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Stable Shareholdings, the Decision Horizon Problem, and Patterns of Earnings Management

ABSTRACT

Previous studies argue that stable shareholdings with long-term horizon create incentives for managers to pursue long-term stable earnings and restrict them from conducting myopic behavior. Due to their asymmetric payoff function, stable shareholders are not expected to respond favorably to temporarily inflated earnings that cause higher volatility of earnings. To test the implications of this argument, we focus on cross-shareholdings and stable shareholdings by financial institutions as stable shareholdings in Japan and investigate the effect of these ownership structures on two earnings management patterns: earnings smoothing and big bath. Consistent with our hypothesis, we find that under the stable ownership structure, stable shareholders encourage managers to perform earnings smoothing, which decreases earnings volatility, and discourage them from engaging in big bath, which increases earnings volatility. Further, additional analysis reveals that stable shareholdings reduce incentives for managers to reduce discretionary expenditure for short-term earnings benchmarks; this implies that stable shareholdings can reduce the possibility of the myopic problem. Our results suggest that stable shareholders pressurize managers to create stable earnings strings through earnings management and prevent them from pursuing short-term earnings goals.

Keywords Stable shareholdings・Earnings smoothing・Big bath・Horizon problem・Myopic problem

JEL Classification M41, G32

1 Introduction

Bushee (1998) provides evidence that institutional ownership with short-term investment horizons induces managers to conduct earnings management to attain short-term earnings goals. In contrast, some studies and anecdotes argue that stable shareholdings with long-term investment horizons restrict managers from engaging in such myopic behavior and create incentives for these managers to pursue long-term stable earnings (Abegglen and Stalk 1985; Porter 1992; Jacobson and Aaker 1993; Osano 1996).

This study examines the implications of the aforementioned argument in relation to stable shareholdings from the viewpoint of earnings management. In particular, we focus on cross-shareholdings and stable shareholdings by financial institutions as stable shareholdings in the Japanese equity market, and investigate the effect of these ownership structures on major earnings management patterns: earnings smoothing and big bath. In accordance with the above arguments, we predict that stable shareholders pressurize managers to create stable earnings strings through earnings management.

The reason we focus on the corporate ownership structure of Japanese firms is that it has worthwhile features for our investigation compared to the structures of US firms. A distinctive feature of the Japanese stock market is that both stable shareholdings with longer investment horizons and foreign shareholdings with shorter investment horizons exist simultaneously. This unique ownership structure provides a significant research setting for studying the relationship between earnings management and the investment horizon problem due to ownership structure.

Bushee (1998) finds that greater ownership by institutions with short-term

investment horizons increases the probability that managers will reduce investment in research and development (R&D) to avoid earnings declines. The result suggests that large shareholdings by institutions encourage managers to sacrifice R&D to meet short-term earnings goals rather than maximize long-term value. Such management behavior is often called the *myopic problem* or the *decision horizon problem* (Smith and Watts 1982; Narayanan 1985; Stein 1989; Dechow and Sloan 1991; Porter 1992; Cheng 2004).

In contrast to Bushee's (1998) research, our study focuses on examining the effect of stable shareholdings with long-term investment horizons on earnings management behavior. In Japan, there exist stable shareholders that are highly concentrated among corporate stockholders with financial institutions. In this case, firms are closely connected; they affect each other through cross-holdings of equity ownership and generally depend on a large commercial bank (i.e., the main bank) for their primary banking needs (Hoshi et al. 1990, 1991; Aoki and Patrick 1994; Douthett and Jung 2001; Shuto and Kitagawa 2011).[1] These stable shareholders have a high monitoring ability and a strong incentive to monitor firms because they share close relationships with these firms as creditors or trade partners (Diamond 1984; Aoki and Patrick 1994; Osano 1996; Douthett and Jung 2001; Isagawa 2007; Shuto and Kitgawa 2011). By using their high monitoring ability, these stable shareholders can control firm managers' earnings management decisions.

According to some studies and anecdotes, stable shareholdings are expected to restrict managers from engaging in myopic behavior and induce them to make long-term investments or financial decisions (Abegglen and Stalk 1985; Porter 1992; Jacobson and

[1] It is widely known that the keiretsu system is the most typical form of organization in such corporate groups.

Aaker 1993; Osano 1996). In our research context, we expect that firm managers with stable shareholdings have incentives to consider long-term stable earnings strings rather than short-term earnings that increase earnings volatility.

Their preference for less volatile earnings is rationally explained by their asymmetric payoff function. Due to this function, stable shareholders are more concerned with potential losses than with potential gains, particularly for shareholdings by financial institutions (Watts, 1993). In other words, debt holders such as financial institutions are more concerned about the downside risk of borrowing firms since these debt holders could lose their promised payments (i.e., principal and interest) in serious cases. Because greater uncertainty about profits implies greater risks such as excess bonus or dividends, the reduction of earnings volatility could be a useful way to reduce the downside risk. Further, cross-shareholders are also likely to be more interested in the survival of the firms, as they permit managers to develop operations according to the long-term perspective. This intention is consistent with the interests of the debt holders, who have greater concerns about the default risk of the firms (Shuto and Kitagawa 2011). Consistent with these arguments, Nakatani (1984), a prominent study on the Japanese corporate governance system, provides evidence that the variations in the operating income of *keiretsu*-affiliated firms that comprise shareholders through cross-shareholdings and main bank relationships is significantly smaller than other independent firms.

We predict that this stable earnings stream is formed by earnings management resulting from pressure by stable shareholders. We hypothesize that stable shareholders (1) encourage firm managers to conduct earnings smoothing, which decreases earnings

volatility and (2) discourage them from engaging in big bath, which increases earnings volatility. As many studies indicate, earnings smoothing can create earnings strings that are less volatile and more stable; this is a desirable strategy for managers who consider long-term business prospects.

Big bath is usually defined as extreme earnings-decreasing behavior that is aimed at increasing future potential earnings (Healy 1985). Prior studies reveal that managers have an incentive to engage in big bath behavior during the period of CEO turnover, no bonus payment, organizational stress, and reorganization (Pourciau 1993; Murphy and Zimmerman 1993; Healy 1985). Because of the property of accruals reversal, managers can enhance the probability of future period earnings through the big bath strategy. Managers with stable shareholdings are less likely to follow this strategy because it increases earnings volatility within a future period.

Our results are consistent with the above hypotheses. First, we find that managers conduct earnings smoothing as stable shareholdings increase; this suggests that stable shareholders play a monitoring role in creating pressure for long-term stable earnings strings. Further, to compare the findings of stable shareholdings, we examine the effect of foreign ownership—which can be assumed as shareholders with short-term decision horizons, such as Bushee's (1998) institutional ownership with short-term horizon—on earnings smoothing behavior. The results indicate that foreign ownership restricts firm managers from engaging in earnings smoothing; consistent with our prediction, this is in contrast to the findings on stable shareholdings.

Second, we find that stable shareholdings are negatively associated with big bath

behavior; this suggests that stable shareholders can prevent firm managers from engaging in such behavior. Finally, our additional analysis, which aims at replicating previous studies on discretionary expenditures, reveals that stable shareholdings reduce incentives for managers to cut discretionary expenditures such as R&D and advertising expenses to meet short-term earnings benchmarks. In other words, stable shareholdings could reduce the possibility of the myopic problem, thereby supporting our prediction that they would restrict managers from engaging in only myopic behavior. These results suggest that stable shareholdings in Japan create less volatile and stable earnings strings through earnings management.

This study contributes to the literature and understanding of accounting practice. First, our study contributes to previous studies that examine the relationship between ownership structure and earnings management by adding empirical evidence on investment horizon. Although many studies focus on the relationship between ownership structure and discretionary accruals in US firms (Warfield et al. 1995; Chung et al. 2002; Cornett et al. 2008) and Japanese firms (Douthett and Jung 2001; Teshima and Shuto 2008), few examine the effect of ownership structure on earnings management from the investment horizon perspective. Most prior studies, particularly those on Japanese firms, tend to emphasize the monitoring role of institutional ownership in their hypothesis development and fail to consider the impact of investment horizon of ownership structure on managerial behaviors.

Second, this study makes an incremental contribution to studies focusing on the relationship between earnings management and the decision horizon problem that results from the ownership structure. Bushee (1998) is the only study that identifies that

institutional ownership with short-term decision horizons leads to earnings management for achieving short-term earnings goals; however, this study does not examine the effect of shareholdings with long-term investment horizons and long-term business prospects on earnings management behavior. To the best of our knowledge, this is the first study that examines the economic consequence of stable shareholdings on earnings management.[2] Both Bushee (1998) and this study analyze the presence of institutional shareholdings, but both studies have contrary results. The results suggest that the effect of the investment horizon is critical in discussing the monitoring role of institutional ownership.

Finally, this study advances our understanding of earnings management patterns. Most prior studies assume earnings management to be managerial opportunistic behaviors, and focus on whether earnings management *exists or not* because of the difference in ownership structure. In general, these studies provide evidence that monitoring by institutional investors deters managers from engaging in opportunistic earnings management using discretionary accruals (Douthett and Jung 2001; Chung et al. 2002; Cornett et al. 2008).

On the other hand, we reveal that under institutional stable shareholdings, earnings smoothing is allowed and big bath is restricted. It should be noted that while some types of earnings management can be pursued under certain ownership structures, there exists an earnings management pattern that is restricted to such management under the same

[2] Although Bushee (1998) also provides evidence that *large* institutional ownerships that do not have high portfolio turnover are less likely to cut R&D to reserve an earnings decline, he does not particularly focus on stable shareholdings with long-term investment horizons as we do in our study.

ownership structure.[3] Our finding that stable shareholdings create less variable earnings through earnings management has important implications for the setting of accounting standards and for regulation bodies.

The remainder of this paper is organized in the following manner. Section 2 summarizes prior studies and develops the hypotheses. Section 3 explains the research design for testing our hypotheses. Section 4 outlines the sample selection procedure and describes the variables used in this analysis. Section 5 reports the empirical results on the relationship between stable shareholdings and earnings management. Section 6 summarizes the results of additional analyses. Finally, Section 7 concludes the study with a summary.

2 Prior studies and hypotheses development

2.1 Decision horizon problem and earnings management

Prior studies provide evidence that the managerial decision horizon problem leads to earnings management behavior. Dechow and Sloan (1991) indicate that managers reduce R&D spending to increase short-term earnings when they approach retirement. Baber et al. (1991) find that managers reduce R&D expenses for opportunistically boosting earnings to avoid decreases and losses in earnings. As stated above, these behaviors are usually called the myopic problem or the decision horizon problem (Smith and Watts 1982; Narayanan 1985; Stein 1989; Dechow and Sloan 1991; Porter 1992; Cheng 2004).

