** (-5.03)	-0.022*** (-4.49)	-0.036*** (-8.40)	-0.021*** (-4.34)	-0.019*** (-3.09)
SIZE _{<i>i,t</i>}	(-)	-0.265*** (-11.68)	-0.243*** (-9.91)	-0.263*** (-9.36)	-0.208*** (-7.69)	-0.199*** (-5.94)	-0.237*** (-6.10)
LEV _{<i>i,t</i>}	(-)	-0.106*** (-2.68)	-0.025 (-0.71)	-0.015 (-0.29)	-0.151*** (-5.21)	-0.098** (-2.54)	-0.097* (-1.87)
MB _{<i>i,t</i>}	(+)	0.499*** (8.91)	0.381*** (7.46)	0.382*** (7.03)	0.540*** (6.41)	0.419*** (4.91)	0.464*** (4.86)
ROA _{<i>i,t</i>}	(-)	-0.032*** (-3.46)	-0.025** (-2.50)	-0.033*** (-2.66)	-0.046*** (-3.36)	-0.037** (-2.22)	-0.052** (-2.18)
LOSS _{<i>i,t</i>}	(+)	0.554*** (3.30)	0.432*** (3.52)	0.379*** (3.36)	1.001*** (4.80)	0.908*** (5.47)	0.806*** (3.66)
OWNCON _{<i>i,t</i>}	(+)	-0.002 (-0.65)	-0.003 (-0.82)	-0.003 (-0.67)	0.005* (1.89)	0.003 (1.13)	0.002 (0.53)
Constant		4.983*** (14.40)	4.791*** (13.35)	4.891*** (11.79)	4.383*** (11.87)	4.425*** (10.23)	4.776*** (9.90)
Obs.		9,825	7,446	4,184	9,844	7,459	4,188
Adjusted R ²		17.28%	12.49%	13.61%	9.57%	6.56%	7.35%

Panel G: Stable Shareholding

Variable	Expected Sign	EQ=DDSTD			EQ=KZABS		
		Base Model	Mainbank1	Mainbank2	Base Model	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)		-0.106*** (-4.06)	-0.055 (-1.60)		-0.102*** (-4.59)	-0.073*** (-2.68)
STABLE _{<i>i,t</i>}	(+/-)	-0.021*** (-7.12)	-0.014*** (-3.87)	-0.022*** (-4.30)	-0.022*** (-5.43)	-0.015*** (-2.78)	-0.018** (-2.31)
SIZE _{<i>i,t</i>}	(-)	-0.294*** (-12.14)	-0.268*** (-11.13)	-0.293*** (-10.00)	-0.236*** (-8.16)	-0.222*** (-6.80)	-0.264*** (-6.79)
LEV _{<i>i,t</i>}	(-)	-0.095** (-2.31)	-0.015 (-0.42)	0.002 (0.04)	-0.141*** (-4.71)	-0.088** (-2.21)	-0.083 (-1.63)
MB _{<i>i,t</i>}	(+)	0.533*** (9.43)	0.394*** (7.92)	0.389*** (7.88)	0.567*** (6.75)	0.426*** (5.02)	0.473*** (5.24)
ROA _{<i>i,t</i>}	(-)	-0.033*** (-3.59)	-0.025** (-2.53)	-0.036*** (-3.06)	-0.047*** (-3.54)	-0.039** (-2.27)	-0.053** (-2.17)
LOSS _{<i>i,t</i>}	(+)	0.576*** (3.20)	0.431*** (3.40)	0.360*** (3.17)	1.019*** (4.69)	0.898*** (5.26)	0.794*** (3.44)
OWNCON _{<i>i,t</i>}	(+)	0.022*** (5.56)	0.011** (2.47)	0.017*** (2.76)	0.029*** (7.77)	0.018*** (3.33)	0.019** (2.28)
Constant		4.546*** (13.29)	4.809*** (13.51)	4.915*** (11.48)	3.989*** (10.61)	4.433*** (9.98)	4.803*** (9.68)
Obs.		9,844	7,454	4,189	9,863	7,467	4,193
Adjusted R ²		15.90%	12.17%	13.91%	9.13%	6.44%	7.45%

Table 6: Regression of Earnings Quality on Main Bank Shareholding Dummy and Other Control Variables