[3] Although we reveal that stable shareholdings prefer earnings smoothing, we cannot determine whether such management is efficient or constitutes rational behavior in terms of a firm's value. This issue is beyond our scope and should be addressed in future research.

Cheng (2004) examines whether compensation committees deter opportunistic reduction in R&D expenses when facing decision horizon and myopic problems. The results show that the association between changes in R&D spending and changes in CEO compensation is significantly positive in the presence of these two problems and is insignificant in their absence; this suggests that compensation committees respond to potential opportunistic reductions in R&D spending.

Mande et al. (2000) reveal that Japanese managers in several industries adjust their R&D budgets according to short-term performance. Japanese managers are believed to differ from their US counterparts in terms of R&D strategy. However, the results of Mande et al. show that Japanese managers also have an incentive to engage in myopic behavior, as in the case of US managers.

Further research reveals that the ownership structure provides an opportunity for earnings management as it can affect the firms' decision horizon. Bushee (1998) indicates that concentrated ownership by "transient" institutions with short investment horizons significantly increases the likelihood that managers will cut R&D to meet earnings benchmarks. According to Bushee, concentrated institutional ownership with heavy institutional trading based on current earnings leads to myopic investment behavior by managers (Bushee 1998, p.307). Overall, the results suggest that decision horizon and myopic problems will lead to opportunistic discretionary behavior to meet short-term earnings goals rather than to maximize long-term value.

2.2 Stable shareholding, investment horizon, and stable earnings string

Bushee's (1998) analysis is closely related to our study as he investigates the relationship between ownership structure and discretionary behavior. While Bushee (1998) focuses on the relationship between shareholdings with short investment horizons and earnings management, this study examines the effect on earnings management behavior of stable shareholdings with longer or no short-term investment horizons. A unique feature of Japanese ownership structure is that a large number of shareholders in the Japanese equity market are dominated by stable shareholding, which comprises cross-shareholdings and stable shareholdings by financial institutions (Hoshi et al. 1990, 1991; Aoki and Patrick 1994; Douthett and Jung 2001; Shuto and Kitagawa 2011).

Main banks are representative stable shareholders of financial institutions. These banks have a high monitoring ability and a strong incentive to monitor firms because they share a close relationship with the firms as creditors. They can monitor the conditions of client firms through information obtained from account checking, client firms' shareholdings, and board members' exchanges (Diamond 1984; Aoki and Patrick 1994; Douthett and Jung 2001; Shuto and Kitgawa 2011). Shareholders with cross-shareholdings are also expected to have an incentive to monitor firm managers because they are the firms' trade partners (Osano 1996; Isagawa 2007). Because these groups of firms maintain long-term relationships by exchanging equity stakes in each other, reciprocal voting rights are created. This also implies a credible mutual commitment among firms and ensures that managers who act opportunistically are dismissed or demoted. By using their high monitoring ability, stable shareholders can control firm managers' earnings management decisions.

Studies argue that these stable shareholders can prevent managers from engaging in opportunistic myopic behavior and can encourage them to make long-term investments or financial decisions focusing on their long-term firm value (Abegglen and Stalk 1985; Porter 1992; Osano 1996). Jacobson and Aaker (1993) also contend that because some prospective shareholders in Japan are business partners (often from the same industrial group) and related banks, Japanese investors with better information about the long-term prospects of a business can detect management myopic behavior and will be more willing to accept lower current-term earnings. In the context of our research, we expect that stable shareholders encourage firm managers to perform earnings smoothing, which decreases earnings volatility.

One of the reasons why stable shareholdings, particularly shareholdings by financial institutions, are concerned with stable earnings is their asymmetric payoff function. Debt holders are less likely to be concerned about the potential gains of borrowing firms because they have a nonlinear payoff function that restricts their claims on firm's assets to their promised payments (i.e., principal and interest). In contrast, debt holders have greater concerns about potential losses since they could lose their principal and interest payments in most serious cases (i.e., bankruptcy).

Problems that arise from the existence of different types of financial claims can be reduced by the shareholdings by financial institutions. Financial institutions can monitor the firm's investment projects and can put pressure on managers to minimize downside risk. One implication is that the reduction of earnings volatility could be useful in reducing downside risk. This is because greater uncertainty about profits implies a greater risk that

excess dividends based on temporarily inflated earnings may be paid to shareholders (Watts 1993; Ahmed et al. 2002).

Further, because cross-shareholdings strengthen the stability of firm management by decreasing the threat of hostile takeovers and maintaining long-term business relationships, they permit managers to develop operations according to a long-term perspective. This perspective is likely to be consistent with the interests of the debt holders, who have greater concerns about the default risk of the firms (Shuto and Kitagawa 2011).[4] Thus, we predict that shareholders with cross-holdings would also be more interested in potential losses than in potential gains.

Consistent with these arguments, Nakatani (1984) shows that while the level of *keiretsu*-affiliated firms' operating income is lower than that of other independent firms, its variation over time is significantly small for *keiretsu*-affiliated firms than for independent firms.[5] We predict that stable shareholdings create this stable earnings stream through firm managers' earnings management.

2.3 Hypotheses development

In this paper, we focus on two types of earnings management patterns: 1) earnings

[4] This argument is similar to that of Anderson et al. (2003), who examine the effects of founding family ownership on the cost of debt. Anderson et al. (2003) argue that family shareholders are more likely than other shareholders to value firm survival over strict adherence to wealth maximization because they have a desire to pass the firm onto subsequent generations and are concerned about family and firm reputation. This has the effect of decreasing the potential conflict between shareholders and debt holders. Cross-shareholdings and family shareholding have distinct similarities in that they are undiversified stable shareholdings that do not conduct short-term share trading on the basis of temporal information.

[5] In an interpretation of the results of Nakatani (1984), he presents the *implicit mutual insurance scheme* hypothesis, which assumes that banks within the corporate group control the interest rate for related firms in order to stabilize these firms' profits. However, subsequent studies do not necessarily support this hypothesis (Horiuchi et al. 1988; Hirota 1990).

smoothing and 2) big bath. On the basis of the argument in the previous section, we hypothesize that stable shareholders pressurize managers to create less volatile and more stable earnings strings. First, we predict that stable shareholders encourage firm managers to conduct earnings smoothing since it decreases earnings volatility. Earnings smoothing is a typical earnings management pattern that seeks to reduce the variation in the reported income of firms over time. Thus, this argument leads to our first hypothesis.

Hypothesis 1: Stable shareholdings are positively associated with earnings smoothing behavior.

Second, we predict that stable shareholders prevent firm managers from engaging in big bath since it increases earnings volatility. Big bath is an income-decreasing strategy aimed at making poor earnings in the current year seem even worse. By using the property of accruals reversal, firm managers can artificially enhance future earnings. A big rise in earnings may result in a larger bonus for managers (Healy 1985). The literature also shows that new CEOs often use big bath because they can blame the previous CEO for the firm's poor performance and can create growth strings in earnings within a limited period (Pourciau 1993; Murphy and Zimmerman 1993). Stable shareholders with longer investment horizons discourage managers from using big bath since it increases earnings volatility within a future period.

Hypothesis 2: Stable shareholdings are negatively associated with big bath behavior.

In order to compare the results of stable shareholdings, we also examine the effect of foreign equity ownership. In the Japanese equity market, foreign shareholders are widely known to have short-term investment horizons (Uno and Kamiyama 2010), similar to institutional ownership in the U.S. setting (Bushee 1998); therefore, we can assume that they have similar effects on earnings management behavior.[6] Because foreign ownership is expected to require earnings management for increasing short-term earnings and because it has a contrasting effect to that of stable shareholdings, we predict that foreign ownership decreases earnings smoothing behavior.[7] The theoretical relationship between shareholdings, the decision horizon problem, and patterns of earnings management is summarized in Table 1

3 Research design

3.1 Earnings smoothing measures

3.1.1 Earnings smoothing measures

In this section, we describe earnings management measures with respect to earnings

[6] In addition to the analysis of stable shareholdings, the focus on foreign ownership in Japan is important for the following two reasons (Jiang and Kim 2004). First, as noted by Kang and Stulz (1997), Japan is "the only large country that we know for which detailed data on [share] holding by foreign investors are available" (p. 4) from published annual reports or stock guides. Second, shareholdings by foreign investors are, in general, restricted in Asian countries other than Japan (Jiang and Kim 2004). In this regard, the Japanese equity market is well suited for addressing our research concern.

[7] We cannot predict the relationship between foreign ownership and big bath behavior. As stated in the text, big bath is an extreme income-decreasing strategy for increasing future profit. It is not an attractive method for foreign shareholders if their investment horizon is shorter than the income increasing cycle in big bath management.

smoothing in our empirical analyses. Specifically, following prior studies on earnings management, we use three earnings management measures for earnings smoothing.

The first measure (*ES*1) captures the degree to which managers reduce the variability of reported earnings by altering the accounting accruals; this is widely used in prior studies (Leuz et al. 2003; Francis et al. 2004; LaFond et al. 2007; Lang et al. 2009; Grant et al. 2009). Specifically, *ES*1 is defined as the ratio of the firm's standard deviation of net income (*NI*) to its standard deviation of cash flows from operations (*CFO*) as follows:

$$ES1 = \sigma(NI) / \sigma(CFO),$$

where

NI = net income before extraordinary items; net income – extraordinary gains + extraordinary losses

CFO = cash flow from operations; *NI* – *ACC*

ACC = (Δcurrent assets – Δcash and cash equivalents) – (Δcurrent liabilities – Δfinancing item[8]) – Δother allowance[9] – depreciation

NI and *ACC* are scaled by lagged total assets. We calculate the standard deviations over rolling five-year windows. The lower variability of earnings with respect to the variability in cash flow indicates greater earnings smoothing; therefore, a lower value of

[8] Δ Financing item is the sum of the following items: change in short-term debt, change in commercial paper, and change in bonds and convertible bonds.

[9] Δ Other allowance is the change in allowances classified as fixed assets.

*ES*1 implies greater earnings smoothness.

Our second measure of earnings smoothing (*ES*2) is equal to the correlation between the changes in accounting accruals (*ACC*) and those in operating cash flows (Land and Lang 2002; Leuz et al. 2003; Bhattacharya et al. 2003; Myers et al. 2007; LaFond et al. 2007; Lang et al. 2009; Grant et al. 2009).

$$ES2 = \rho[\Delta ACC, \Delta CFO],$$

We calculate *ES*2 over a period of five years. Even in the absence of earnings management, the *ES*2 measure is expected to be negative on average because a negative correlation is a natural result of accrual accounting (Dechow 1994). However, we expect that a greater negative value of *ES*2 indicates the discretionary behavior of earnings smoothing, which does not reflect a firm's underlying economic performance (Leuz et al. 2003; Bhattacharya et al. 2003; Myers et al. 2007). Hence, a lower *ES*2 value indicates a smoother earnings stream.

The third measure (*ES*3) extends the definition of *ES*2. Following Tucker and Zarowin (2006) and Grant et al. (2009), we calculate *ES*3 as the correlation between the changes in discretionary accruals (*DAC*) and those in non-discretionary net income (*NDNI*).

$$ES3 = \rho[\Delta DAC, \Delta NDNI],$$

where

DAC = discretionary accruals by using the modified Jones model (Dechow et al. 1995)[10]

NDNI = non-discretionary net income; *NI* – *DAC*.

We calculate the correlation over five years again.[11] Although we face difficulty in observing the discretionary portion of managerial earnings smoothing behavior, this measure has an advantage: it assumes that there is an underlying pre-managed earnings series and that managers use discretionary accruals to make the reported series smooth (Tucker and Zarowin 2006; Grant et al. 2009). Consequently, a more negative correlation on *ES*3 indicates greater earnings smoothing behavior.

3.1.2 Big bath measures

Regarding big bath management, we use two earnings management measures focusing on the sign and magnitude of managed earnings by firm managers. Prior studies reveal that managers engage in big bath behavior in order to enhance the probability of future earnings in various situations such as CEO turnover, bonus contract, and restructuring (Pourciau 1993; Murphy and Zimmerman 1993; Healy 1985). However, in our analyses, we do not focus on managers' incentives for engaging in big bath behavior and specify the situation where the big bath strategy is likely to be used because our primary concern is to explore not the managers' motivation for engaging in big bath behavior but the variation and stream of earnings.

[10] The detailed estimation method on the modified Jones model employed in this study is summarized in the Appendix.

[11] The five-year calculation period for earnings smoothing variables used in this study is the same calculation period of Tucker and Zarowin (2006). Grant et al. (2009) uses a three-year period for the calculation.

Therefore, we define the big bath as mere large income-decreasing behavior. Specifically, we use the following two variables (*BB*1 and *BB*2) that define the big bath strategy as income-decreasing behavior by utilizing both discretionary accruals and extraordinary items.

*BB*1 is the censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items (extraordinary gains – extraordinary losses) if both discretionary accruals and extraordinary items are negative, and zero otherwise. We also define *BB*2 as the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items if discretionary accruals and net extraordinary items exceed the median values of each variable by year, respectively, and as zero if both discretionary accruals and net extraordinary items are positive.[12]

In addition to discretionary accruals, it is critically important to consider the effect of extraordinary losses in measuring the big bath in Japan. Although the accounting practice of the big bath in Japan has not been fully explored, some valuable studies provide evidence suggesting that for Japanese managers, using income-increasing extraordinary items is an inevitable method for engaging in big bath (Otomasa 1997; Shuto 2007, 2010).[13]

We use censored variables in order to capture both the sign and magnitude of

[12] Therefore, in our sample, observations that take the value of 0 in the definition of *BB*2 are equivalent to those taking the value of 0 in the definition of *BB*1.

[13] Shuto (2007) indicates that in addition to income-decreasing discretionary accruals, Japanese firm managers who do not receive any bonus adopt income-decreasing extraordinary items; further, this study suggests that the use of extraordinary items is as important a method as the big bath strategy for Japanese managers. Further, Otomasa (1997) and Shuto (2010) also provide evidence showing that firms with extremely bad performance are more likely to report extraordinary losses to further decrease earnings for the big bath.

managed earnings. The variable setting of *BB*2 is a more severe definition for the big bath (i.e., as an income-decreasing management strategy) than that of *BB*1; i.e., *BB*2 is set to reflect greater income-decreasing earnings management. Therefore, following hypothesis 2, we predict that the effect of stable shareholdings on big bath is likely to be more recognized in the analyses using *BB*2 than those using *BB*1.

3.2 Research models

3.2.1 Research model for testing hypothesis 1

To test hypothesis 1, we examine the association between stable shareholdings and earnings smoothing by estimating the following model:

$$ES = \alpha + \beta_1 STABLE + \beta_2 FOREIGN + \beta_3 MO + \beta_4 ASSET + \beta_5 CFO + \beta_6 SALES + \beta_7 CYCLE + \beta_8 LOSS + \beta_9 CINT + \beta_{10} MTB + Industrydummy + \varepsilon \quad (1)$$

$$ES = \alpha + \beta_1 CROSS + \beta_2 FSTABLE + \beta_3 FOREIGN + \beta_4 MO + \beta_5 ASSET + \beta_6 CFO + \beta_7 SALES + \beta_8 CYCLE + \beta_9 LOSS + \beta_{10} CINT + \beta_{11} MTB + Industrydummy + \varepsilon \quad (2)$$

where

ES = earnings smoothing measures (*ES*1, *ES*2, and *ES*3)

STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year

CROSS = fraction of the shares owned by cross-shareholders at the end of the fiscal year

FSTABLE = fraction of the stable shareholdings by financial institutions at the end of the

fiscal year (i.e., *FSTABLE* is defined as *STABLE* minus *CROSS*)

FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year

MO = fraction of the shares owned by directors at the end of the fiscal year

ASSET = log of total assets at the end of the fiscal year

CFO = standard deviation of the firm's rolling five-year cash flows from operations

SALES = standard deviation of the firm's rolling five-year sales revenues

CYCLE = log of the sum of the firm's days accounts receivable ((yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360))

LOSS = proportion of losses over the last five years

CINT = ratio of the net book value of property, plant, and equipment (PP&E) to total assets at the end of the fiscal year

MTB = book-to-market ratio at the end of the fiscal year

Industry dummy = an indicator variable for the Nikkei industry classification code (*Nikkei sangyo chu-bunrui*).

As described in the subsection on earnings smoothing measures, we use three variables (*ES*1, *ES*2, and *ES*3) to measure earnings smoothing behavior. We mainly focus on the stable shareholdings variable (*STABLE*), which is classified into cross-shareholdings (*CROSS*) and stable shareholdings by financial institutions (*FSTABLE*). *CROSS* is defined as the fraction of shares that are owned by cross-shareholders at the end of the fiscal year.

Cross-shareholders include all domestic companies listed on the Japanese stock markets at the end of the fiscal year. *FSTABLE* is calculated as the fraction of the shares owned by stable financial shareholders at the end of the fiscal year.[14] To compare the findings of stable shareholdings, we include foreign shareholdings (*FOREIGN*) in the regression model.

If the relationship between stable shareholdings and earnings smoothing is similar to the prediction of hypothesis 1, the relationship would be expected to be negative. Therefore, in regression model (1), the coefficient of *STABLE* would be expected to be negative. The coefficients of *FSTABLE* and *CROSS* are also expected to be negative in regression model (2). Further, we expect that foreign shareholdings are positively related to earnings smoothing variables or have no impact on them.

Following Francis et al. (2004) and Dechow and Dichev (2002), we set the control variables for the earnings attributes that would determine earnings volatility. Dechow and Dichev (2002) identify the five factors explaining the accruals' quality: firm size (*ASSET*), cash flow variability (*CFO*), sales variability (*SALES*), operating cycle length (*CYCLE*), and incidence of negative earnings realizations (*LOSS*).

Firm size is expected to be negatively associated with earnings volatility since large firms have more stable and predictable operations. Cash flow variability and sales variability would be positively related to earnings volatility because uncertainty in the

[14] Stable shareholders by financial institutions include financial institutions, trust banks, other financial institutions (i.e., brokerage companies and securities finance companies), and parent companies. The definitions of these stable ownership variables depend on those in the *Data Package of Cross-Shareholding and Stable Shareholding*, which is used in this study. For the details of databases used in this analyses, see the section on sample selection.

operating environment increases as the variability increases. Longer operating cycles involve high uncertainty, which increases earnings volatility. The incidence of negative earnings realizations is expected to be positively associated with earnings volatility since reporting losses would indicate severe negative shocks in the firm's operating environment. Consequently, earnings volatility is expected to be negatively associated with *ASSET* and positively associated with *CFO*, *SALES*, *CYCLE,* and *LOSS*.

In addition to these control variables, following the analysis of Francis et al. (2004), we use two additional variables: intangible intensity (*MTB*) and capital intensity (*CINT*).[15] Prior studies reveal that intangibles intensity is positively related to earnings persistence, thereby reducing earnings volatility (Baginski et al. 1999). Further, some studies provide evidence suggesting that capital-intensive firms have greater earnings volatility because of higher operating leverage (Baginski et al. 1999; Lev 1983). Thus, earnings volatility is expected to be negatively related to *MTB* and positively associated with *CINT*.

Finally, as a control variable, we use managerial ownership (*MO*) because prior studies show that managerial ownership is significantly associated with earnings management that is proxied by discretionary accruals (Warfield et al. 1995; Teshima and Shuto 2008). We cannot predict the expected sign of *MO* because it is unclear how managerial ownership affects the earnings management pattern. Detailed definitions of these control variables are summarized in the note of Table 3.

[15] As the proxy for intangible intensity, Francis et al. (2004) use the variable based on R&D cost. However, we use the book-to-market ratio for the intangible intensity variable because the systematic data of R&D cost is not available until 2000 from the database used in this study. The reason for this limitation is summarized in footnote 16.

3.2.2 Research model for testing hypothesis 2

To test hypothesis 2, we examine the effect of stable shareholdings on big bath behavior by estimating the following model:

$$BB = \alpha + \beta_1 STABLE + \beta_2 FOREIGN + \beta_3 MO + \beta_4 ASSET + \beta_5 CFO + \beta_6 SALES + \beta_7 CYCLE + \beta_8 LOSS + \beta_9 CINT + \beta_{10} MTB + Industrydummy + \varepsilon \quad (3)$$

$$BB = \alpha + \beta_1 CROSS + \beta_2 FSTABLE + \beta_3 FOREIGN + \beta_4 MO + \beta_5 ASSET + \beta_6 CFO + \beta_7 SALES + \beta_8 CYCLE + \beta_9 LOSS + \beta_{10} CINT + \beta_{11} MTB + Industrydummy + \varepsilon \quad (4)$$

where

BB = big bath measures ($BB1$ and $BB2$).