This Table reports estimation result of Eq. (3)

$$EQ_{i,t} = \alpha_0 + \alpha_1 \text{BANKOWND}_{i,t} + \alpha_2 \text{SIZE}_{i,t} + \alpha_3 \text{LEV}_{i,t} + \alpha_4 \text{MB}_{i,t} + \alpha_5 \text{ROA}_{i,t} + \alpha_6 \text{LOSS}_{i,t} + \alpha_7 \text{OWNCON}_{i,t} + \zeta_i \quad \text{Eq. (3)}$$

Where EQ is a measure of inverse earnings quality calculated from the modified Dechow and Dichev (2002) model and Kasznik version of modified Jones (1991) model. BANKOWND is an indicator variable for the main bank shareholding taking the value of 1 if the main bank owns shares of its client firms in addition to providing loans and 0 if the main bank grants loan but holds no equity. For creating this indicator variable, the main bank is defined in two ways. All other variables are defined in Table 1. The sample period is 2006-2012. *T*-Statistics are calculated based on two-way (firm and year) clustered robust standard errors (Gow et al., 2010; Petersen, 2009) and presented in parentheses. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Variable	Expected Sign	EQ=DDSTD		EQ=KZABS	
		Mainbank1	Mainbank2	Mainbnak1	Mainbank2
BANKOWND _{<i>i,t</i>}	(-)	-0.545*** (-4.78)	-0.342*** (-5.12)	-0.469*** (-4.67)	-0.277*** (-3.54)
SIZE _{<i>i,t</i>}	(-)	-0.283*** (-11.55)	-0.309*** (-12.47)	-0.241*** (-6.15)	-0.263*** (-7.67)
LEV _{<i>i,t</i>}	(-)	-0.032 (-0.68)	-0.061 (-1.33)	-0.102** (-2.33)	-0.121*** (-3.43)
MB _{<i>i,t</i>}	(+)	0.444*** (8.67)	0.498*** (9.88)	0.458*** (6.42)	0.518*** (8.01)
ROA _{<i>i,t</i>}	(-)	-0.021* (-1.70)	-0.026** (-2.37)	-0.037 (-1.57)	-0.043** (-2.11)
LOSS _{<i>i,t</i>}	(+)	0.493*** (3.79)	0.524*** (3.56)	0.961*** (4.42)	0.983*** (4.27)
OWNCON _{<i>i,t</i>}	(+)	0.001 (0.24)	0.002 (0.76)	0.006* (1.69)	0.008** (2.44)
Constant		4.956*** (13.40)	4.911*** (14.33)	4.619*** (9.58)	4.524*** (9.87)
Obs.		6,345	6,805	6,354	6,814
Adjusted R ²		13.71%	14.39%	7.72%	8.31%

Table 7: Earnings Quality and Main Bank Shareholding: Two-stage Least-squares (2SLS)

This Table presents results of the two-stage least-squares (2SLS) regression for the sample period 2007-2012. We lose one year due to the use of lagged value of main bank shareholding as instrument. In the first stage, we use main bank shareholding as the dependent variable and lagged main bank shareholding as an instrument along with control variables. We use fitted value of main bank shareholding from first-stage regression as an instrumental variable (independent variable) for main bank shareholding (IVBANKOWN) in the second-stage regression where earnings quality measures are used as dependent variable. We report only second stage regression coefficients in the table. All other variables are defined in Table 1. t -statistics are calculated based on two-way (firm and year) clustered robust standard errors (Gow et al., 2010; Petersen, 2009) and presented in parentheses. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Variable	Expected Sign	EQ=DDSTD		EQ=KZABS	
		IVMainbank1	IVMainbank2	IVMainbnak1	IVMainbank2
IVBANKOWN _{<i>i,t</i>}	(-)	-0.134*** (-5.15)	-0.099*** (-2.74)	-0.120*** (-4.83)	-0.085** (-2.26)
SIZE _{<i>i,t</i>}	(-)	-0.266*** (-10.30)	-0.289*** (-9.29)	-0.232*** (-6.37)	-0.274*** (-6.43)
LEV _{<i>i,t</i>}	(-)	-0.036 (-0.95)	-0.023 (-0.50)	-0.099*** (-2.62)	-0.130*** (-2.95)
MB _{<i>i,t</i>}	(+)	0.447*** (6.40)	0.431*** (6.94)	0.518*** (6.32)	0.501*** (3.94)
ROA _{<i>i,t</i>}	(-)	-0.029** (-2.46)	-0.030** (-2.33)	-0.045** (-2.42)	-0.053** (-2.42)
LOSS _{<i>i,t</i>}	(+)	0.408*** (2.75)	0.339*** (2.79)	0.843*** (5.39)	0.741*** (3.45)
OWNCON _{<i>i,t</i>}	(+)	0.001 (0.28)	-0.000 (-0.08)	0.007** (2.73)	0.005 (1.14)
Constant		4.815*** (12.04)	4.963*** (11.28)	4.477*** (8.59)	4.956*** (8.47)
Obs.		6,416	3,607	6,427	3,608
Adjusted R ²		11.81%	11.39%	6.81%	7.17%