We use two variables ($BB1$ and $BB2$) to measure big bath behavior as defined in the subsection on big bath measures. Following hypothesis 2, we expect that stable shareholdings are negatively associated with the incidence of big bath. Thus, the coefficient of *STABLE* are expected to be negative in regression model (3), and the coefficients of *FSTABLE* and *CROSS* are also expected to be negative in model (4).

4 Sample selection and descriptive statistics

4.1 Sample selection

Our sample selection procedures are summarized in Table 2. We obtained our initial sample of 39,559 observations on stable shareholding from the *Data Package of Cross-shareholdings and Stable Shareholding* (*Kabushiki mochiai zyoukyou tyousa no kiso data*) for 1988-2008. We deleted firms in banking, securities, insurance, and other financial institutions and firms whose fiscal year does not end in March; this resulted in 14,009 observations. We also excluded 4,190 observations that changed the accounting period during our analysis period. We then merged the financial statement and stock data from the *Nikkei NEEDS Financial QUEST* database and eliminated the observations with negative total assets or negative book value of equity and missing data to calculate independent variables; this resulted in a sample of 17,091 observations. Finally, after deleting the observations with missing data to calculate dependent variables, we reduced our sample to 12,681 observations for earnings smoothing analyses (*ES sample*) and 17,026 observations for big bath analyses (*BB sample*).

【Insert Table 2 about here】

4.2 Descriptive statistics

Table 3 presents descriptive statistics for the variables used in this study. It shows that the average percentage of *CROSS* (*FSTABLE*) is 12.9 percent (16.7 percent); this means that the average percentage of stable shareholdings (*STABLE*) in the Japanese market, which comprises cross-shareholdings and stable shareholdings by financial institutions, is 29.7 percent. The descriptive statistics of stable shareholdings are similar to those of prior

studies examining the stable shareholdings of Japanese firms (Shuto and Kitagawa 2011).

【Insert Table 3 about here】

The table also indicates that the average percentage of *FOREIGN* is 8.0 percent, indicating that foreign ownership is lesser than stable shareholdings. Our untabulated analysis also indicates that while the value of stable shareholdings is gradually decreasing after the year 2000, that of foreign ownership is largely increasing during this period.

*ES*1, which measures the ratio of a firm's standard deviation of net income (*NI*) to its standard deviation of cash flows from operations, has a mean (median) value of 0.403 (0.311). Both *ES*2 and *ES*3 are defined to capture the correlation between unmanaged earnings and managed earnings. *ES*3, which measures the correlation between the changes in discretionary accruals and those in non-discretionary net income, has a mean (median) value of -0.824 (-0.900). In comparison, Tucker and Zarowin (2006) show a mean (median) smoothness measure of -0.71 (-0.90), and Grant et al. (2009) report a mean (median) value of 0.69 (0.96).

Table 4 presents the correlations matrix among the variables used in this study's regression models. We report the correlations matrix for variables in earnings smoothing analyses in panel A and that for big bath analyses in panel B. The upper right-hand portion of the table reports the Spearman rank-order correlations, and the lower left-hand portion presents the Pearson correlations.

【Insert Table 4 about here】

In panel A, the Pearson correlations reveal that the *STABLE* variable is negatively correlated with *ES*1 (-0.10), *ES*2 (-0.08), and *ES*3 (-0.05). Both *CROSS* and *FSTABLE* are also negatively correlated with the three earnings smoothing variables. The results suggest that earnings smoothing behavior by managers increases as stable shareholdings increase, as hypothesized. In panel B, the correlation shows that the *STABLE* variable is significantly negatively correlated with *BB*1 (-0.04) and *BB*2 (-0.04), suggesting that managers are less likely to engage in big bath behavior as stable shareholdings increase.

5 Main results

5.1 Stable shareholdings and earnings smoothing

To test hypothesis 1 concerning the relationship between stable shareholdings and earnings smoothing, we estimated regression models (1) and (2). We used pooled regressions and reported *t*-statistics based on standard errors clustered at firm and year levels following Petersen's (2009) analyses.[16] As described in section III, we used three variables for earnings smoothing (*ES*1, *ES*2, and *ES*3) and examined the effect of stable shareholdings (*STABLE*, *CROSS,* and *FSTABLE*) on the earnings smoothing variables. Table 5

[16] Petersen (2009) indicates that the standard errors clustered by firm and time can be useful to control for time-series correlation and heteroskedasticity simultaneously. Specifically, *t*-statistics are adjusted for cross-sectional and intertemporal dependence using two-way cluster-robust standard errors proposed by Petersen (2009). We also use this estimation method for all the following analyses in this paper. If clustering of the standard errors does not allow for the inclusion of all of our currently included industry dummy variables, we combine at least two industry dummy variables into one industry dummy variable in order to estimate the regression.

summarizes the regression results.

【Insert Table 5 about here】

In columns 3–5 of Table 5, the regression results of model (1) indicate that the coefficients of *STABLE* are significantly and negatively associated with all the earnings smoothing variables. For example, in the third column (i.e., the analysis of *ES*1), the coefficient of *STABLE* is -0.117 and is significantly negative at the less-than-0.01 level, as expected. These results hold after controlling for the other ownership structure, firm size, cash flow variability, sales variability, operating cycle length, incidence of negative earnings realizations, intangible intensity, and capital intensity. The results suggest that when stable shareholdings are high, managers are likely to smooth earnings; this implies that stable shareholders serve a monitoring role in creating pressure for considering long-term earnings strings. These findings are consistent with hypothesis 1.

In model (2), to conduct further analyses of stable shareholdings, we divide stable shareholdings into two ownership structures: cross-shareholdings (*CROSS*) and stable shareholdings by financial institutions (*FSTABLE*). The regression results are presented in the last three columns of Table 5. The table shows that the coefficients of *CROSS* are significantly negative at the less-than-0.01 level in all models. We also find that the coefficients of *FSTABLE* are significantly and negatively associated with all the earnings smoothing variables.

In contrast, the coefficients of *FOREIGN* are very significantly and positively

associated with the earnings smoothing variables across all models. The results suggest that foreign ownership does not encourage managers to smooth earnings; this is consistent with our prediction, which assumes that foreign shareholders induces managers to inflate their earnings to attain short-term earnings goals.

5.2 Stable shareholdings and big bath

We estimate regression models (3) and (4) to test hypothesis 2 pertaining to the effect of stable shareholdings on big bath behavior. Table 6 reports the regression results. Columns 3 and 4 of the table summarize the regression results of model (3). The table shows that *STABLE* variables are negatively and significantly related to both *BB*1 and *BB*2; this suggests that stable shareholders could prevent firm managers from engaging in big bath. Therefore, the results support hypothesis 2.

【Insert Table 6 about here】

In the last two columns of Table 6, the coefficients of *CROSS* are also significantly and negatively associated with the big bath variables. For example, in the regression analysis of *BB*2, the coefficient of *CROSS* is -0.071 and significantly negative at the less-than-0.05 level. With respect to the analysis of *FSTABLE*, we find that while *FSTABLE* is significantly associated with *BB*2 as expected, it has no significant association with *BB*1. Although it seems that these results do not support our hypothesis, we would like to emphasize that all the results are consistent with our hypothesis, since *BB*2 is defined as a

more income-decreasing procedure than *BB*1 and is a stricter definition of big bath. As noted in section III, we presumed that the effect of ownership structure on the big bath strategy is reflected more in the analyses of *BB*2 than those of *BB*1.

In summary, our results in this section suggest that stable shareholdings, which comprise cross-shareholdings and stable shareholdings by financial institutions, play a monitoring role in creating pressure to smooth earnings and in reducing incentives for engaging in big bath.

6 Additional Analyses

6.1 Real discretionary behavior to meet short-term earnings targets

In this section, we examine the relationship between stable shareholdings and real discretionary behavior to meet short-term earnings targets. Prior studies provide evidence indicating that firm managers facing the problem of myopic investment behavior manipulate real activities, for example, reducing R&D and advertising expenses, to meet short-term earnings goals rather than to maximize long-term value (Dechow and Sloan 1991; Murphy and Zimmerman 1994; Bushee 1998; Detzler and Machuga 2002; Cheng 2004).

Bushee's (1998) analyses are similar to our study in that he focuses on the relationship between institutional ownership with short-term investment horizons and real discretionary behavior (R&D). Specifically, he shows that concentrated ownership by "transient" institutions significantly increases the probability that managers cut R&D to

meet earnings benchmarks.

Because stable shareholdings and Bushee's (1998) institutional ownership are expected to have contrary effects on discretionary behavior, we predict that stable shareholdings reduce incentives for managers to cut discretionary expenditures such as R&D to achieve short-term earnings goals. Specifically, by employing the following regression model, we investigate whether stable shareholdings restrict managers to reducing discretionary expenditures to avoid earnings losses.

$$\begin{aligned} ADISEXP = {} & \alpha + \beta_1 LOSSD + \beta_2 STABLE + \beta_3 FOREIGN + \beta_4 LOSSD * STABLE \\ & + \beta_5 LOSSD * FOREIGN + \beta_6 MO + \beta_7 ASSET + \beta_8 CFO + \beta_6 SALES \\ & + \beta_{10} CYCLE + \beta_{11} LOSS + \beta_{12} CINT + \beta_{13} MTB + Industrydummy + \varepsilon \end{aligned} \quad (5)$$

$$\begin{aligned} ADISEXP = {} & \alpha + \beta_1 LOSSD + \beta_2 CROSS + \beta_3 FSTABLE + \beta_4 FOREIGN \\ & + \beta_5 LOSSD * CROSS + \beta_6 LOSSD * FSTABLE + \beta_7 LOSSD * FOREIGN \\ & + \beta_8 MO + \beta_9 ASSET + \beta_{10} CFO + \beta_{11} SALES + \beta_{12} CYCLE + \beta_{13} LOSS \\ & + \beta_{14} CINT + \beta_{15} MTB + Industrydummy + \varepsilon \end{aligned} \quad (6)$$

where

ADISEXP = the value of abnormal discretionary expense following Roychowdhury's (2006) model

LOSSD = an indicator variable that takes the values of one if reported earnings are slightly greater than zero, and zero otherwise.

This study extends prior studies by measuring discretionary expense in detail.

Specifically, we estimate the abnormal discretionary expense (*ADISEXP*) by using Roychowdhury's (2006) model, which can capture abnormal discretionary expenditures comprehensively, including R&D, advertising, and promotion expenses and other selling costs.[17] Here, as a form of earnings management to meet short-term earnings goals, we focus on loss avoidance.[18] *LOSSD* is an indicator variable that takes the value of one if reported earnings are slightly greater than zero, and zero otherwise.[19] Thus, a negative coefficient of *LOSSD* means that managers manipulate real earnings to avoid earnings losses.

Our primary concern is the coefficient of *LOSSD*STABLE* (*LOSSD*CROSS* and *LOSSD*FSTABLE*). If stable shareholdings prevent firm managers from reducing discretionary expenditures as predicted, the coefficient of *LOSSD*STABLE* is expected to be positive, which is contrary to that of *LOSSD*.

The analysis in this section is restricted to firms that are sampled between 2000 and 2008, thereby, reducing the sample size to 10,836. This is because detailed systematic data of research and development cost is not available for the period before the year 2000 from the database used in this study.[20]

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[17] The detailed estimation method of Roychowdhury (2006) is summarized in the Appendix.

[18] Bushee (1998) investigates earnings management for avoiding earnings decline. We focus on the loss avoidance situation because most studies on Japanese firms already provide evidence that while managers have less incentive to use real discretionary behaviors to avoid earnings decreases, they have strong incentives to avoid earnings losses by using this method (Yamaguchi 2009; Tazawa 2010).

[19] We define the firms reporting earnings that are slightly greater than zero as the firms reporting earnings scaled by the total asset in the interval between 0 (inclusive) and 0.0058 (exclusive), which is the interval to the immediate left of zero in the histogram of the scaled earnings. This interval size of the histogram is based on the method of Freedman and Diaconis (1981] that is used in Degeorge et al. (1999).

[20] In 1998, the Business Accounting Deliberation Council, which had set forth Japanese GAAP in Japan, issued a new accounting standard: *Accounting Standard for Research and Development Costs*. This standard states that research and development costs should be charged to expense immediately when they are paid; this treatment is identical to that of U.S. GAAP. Because this new standard on R&D is applicable from March

Table 7 presents the regression results. The negative coefficient of *LOSSD* means that managers are likely to reduce abnormal discretionary expenditures to meet short-term earnings targets (i.e., to avoid earnings losses). The table also indicates that the coefficient of *LOSSD*STABLE* is significantly positive at the less than 0.01 level. We also find that the coefficients of *LOSSD*FSTABLE* are significant and have the expected sign. In contrast, the coefficient for *LOSSD*FOREIGN* is negative although it is not significant.

【Insert Table 7 about here】

Further, by using a regression model similar to model (5), we examined the effect of stable shareholdings on the relationship between discretionary accruals, which reflect discretionary accounting behavior, and loss avoidance. Untabulated results indicate that managers are less likely to manage earnings to avoid losses by using discretionary accruals as stable shareholdings increase. These results are consistent with our prediction and the results on the above abnormal discretionary expenditures.

Therefore, our results suggest that stable shareholdings that usually have long investment horizons reduce management incentives for myopic behavior and discretionary expenditures for meeting short-term earnings goals.

6.2 Robustness of the results

In this section, we describe other analyses conducted to verify the robustness of our results.

2000, we restrict our sample period to when it is effective.

First, considering the skewness of distribution of ownership variables, we used the scaled decile rank of independent variables, following LaFond and Roychowdhury (2008), and reestimated the regression model.[21] The results of *STABLErank* are summarized in Table 8, which are consistent with those of Tables 4 and 5.

【Insert Table 8 about here】

In model (1), the coefficients of *STABLErank* are significant and negatively associated with all the earnings smoothing variables. Further results show that the coefficient of *STABLErank* is statistically significant in model (3). These results suggest that our results are robust under the analyses on the scaled decile rank.

Second, we examined whether the results are dependent on the alternative definition of *STABLE*. Here, we used the mean value of the firm's rolling five-year stable shareholdings (*STABLE 6*) instead of *STABLE*, since we also calculated the earnings smoothing variables by using rolling five-year windows. Table 9 reports the regression results, which presents the results of replicating the results in Table 5 by using *STABLE 6*.

【Insert Table 9 about here】

We obtained the same results, as indicated in Table 5. Table 9 reveals that the

[21] The scaled decile rank is determined by first ranking each observation year into ten groups from zero to nine, and then scaling the ranking by nine, so that the rank variable falls within the zero-to-one interval (LaFond and Roychowdhury 2008, p.16).

coefficients of *STABLE 6* are significantly negative in all models; this is consistent with our hypothesis. Therefore, our results proved to be robust under the above robustness tests.

7 Conclusion

A unique feature of the ownership structure in the Japanese stock market is that there exist stable shareholdings such as cross-shareholdings and stable shareholdings by financial institutions. Prior studies argue that stable shareholdings create incentives for managers to pursue long-term stable earnings and restrict them to conducting myopic behavior (Abegglen and Stalk 1985; Porter 1992; Jacobson and Aaker 1993; Osano 1996).

In order to test the implication of the argument, we examined the effect of stable shareholdings on the earnings management patterns of Japanese firms. Specifically, we hypothesized that stable shareholders (1) encourage firm managers to conduct earnings smoothing, which decreases earnings volatility, and (2) discourage them from engaging in big bath behavior, which increases earnings volatility.

First, we found that as stable shareholdings increase, managers are likely to conduct earnings smoothing. Second, we revealed that managers are less likely to engage in big bath behavior as stable shareholdings increase. Finally, our additional analysis showed that stable shareholdings reduce incentives for managers to cut discretionary expenditures such as R&D and advertising expenses to meet short-term earnings benchmarks; this implies that stable shareholdings could reduce the possibility of a myopic problem. These results suggest that stable shareholders pressurize managers to focus on long-term stable earnings

strings and prevent them from pursuing short-term earnings targets.

This study contributes to the literature and understanding of accounting practice in several ways. First, we clarified how stable shareholdings with long-term decision horizons create an earnings management pattern. While the relationship between earnings management behavior and an ownership structure with short-term decision horizons is already investigated (Bushee 1998), few studies examined the effect of stable shareholdings with long-term decision horizons on earnings management behavior.

Second, we advanced our understanding of the earnings management pattern. It is important to note that while some types of earnings management are allowed under certain ownership structures, some earnings management patterns are restricted from doing so in the same situation. Our findings that stable shareholdings create stable earnings strings have important implications for the accounting standard setting and regulation bodies.

It must be noted that this study has certain limitations. First, we cannot deny the possibility that the earnings management measures used in this study have some estimation errors. Second, we cannot draw implications from our findings on whether earnings smoothing (or big bath) is efficient behavior. This issue should be addressed in future research.

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Table 1 The theoretical relationship between shareholdings, the decision horizon problem, and patterns of earnings management

Shareholding and investment horizon	The effect of shareholdings on managerial incentives	Expected earnings stream	Expected earnings management patterns
Institutional ownerships with short-term horizon	Managers are encouraged to pursue short-term earnings and avoid an earnings disappointment because trading by institutional ownerships with short-term horizon is sensitive to current earnings and earnings disappointment can trigger large-scale institutional investor's selling.	Managers have incentives to attain short-term earnings goals (i.e., myopic behavior).	Earnings management to increase short-term earnings strings: managers are expected to perform big bath but not earnings smoothing.
Stable ownerships with long-term horizon	Managers are not encouraged to pursue short-term earnings because the goal of stable shareholders is not to profit from their short-term transactions but to maintain a long-term relationship with the firm. Due to their asymmetric payoff function, stable shareholders do not respond favorably to temporarily inflated earnings that cause higher volatility of earnings.	Managers have an incentive to create long-term stable and less volatile earnings.	Earnings management to smooth earrings in the long-term: managers are expected to perform earnings smoothing but not big bath.

Table 2 Sample selection procedures

Criteria		Firm-years
Firm-years with data on cross-shareholdings and stable shareholdings for1988–2008		39,559
Less:		
Banks, securities firms, insurance firms, and other financial institutions		(2,451)
Fiscal year does not end in March		(14,009)
Change in accounting month within firm-years necessary for the analyses		(4,190)
Firm-year with negative total assets or book value of equity		(58)
Missing data for calculating independent variables		(1,760)
		17,091
	ES sample	*BB sample*
	Firm-years	Firm-years
	17,091	17,091
Less:		
Missing data for calculating dependent variables	(4,410)	(65)
Final sample	12,681	17,026

Note:
Cross-shareholdings data and stable shareholdings data necessary for the study are available from the *Data Package of Cross-shareholding and Stable Shareholding* (*Kabushiki mochiai zyoukyou tyousa no kiso data*).
Financial statements data, managerial ownership data, and share price data necessary for the study are available from the *Nikkei NEEDS Financial QUEST*.
The industry is based on the Nikkei industry classification code (Nikkei gyousyu chu-bunrui).
The financial statements data is based on consolidated financial statements.

Table 3 Descriptive statistics

	Mean	Min	Median	Max	SD	Skewness	Kurtosis	*N*
*ES*1	0.403	0.007	0.311	2.704	0.322	1.783	7.118	12,681
*ES*2	-0.879	-1.000	-0.900	0.300	0.198	2.587	10.723	12,681
*ES*3	-0.824	-1.000	-0.900	1.000	0.325	3.135	14.514	12,681
*BB*1	0.019	0.000	0.000	0.329	0.038	3.261	17.357	17,026
*BB*2	0.013	0.000	0.000	0.363	0.039	4.104	23.641	12,423
STABLE	0.297	0.000	0.281	0.760	0.164	0.361	2.495	17,026
CROSS	0.129	0.000	0.119	0.428	0.089	0.578	2.791	17,026
FSTABLE	0.167	0.000	0.110	0.684	0.161	1.312	3.836	17,026
FOREIGN	0.080	0.000	0.044	0.493	0.092	1.631	5.485	17,026
MO	0.032	0.000	0.005	0.404	0.062	3.036	13.070	17,026
ASSET	11.508	8.565	11.299	15.959	1.438	0.613	3.077	17,026
CFO	0.048	0.007	0.039	0.291	0.032	1.999	8.647	17,026
SALES	0.106	0.009	0.080	0.721	0.094	2.683	13.144	17,026
CYCLE	4.879	2.413	5.012	6.142	0.594	-1.110	4.626	17,026
LOSS	0.178	0.000	0.000	1.000	0.243	1.329	3.977	17,026
CINT	0.204	0.003	0.192	0.636	0.118	0.790	3.741	17,026
MTB	1.683	0.204	1.250	31.904	1.713	6.075	71.579	17,026

Note:

*ES*1 = ratio of firm's standard deviations of income before extraordinary items (scaled by lagged total assets) and operating cash flow (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*2 = the Spearman correlation between the change in accruals (scaled by lagged total assets) and the change in cash flow from operations (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*3 = the Spearman correlation between the change in discretionary accruals (*DA*) and the change in nondiscretionary income (*NDNI*). *DA* = discretionary accruals computed using the modified Jones model (Dechow et al, 1995). *NDNI* = income before extraordinary items (net income − extraordinary gains + extraordinary losses) minus *DA*. The Spearman correlation is measured each year for each firm, using rolling five-year windows;