Table 8: Regression of Idiosyncratic Return Volatility on Main Bank Shareholding, Main Bank Shareholding Dummy and Other Control Variables

This Table reports estimation of Eq. (4) and Eq. (5)

$$VOL_{i,t} = \alpha_0 + \alpha_1 BANKOWN_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 LOSS_{i,t} + \alpha_7 OWNCON_{i,t} + \zeta_i \quad \text{Eq. (4)}$$

$$VOL_{i,t} = \alpha_0 + \alpha_1 BANKOWND_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 MB_{i,t} + \alpha_5 ROA_{i,t} + \alpha_6 LOSS_{i,t} + \alpha_7 OWNCON_{i,t} + \zeta_i \quad \text{Eq. (5)}$$

where VOL is a measure of idiosyncratic return volatility. BANKOWN refers to the percentage of shareholding by the main bank where the main bank is defined in two different ways. BANKOWND is an indicator variable for the main bank shareholding taking the value of 1 if the main bank owns shares of its client firms in addition to providing loans and 0 if the main bank grants loan but holds no equity. For creating this indicator variable, the main bank is defined in two ways. We use some additional control variables for Eq. (4) and Eq. (5) which are found to be associated with idiosyncratic return volatility. These are cash flows from operation (CFO), variability of cash flows over prior five years (VCFO), annual buy and hold return (RET), return skewness (SKEW) and return kurtosis (KURT). All other variables are defined in Table 1. The sample period is 2006-2012. *t*-statistics are calculated based on two-way (firm and year) clustered robust standard errors (Gow et al., 2010; Petersen, 2009) and presented in parentheses. ***, **, and * indicate statistical significance at the .01, .05, and .10 level, respectively.

Variable	Expected Sign	Eq. (4)		Eq. (5)	
		Mainbank1	Mainbank2	Mainbank1	Mainbank2
BANKOWN _{<i>i,t</i>}	(-)	-0.031*** (-2.68)	-0.041*** (-3.63)		
BANKOWND _{<i>i,t</i>}	(-)			-0.064* (-1.56)	-0.079*** (-2.89)
SIZE _{<i>i,t</i>}	(-)	-0.147*** (-6.83)	-0.140*** (-5.99)	-0.140*** (-6.26)	-0.146*** (-7.11)
LEV _{<i>i,t</i>}	(+)	0.159*** (6.28)	0.149*** (5.70)	0.145*** (5.64)	0.140*** (5.56)
MB _{<i>i,t</i>}	(+)	0.181*** (3.10)	0.151*** (5.70)	0.176*** (3.50)	0.179*** (3.58)
ROA _{<i>i,t</i>}	(-)	-0.014 (-1.39)	-0.010 (-1.02)	-0.012 (-1.17)	-0.013 (-1.30)
CFO _{<i>i,t</i>}	(-)	0.259 (.048)	0.122 (0.30)	0.177 (0.42)	0.127 (0.30)
VCFO _{<i>i,t</i>}	(+)	1.908*** (3.62)	2.442*** (4.36)	2.389*** (4.01)	2.566*** (4.64)
RET _{<i>i,t</i>}	(-)	-0.038 (-0.14)	0.003 (0.01)	-0.023 (-0.09)	-0.027 (-0.11)
SKEW _{<i>i,t</i>}	(+)	0.225*** (6.21)	0.227*** (5.93)	0.230*** (5.90)	0.235*** (5.96)
KURT _{<i>i,t</i>}	(+)	0.003 (0.50)	0.002 (0.41)	0.002 (0.27)	0.002 (0.30)
Constant		2.559*** (12.85)	2.541*** (12.18)	2.474*** (11.89)	2.528*** (12.86)
Obs.		6,868	3,847	5,653	6,019
Adjusted R ²		33.74%	33.02%	33.57%	35.02%