*BB*1 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items (extraordinary gains – extraordinary losses) if both discretionary accruals and extraordinary items are negative, and zero otherwise;

*BB*2 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items if discretionary accruals and net extraordinary items exceed the median values of each variable by year, respectively, and zero if both discretionary accruals and net extraordinary items are positive;

STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);

CROSS = fraction of the shares owned by cross-shareholders at the end of the fiscal year;

FSTABLE = fraction of the stable shareholdings by financial institutions at the end of the fiscal year (i.e., *FSTABLE* is defined as *STABLE* minus *CROSS*);

FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year;

MO = fraction of the shares owned by directors at the end of the fiscal year;

ASSET = log of total assets at the end of the fiscal year;

CFO = standard deviation of the firm's rolling five-year cash flows from operations;

SALE = standard deviation of the firm's rolling five-year sales revenues;

CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;

LOSS = proportion of losses over the last five years;

CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;

MTB = book-to-market ratio at the end of the fiscal year;

Table 4 Correlations matrix

Panel A: *ES sample*

	*ES*1	*ES*2	*ES*3	*STABLE*	*CROSS*	*FSTABLE*	*FOREIGN*	*MO*	*ASSET*	*CFO*	*SALES*	*CYCLE*	*LOSS*	*CINT*	*MTB*
*ES*1	1.00	0.47***	0.35***	-0.12***	-0.13***	-0.07***	0.09***	-0.01	-0.09***	-0.40***	0.11***	0.11***	0.24***	0.07***	0.07***
*ES*2	0.54***	1.00	0.36***	-0.09***	-0.05***	-0.06***	0.06***	-0.02**	-0.04***	-0.21***	0.02**	0.07***	0.19***	0.03***	-0.02*
*ES*3	0.30***	0.31***	1.00	-0.07***	-0.08***	-0.03***	0.05***	-0.07***	-0.01	0.02**	-0.10***	0.04***	0.29***	0.05***	-0.04***
STABLE	-0.10***	-0.08***	-0.05***	1.00	0.34***	0.81***	-0.26***	-0.31***	0.01	-0.03***	0.04***	-0.03***	-0.02**	0.11***	0.02**
CROSS	-0.12***	-0.07***	-0.09***	0.29***	1.00	-0.12***	-0.10***	-0.01	0.07***	-0.10***	-0.09***	-0.01	-0.02**	0.04***	-0.06***
FSTABLE	-0.03***	-0.04***	0.00	0.84***	-0.27***	1.00	-0.18***	-0.36***	0.08***	0.00	0.04***	0.00	0.00	0.14***	0.08***
FOREIGN	0.10***	0.03***	-0.01	-0.31***	-0.16***	-0.22***	1.00	-0.26***	0.56***	-0.04***	-0.06***	0.03***	-0.29***	-0.06***	0.25***
MO	0.03***	0.03***	0.00	-0.38***	-0.18***	-0.28***	-0.09***	1.00	-0.56***	0.10***	0.06***	-0.03***	-0.03***	-0.15***	-0.26***
ASSET	-0.07***	-0.07***	-0.06***	-0.02**	0.04***	-0.04***	0.50***	-0.3***	1.00	-0.16***	-0.14***	-0.01	-0.16***	0.09***	0.32***
CFO	-0.33***	-0.17***	-0.04***	-0.03***	-0.09***	0.02**	-0.02*	0.04***	-0.15***	1.00	0.27***	0.06***	0.14***	-0.19***	-0.01
SALES	0.06***	0.02**	0.03***	0.04***	-0.07***	0.08***	-0.04***	0.04***	-0.10***	0.29***	1.00	-0.14***	0.09***	-0.24***	0.09***
CYCLE	0.10***	0.06***	0.03***	-0.02**	-0.01	-0.02*	0.04***	-0.08***	0.01	0.04***	-0.19***	1.00	0.17***	-0.24***	-0.02**
LOSS	0.21***	0.17***	0.26***	-0.01	-0.04***	0.01	-0.24***	-0.05***	-0.15***	0.11***	0.04***	0.15***	1.00	-0.03***	-0.11***
CINT	0.03***	0.02**	0.03***	0.12***	0.03***	0.11***	-0.08***	-0.10***	0.05***	-0.18***	-0.25***	-0.29***	-0.02**	1.00	0.08***
MTB	0.08***	0.02*	0.00	0.03***	-0.06***	0.06***	0.16***	-0.08***	0.21***	0.04***	0.08***	0.01	0.03***	0.05***	1.00

Panel B: *BB sample*

	*BB*1	*BB*2	*STABLE*	*CROSS*	*FSTABLE*	*FOREIGN*	*MO*	*ASSET*	*CFO*	*SALES*	*CYCLE*	*LOSS*	*CINT*	*MTB*
*BB*1	1.00	1.00***	-0.03***	-0.04***	-0.01	-0.02**	0.01	-0.04***	0.14***	0.03***	0.02*	0.16***	-0.01	-0.01
*BB*2	1.00***	1.00	-0.03***	-0.04***	-0.01	-0.02**	0.01	-0.04***	0.14***	0.03***	0.02*	0.16***	-0.01	-0.01
STABLE	-0.04***	-0.04***	1.00	0.35***	0.83***	-0.23***	-0.33***	0.05***	-0.05***	0.02**	-0.01	-0.04***	0.11***	0.05***
CROSS	-0.05***	-0.05***	0.31***	1.00	-0.08***	-0.09***	-0.02*	0.10***	-0.13***	-0.10***	0.01	-0.04***	0.04***	-0.04***
FSTABLE	-0.01	-0.01	0.85***	-0.24***	1.00	-0.16***	-0.37***	0.10***	-0.02**	0.03***	0.00	-0.02**	0.14***	0.10***
FOREIGN	-0.01	-0.01	-0.29***	-0.16***	-0.21***	1.00	-0.24***	0.55***	-0.04***	-0.08***	0.03***	-0.26***	-0.08***	0.17***
MO	0.00	0.00	-0.40***	-0.21***	-0.29***	-0.07***	1.00	-0.52***	0.10***	0.07***	-0.03***	-0.06***	-0.13***	-0.21***
ASSET	-0.05***	-0.05***	0.01	0.07***	-0.02**	0.48***	-0.28***	1.00	-0.17***	-0.17***	0.00	-0.18***	0.07***	0.26***
CFO	0.19***	0.19***	-0.06***	-0.13***	0.01	-0.02**	0.07***	-0.18***	1.00	0.29***	0.05***	0.14***	-0.19***	0.03***
SALES	0.04***	0.04***	0.01	-0.10***	0.06***	-0.05***	0.09***	-0.13***	0.33***	1.00	-0.16***	0.08***	-0.24***	0.12***
CYCLE	0.02*	0.02*	0.00	0.01	-0.01	0.03***	-0.09***	0.02**	0.03***	-0.20***	1.00	0.14***	-0.23***	-0.04***
LOSS	0.17***	0.18***	-0.04***	-0.06***	-0.01	-0.20***	-0.07***	-0.17***	0.14***	0.05***	0.12***	1.00	-0.02*	-0.13***
CINT	-0.04***	-0.04***	0.12***	0.02**	0.11***	-0.09***	-0.10***	0.04***	-0.19***	-0.23***	-0.29***	0.00	1.00	0.06***
MTB	-0.01	-0.01	0.07***	-0.01	0.08***	0.03***	-0.06***	0.09***	0.07***	0.06***	-0.04***	0.04***	0.07***	1.00

Note:

Spearman (Pearson) correlations are above (below) the diagonal.

*ES*1 = ratio of firm's standard deviations of income before extraordinary items (scaled by lagged total assets) and operating cash flow (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*2 = the Spearman correlation between the change in accruals (scaled by lagged total assets) and the change in cash flow from operations (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*3 = the Spearman correlation between the change in discretionary accruals(*DA*) and the change in nondiscretionary income (*NDNI*). *DA* = discretionary accruals computed using the modified Jones model (Dechow et al, 1995). *NDNI* = income before extraordinary items (net income − extraordinary gains + extraordinary losses) minus *DA*. The Spearman correlation is measured each year for each firm, using rolling five-year windows;

STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);

CROSS = fraction of the shares owned by cross-shareholders at the end of the fiscal year;
FSTABLE = fraction of the stable shareholdings by financial institutions at the end of the fiscal year (*STABLE* - *CROSS*);
FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year;
MO = fraction of the shares owned by directors at the end of the fiscal year;
ASSET = log of total assets at the end of the fiscal year;
CFO = standard deviation of the firm's rolling five-year cash flows from operations;
SALE = standard deviation of the firm's rolling five-year sales revenues;
CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;
LOSS = proportion of losses over the last five years;
CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;
MTB = book-to-market ratio at the end of the fiscal year;
*BB*1 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items (extraordinary gains – extraordinary losses) if both discretionary accruals and extraordinary items are negative, and zero otherwise;
*BB*2 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items if discretionary accruals and net extraordinary items exceed the median values of each variable by year, respectively, and zero if both discretionary accruals and net extraordinary items are positive;
All variables are winsorized at one percent by year.
*** Statistically significant at the 0.01 level of significance using a two-tailed *t*-test
** Statistically significant at the 0.05 level of significance using a two-tailed *t*-test
* Statistically significant at the 0.1 level of significance using a two-tailed *t*-test

Table 5 Regression results on the relationship between stable shareholdings and earnings smoothing

Independent Variable	Expected Sign	Model 1 *ES*1 Coefficient (*t*-value)	Model 1 *ES*2 Coefficient (*t*-value)	Model 1 *ES*3 Coefficient (*t*-value)	Model 2 *ES*1 Coefficient (*t*-value)	Model 2 *ES*2 Coefficient (*t*-value)	Model 2 *ES*3 Coefficient (*t*-value)
Constant		0.762***	-0.733***	-0.716***	0.777***	-0.731***	-0.696***
		(7.865)	(-11.456)	(-8.006)	(8.012)	(-11.356)	(-7.805)
STABLE	-	-0.117***	-0.082***	-0.099***			
		(-3.411)	(-3.576)	(-2.734)			
CROSS	-				-0.266***	-0.106***	-0.302***
					(-4.707)	(-2.871)	(-4.985)
FSTABLE	-				-0.103***	-0.079***	-0.077**
					(-2.910)	(-3.438)	(-2.040)
FOREIGN	+	0.655***	0.187***	0.199***	0.627***	0.183***	0.162***
		(10.862)	(3.614)	(3.410)	(10.266)	(3.439)	(2.809)
MO	+	0.046	-0.057	-0.033	0.021	-0.061	-0.065
		(0.453)	(-0.835)	(-0.229)	(0.201)	(-0.899)	(-0.448)
ASSET	+	-0.042***	-0.016***	-0.012***	-0.040***	-0.016***	-0.011**
		(-9.923)	(-6.208)	(-2.832)	(-9.808)	(-6.089)	(-2.463)
CFO	-	-4.986***	-1.597***	-1.059***	-5.005***	-1.601***	-1.085***
		(-20.212)	(-16.119)	(-5.599)	(-20.180)	(-16.186)	(-5.718)
SALES	-	0.889***	0.271***	0.268***	0.869***	0.267***	0.240***
		(11.440)	(4.960)	(3.732)	(11.277)	(4.851)	(3.473)
CYCLE	-	0.022	0.011	-0.002	0.022	0.011	-0.002
		(1.627)	(1.094)	(-0.158)	(1.623)	(1.093)	(-0.160)
LOSS	-	0.328***	0.149***	0.364***	0.324***	0.148***	0.359***
		(10.969)	(7.387)	(11.839)	(10.964)	(7.358)	(11.582)
CINT	-	0.045	0.031	0.063	0.040	0.030	0.055
		(0.717)	(0.724)	(1.028)	(0.630)	(0.700)	(0.907)
MTB	-	0.017**	0.000	-0.003	0.017**	0.000	-0.003
		(2.432)	(0.070)	(-0.352)	(2.463)	(0.048)	(-0.433)
Industry dummy		Yes	Yes	Yes	Yes	Yes	Yes
Adj. R^2		0.329	0.124	0.100	0.331	0.124	0.103
N		12,681	12,681	12,681	12,681	12,681	12,681

Note:

*ES*1 = ratio of firm's standard deviations of income before extraordinary items (scaled by lagged total assets) and operating cash flow (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*2 = the Spearman correlation between the change in accruals (scaled by lagged total assets) and the change in cash flow from operations (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*3 = the Spearman correlation between the change in discretionary accruals(*DA*) and the change in nondiscretionary income (*NDNI*). *DA* = discretionary accruals computed using the modified Jones model (Dechow et al, 1995). *NDNI* = income before extraordinary items (net income − extraordinary gains + extraordinary losses) minus *DA*. The Spearman correlation is measured each year for each firm, using rolling five-year windows;

STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);

CROSS = fraction of the shares owned by cross-shareholders at the end of the fiscal year;

FSTABLE = fraction of the stable shareholdings by financial institutions at the end of the fiscal year (*STABLE* - *CROSS*);

FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year;

MO = fraction of the shares owned by directors at the end of the fiscal year;

ASSET = log of total assets at the end of the fiscal year;

CFO = standard deviation of the firm's rolling five-year cash flows from operations;

SALE = standard deviation of the firm's rolling five-year sales revenues;

CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;

LOSS = proportion of losses over the prior last years;

CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;

MTB = book-to-market ratio at the end of the fiscal year;

All variables are winsorized at one percent by year.

Industry dummy = an indicator variable for Nikkei industry classification code (Nikkei gyousyu chu-bunrui)

t-statistics are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level proposed by Petersen (2009).

*** Statistically significant at the 0.01 level of significance using a two-tailed *t*-test

** Statistically significant at the 0.05 level of significance using a two-tailed *t*-test

* Statistically significant at the 0.1 level. of significance using a two-tailed *t*-test

Table 6 Regression results on the relationship between stable shareholdings and big bath

Independent Variable	Expected Sign	Model 3 *BB*1 Coefficient (*z*-value)	Model 3 *BB*2 Coefficient (*z*-value)	Model 4 *BB*1 Coefficient (*z*-value)	Model 4 *BB*2 Coefficient (*z*-value)
Constant		-0.014	-0.186***	-0.013	-0.182***
		(-0.735)	(-3.676)	(-0.677)	(-3.584)
STABLE	-	-0.009**	-0.026***		
		(-2.190)	(-2.594)		
CROSS	-			-0.025*	-0.071**
				(-1.861)	(-2.033)
FSTABLE	-			-0.007	-0.019*
				(-0.867)	(-1.907)
FOREIGN	+	0.006	0.003	0.004	-0.004
		(0.438)	(0.088)	(0.251)	(-0.152)
MO	-	-0.010	-0.043	-0.012	-0.047
		(-0.549)	(-0.934)	(-0.665)	(-1.046)
ASSET	-	-0.000	0.000	-0.000	0.001
		(-0.586)	(0.170)	(-0.375)	(0.392)
CFO	+	0.342**	0.881***	0.339**	0.874***
		(2.444)	(2.777)	(2.412)	(2.730)
SALES	+	-0.033	-0.067	-0.035	-0.073
		(-1.239)	(-1.060)	(-1.334)	(-1.177)
CYCLE	+	-0.007***	-0.016***	-0.007***	-0.016***
		(-4.317)	(-4.021)	(-4.349)	(-4.067)
LOSS	+	0.041***	0.132***	0.041***	0.131***
		(25.413)	(31.599)	(25.445)	(31.797)
CINT	+	0.028**	0.072**	0.027***	0.071**
		(2.494)	(2.303)	(4.353)	(2.245)
MTB	+	-0.002***	-0.002***	-0.002***	-0.002***
		(-6.650)	(-3.329)	(-6.770)	(-3.428)
Industry dummy		Yes	Yes	Yes	Yes
Log likelihood		1377.705	-2221.568	1379.801	-2219.949
Pseudo R^2		-0.320	0.128	-0.322	0.129
N		17,026	12,423	17,026	12,423

Note:

*BB*1 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items (extraordinary gains – extraordinary losses) if both discretionary accruals and extraordinary items are negative, and zero otherwise;

*BB*2 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items if discretionary accruals and net extraordinary items exceed the median values of each variable by year, respectively, and zero if both discretionary accruals and net extraordinary items are positive;

STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);

CROSS = fraction of the shares owned by cross-shareholders at the end of the fiscal year;

FSTABLE = fraction of the stable shareholdings by financial institutions at the end of the fiscal year (*STABLE* - *CROSS*);

FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year;

MO = fraction of the shares owned by directors at the end of the fiscal year;

ASSET = log of total assets at the end of fiscal the year;

CFO = standard deviation of the firm's rolling five-year cash flows from operations;

SALE = standard deviation of the firm's rolling five-year sales revenues;

CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;

LOSS = proportion of losses over the last five years;

CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;

MTB = book-to-market ratio at the end of the fiscal year;

All variables are winsorized at one percent by year.

Industry dummy = an indicator variable for Nikkei industry classification code (Nikkei gyousyu chu-bunrui)

z-statistics are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level proposed by Petersen (2009).

*** Statistically significant at the 0.01 level of significance using a two-tailed *z*-test

** Statistically significant at the 0.05 level of significance using a two-tailed *z*-test

* Statistically significant at the 0.1 level. of significance using a two-tailed *z*-test

Table 7 Regressions results on the relationship between stable shareholdings and abnormal discretionary expenses

Independent Variable	Expected Sign	Model 5 *ADISEXP* Coefficient (*t*-value)	Model 6 *ADISEXP* Coefficient (*t*-value)
Constant		0.036	0.040
		(1.418)	(1.551)
LOSSD	-	-0.012**	-0.014**
		(-2.498)	(-2.192)
STABLE	+	-0.024**	
		(-2.133)	
CROSS	+		-0.055***
			(-2.881)
FSTABLE	+		-0.021*
			(-1.925)
FOREIGN	-	0.009	0.006
		(0.506)	(0.304)
LOSSD STABLE*	+	0.026**	
		(2.106)	
LOSSD CROSS*	+		0.041
			(1.359)
LOSSD FSTABLE*	+		0.026**
			(2.449)
LOSSD FOREIGN*	-	-0.038	-0.036
		(-1.382)	(-1.325)
MO	+	0.031	0.026
		(1.114)	(0.948)
ASSET	+	-0.000	-0.000
		(-0.165)	(-0.017)
CFO	-	0.048	0.043
		(1.393)	(1.247)
SALES	-	-0.050***	-0.054***
		(-3.422)	(-3.665)
CYCLE	-	-0.007	-0.007
		(-1.446)	(-1.462)
LOSS	-	-0.004	-0.004
		(-0.686)	(-0.721)
CINT	-	-0.036**	-0.037***
		(-2.549)	(-2.604)
MTB	-	0.004**	0.003**
		(2.419)	(2.268)
Industry dummy		Yes	Yes
Adj. R^2		0.024	0.026
N		10,836	10,836

Note:
ADISEXP = the value of abnormal discretionary expense;
LOSSD = an indicator variable that takes the values of one if the firm has scaled earnings in the interval between 0 (inclusive) and 0.0058 (exclusive), and zero otherwise.;
STABLE = fraction of the stable shareholdings by financial institutions and non-financial companies at the end of fiscal year.
CROSS = fraction of the shares owned by cross-shareholders at the end of fiscal year;
STABLE = fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);
FOREIGN = fraction of the shares owned by foreign companies at the end of the fiscal year.
MO = fraction of the shares owned by directors at the end of the fiscal year;
ASSET = log of total assets at the end of the fiscal year;
CFO = standard deviation of the firm's rolling five-year cash flows from operations;
SALE = standard deviation of the firm's rolling five-year sales revenues;
CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;
LOSS = proportion of losses over the last five years;
CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;
MTB = book-to-market ratio at the end of the fiscal year;
All variables are winsorized at one percent by year.
Industry dummy = an indicator variable for Nikkei industry classification code (Nikkei gyousyu chu-bunrui)

t-statistics are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level proposed by Petersen (2009).
*** Statistically significant at the 0.01 level of significance using a two-tailed *t*-test
** Statistically significant at the 0.05 level of significance using a two-tailed *t*-test
* Statistically significant at the 0.1 level. of significance using a two-tailed *t*-test

Table 8 Regression results on the relationship between stable shareholdings and earnings smoothing and big bath: Results using the scaled decile rank variables

Independent Variable	Expected Sign	Model 1 *ES*1 Coefficient (*t*-value)	Model 1 *ES*2 Coefficient (*t*-value)	Model 1 *ES*3 Coefficient (*t*-value)	Model 3 *BB*1 Coefficient (*t*-value)	Model 3 *BB*2 Coefficient (*t*-value)
Constant		0.337***	-0.894***	-0.877***	-0.064***	-0.299***
		(8.212)	(-29.349)	(-22.709)	(-17.418)	(-9.232)
STABLErank	-	-0.034**	-0.020**	-0.031*	0.000	-0.007**
		(-2.237)	(-1.975)	(-1.933)	(0.160)	(-2.018)
FOREIGNrank	+	0.163***	0.059***	0.029	0.001	-0.005
		(8.711)	(4.080)	(1.511)	(0.617)	(-0.430)
MOrank	+	0.021	0.006	-0.014	0.005**	0.001
		(0.946)	(0.407)	(-0.503)	(2.044)	(0.395)
ASSETrank	+	-0.173***	-0.065***	-0.045**	0.004*	0.013***
		(-7.930)	(-5.236)	(-2.055)	(1.712)	(2.792)
CFOrank	-	-0.517***	-0.166***	-0.108***	0.034***	0.112***
		(-24.800)	(-15.298)	(-7.074)	(36.206)	(3.010)
SALESrank	-	0.236***	0.075***	0.042**	-0.006***	-0.020***
		(11.731)	(7.308)	(2.309)	(-4.845)	(-6.457)
CYCLErank	-	0.056**	0.030**	0.006	-0.015***	-0.032***
		(2.542)	(1.976)	(0.252)	(-6.812)	(-6.982)
LOSSrank	-	0.233***	0.105***	0.236***	0.027***	0.093***
		(15.411)	(9.318)	(10.264)	(26.735)	(31.359)
CINTrank	-	0.048**	0.025*	0.034	0.013***	0.041***
		(2.358)	(1.816)	(1.407)	(5.877)	(9.423)
MTBrank	-	0.107***	0.012	0.032*	0.008***	0.023***
		(5.379)	(1.062)	(1.699)	(5.902)	(7.179)
Industry dummy		Yes	Yes	Yes	Yes	Yes
Adj. R^2		0.381	0.137	0.099		
Log likelihood					1365.974	-2193.179
Pseudo R^2					-0.309	0.139
N^2		12,681	12,681	12,681	17,026	12,423

Note:

*ES*1 = ratio of firm's standard deviations of income before extraordinary items (scaled by lagged total assets) and operating cash flow (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*2 = the Spearman correlation between the change in accruals (scaled by lagged total assets) and the change in cash flow from operations (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;

*ES*3 = the Spearman correlation between the change in discretionary accruals (*DA*) and the change in nondiscretionary income (*NDNI*). *DA* = discretionary accruals computed using the modified Jones model (Dechow et al., 1995). *NDNI* = income before extraordinary items (net income − extraordinary gains + extraordinary losses) minus *DA*. The Spearman correlation is measured each year for each firm, using rolling five-year windows;

*BB*1 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items (extraordinary gains – extraordinary losses) if both discretionary accruals and extraordinary items are negative, and zero otherwise;

*BB*2 = censored variable that takes the value of the sum of the absolute value of discretionary accruals and the absolute value of net extraordinary items if discretionary accruals and net extraordinary items exceed the median values of each variable by year, respectively, and zero if both discretionary accruals and net extraordinary items are positive;

STABLErank = scaled decile rank of fraction of the shares owned by stable shareholders at the end of the fiscal year. Stable shareholdings are classified into the cross-shareholdings (*CROSS*) and the stable shareholdings by financial institutions (*FSTABLE*);

FOREIGNrank = scaled decile rank of fraction of the shares owned by foreign companies at the end of the fiscal year.

MOrank = scaled decile rank of fraction of the shares owned by directors at the end of the fiscal year;

ASSETrank = scaled decile rank of log of total assets at the end of the fiscal year;

CFOrank = scaled decile rank of standard deviation of the firm's rolling five-year cash flows from operations;

SALErank = scaled decile rank of standard deviation of the firm's rolling five-year sales revenues;

CYCLErank = scaled decile rank of log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;

LOSSrank = scaled decile rank of proportion of losses over the last five years;

CINTrank = scaled decile rank of the ratio of the net book value of PP&E to total assets at the end of the fiscal year;

MTBrank = scaled decile rank of book-to-market ratio at the end of the fiscal year;

The scaled decile rank is determined by first ranking each observation year into ten groups from zero to nine, and then scaling the ranking by nine.

All variables (except for scaled decile rank variables) are winsorized at one percent by year.

Industry dummy = an indicator variable for Nikkei industry classification code (Nikkei gyousyu chu-bunrui)

t-statistics (*z*-statistics) are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster

at the firm and year level proposed by Petersen (2009).
*** Statistically significant at the 0.01 level of significance using a two-tailed *t*-test (*z*-test).
** Statistically significant at the 0.05 level of significance using a two-tailed *t*-test (*z*-test).
* Statistically significant at the 0.1 level. of significance using a two-tailed *t*-test (*z*-test).

Table 9 Regression results on the relationship between stable shareholdings and earnings smoothing: Results using the alternative definition on ownership variables

Independent Variable	Expected Sign	Model 18 *ES*1 Coefficient (*t*-value)	Model 19 *ES*2 Coefficient (*t*-value)	Model 20 *ES*3 Coefficient (*t*-value)
Constant		0.773***	-0.715***	-0.712***
		(8.055)	(-11.089)	(-7.968)
STABLE 6	-	-0.129***	-0.078***	-0.093**
		(-3.488)	(-3.009)	(-2.254)
*FOREIGN*5	+	0.730***	0.271***	0.256***
		(9.687)	(4.044)	(3.019)
*MO*5	+	0.032	-0.081	-0.037
		(0.321)	(-1.176)	(-0.260)
ASSET	+	-0.041***	-0.018***	-0.014***
		(-10.209)	(-6.970)	(-3.069)
CFO	-	-5.020***	-1.603***	-1.065***
		(-19.514)	(-15.944)	(-5.383)
SALES	-	0.915***	0.276***	0.273***
		(11.362)	(4.910)	(3.699)
CYCLE	-	0.019	0.011	-0.001
		(1.396)	(1.093)	(-0.081)
LOSS	-	0.318***	0.150***	0.361***
		(10.622)	(7.213)	(11.552)
CINT	-	0.039	0.039	0.072
		(0.616)	(0.928)	(1.136)
MTB	-	0.022***	0.001	-0.000
		(2.670)	(0.475)	(-0.051)
Industry dummy		Yes	Yes	Yes
Adj. R^2		0.325	0.124	0.100
N		12,266	12,266	12,266

Note:
*ES*1 = ratio of firm's standard deviations of income before extraordinary items (scaled by lagged total assets) and operating cash flow (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;
*ES*2 = the Spearman correlation between the change in accruals (scaled by lagged total assets) and the change in cash flow from operations (scaled by lagged total assets). Both variables are measured each year for each firm, using rolling five-year windows;
*ES*3 = the Spearman correlation between the change in discretionary accruals (*DA*) and the change in nondiscretionary income (*NDNI*). *DA* = discretionary accruals computed using the modified Jones model (Dechow et al., 1995). *NDNI* = income before extraordinary items (net income − extraordinary gains + extraordinary losses) minus *DA*. The Spearman correlation is measured each year for each firm, using rolling five-year windows;
STABLE5 = mean of the firm's rolling five-year *STABLE*;
*FOREIG*5 = mean of the firm's rolling five-year *FOREIGN*;
*MO*5 = mean of the firm's rolling five-year *MO*;
ASSET = log of total assets at the end of fiscal year;
CFO = standard deviation of the firm's rolling five-year cash flows from operations;
SALE = standard deviation of the firm's rolling five-year sales revenues;
CYCLE = log of the sum of the firm's days accounts receivable (yearly average accounts receivable)/(total revenue/360)) and days inventory ((yearly average inventory)/(cost of goods sold/360)). If the cost of goods sold number is not reported, we use the total revenue minus operating income instead;
LOSS = proportion of losses over the last five years;
CINT = ratio of the net book value of PP&E to total assets at the end of the fiscal year;
MTB = book-to-market ratio at the end of the fiscal year;
All variables are winsorized at one percent by year.
Industry dummy = an indicator variable for Nikkei industry classification code (Nikkei gyousyu chu-bunrui)
t-statistics are corrected for heteroskedasticity, and cross-sectional and time-series correlation using a two-way cluster at the firm and year level proposed by Petersen (2009).
*** Statistically significant at the 0.01 level of significance using a two-tailed *t*-test
** Statistically significant at the 0.05 level of significance using a two-tailed *t*-test
* Statistically significant at the 0.1 level. of significance using a two-tailed *t*-test

Appendix Measurement of discretionary accruals and abnormal discretionary expenses

Discretionary accruals

We estimated discretionary accruals using the modified Jones model (Dechow et al. [1995]). The model is a regression of total accruals (*TAC*) on the change in revenue adjusted for the change in receivables ($\Delta REV - \Delta REC$), the levels of property, plant, and equipment (*PPE*).

$$TAC = \alpha + \beta_1(\Delta REV - \Delta REC) + \beta_2 PPE + \varepsilon,$$

where

TAC = [(Δcurrent assets − Δcash and cash equivalents) − (Δcurrent liabilities − Δfinancing item) − Δother allowance – depreciation] divided by total assets at the previous year;

Δ*REV* = change in sales revenues divided by total assets at the previous year;

Δ*REC* = change in accounting receivables divided by total assets at the previous year;

PPE = gross property, plant, and equipment divided by total assets at the previous year.

The model is estimated cross-sectionally for each industry in a given year according to the Nikkei industry classification code (Nikkei gyousyu chu-bunrui). Using the estimated coefficients of the model, we measured nondiscretionary accruals (*NDA*). The difference between total accruals and measured nondiscretionary accruals is a

proxy for discretionary accruals (*DA*).

Abnormal discretionary expense

We estimated abnormal discretionary expense using Roychowdhury's [2006] model. The model is a regression of discretionary expense (*DISEXP*) on the sales revenues (*SALE*). We set the missing data for the discretionary expense items equal to zero.

$$DISEXP = \alpha + \beta_1 A + \beta_2 SALE + \varepsilon,$$

where

DISEXP = (research and development expenditure + advertising expense, promotion expenses and other selling costs－labor cost and welfare expense + salary and bonus for directors) divided by total assets at the previous year

A = the value of one divided by total assets at the previous year

SALE = sales revenues at the previous year divided by total assets at the previous year.

The model is estimated cross-sectionally for each industry in a given year according to the Nikkei industry classification code (Nikkei gyousyu chu-bunrui). Similar to the NDA estimation, we measured the normal discretionary expense (*NDISEXP*) using the model's estimated coefficients. The difference between *DISEXP* and measured *NDISEXP* is a proxy for abnormal discretionary expense (*ADISEXP*).