Do Outside Directors and Their Financial Expertise Matter in Earnings Quality?

Takashi Ebihara*

Ahamed Roshan Ajward†

Abstract

Using 2006 to 2008 data from all firms listed on Japanese stock exchanges, we examine the relationships among the presence of outside directors, their financial expertise, and their companies' earnings quality. Contrary to expectations, the multivariate regression analyses indicate no significant positive relationship among these components. Firms with lower-quality earnings tend to engage more outside directors than firms with higher-quality earnings. However, the longer the tenure that outside directors have with the firm, the higher earnings quality tends to be. Furthermore, additional tests indicate that the presence of inside directors and inside board auditors is positively associated with earnings quality, but the *mere* presence of outside directors or outside board auditors is not associated with earnings quality.

Keywords: outside directors, financial expertise, corporate governance, board systems, earnings quality

Received: 26 September 2011 Accepted: 22 March 2012

1. Introduction

As an important component of the corporate governance system, the board of directors of a firm is expected to fulfill a critical role in monitoring top management (Fama and Jensen 1983). Pointing to the need to safeguard reputational capital, Fama (1980) and Fama and Jensen (1983) further indicate that there is an incentive for *outside directors* to act as effective monitors of such boards. Furthermore, prior literature indicates that outside directors in corporate boards have positive effects in protecting investor wealth (Weisbach 1988; Rosenstein and Wyatt 1990; Gibbs 1993). These studies and the related governance literature indicate a belief that outside directors, by effectively initiating contracts among the managers to monitor the managers' activities, play an effective role in resolving agency problems in firms for which ownership and control are separated. Prior literature is rich with studies that pertain to the impact of outside directors on the effectiveness of corporate boards and the performance of the respective firms they serve (Adams et al. 2010). Further, a few studies, such as Dechow et al. (1996) and Beasley (1996), provide empirical evidence on enhanced corporate governance and financial reporting in the presence of independent directors.

We observe, however, a lack of research that focuses directly on the impact of outside directors on the firm's vital financial accounting mechanisms, such as financial reporting, earnings management, and earnings quality. In the context of audit committees, prior research (e.g., Dhaliwal et al. 2007) finds that the financial expertise of directors within audit committees can vitally contribute to enhanced accruals quality.[1] However,

* Faculty of Economics, Musashi University, Tokyo, Japan.

† Department of Accounting, Faculty of Management Studies & Commerce, University of Sri Jayewardenepura, Gangodawila, Nugegoda, Sri Lanka.

[1] The definition and scope of "financial expertise" for the purposes of the current study are defined in Section 3.

outside directors with financial expertise can serve on more than audit committees, and the entire board makes decisions on a collective basis. Our study expands on prior research by focusing on financial expertise of outside directors in investigating impact on earnings quality.

The relation between outside directors and earnings quality can be established along different dimensions. Outside directors are expected to provide effective monitoring, on account of their *independence*. This argument can be extended to effective monitoring of the internal control system for the financial reporting function of a firm, and thereby also to aspects such as earnings quality. Frequently cited studies such as Doyle et al. (2007) establish a strong positive relationship between better internal controls and higher accruals quality. Further, outside directors bring their experience and expertise (O'Higgins 2002), and in particular, their *financial expertise* can be expected to enhance the financial reporting function (Dhaliwal et al. 2007; Lin and Hwang 2010). Together, the independence and financial expertise of outside directors are expected to enhance effective monitoring of the financial reporting function of the firms they serve, and thereby related aspects such as earnings quality. Research indicates that the independence of outside directors is not, in itself, sufficient in enhancing the financial reporting function of a firm.[2] Most of these studies relate to U.S. contexts.

Meanwhile, in Japan, the corporate governance reform movement started in 1997 as a consequence of a general decline in corporate performance, an increasing number of corporate scandals, and the diminishing role of the bank-centered governance system (Miyajima 2007; Hirata 2004). Due to this reform movement, outside directors were introduced into conventional all-insider boards to enhance the monitoring mechanism of Japanese public corporations.[3,4] Japanese studies on outside directors focus mainly on corporate performance and stock market reactions (Miyajima 2007; Saito 2009). To the best of our knowledge, no prior Japanese studies directly investigate the impact of outside directors on financial accounting dimensions such as financial reporting quality, earnings management, or earnings quality. Our study fills this gap in the literature by investigating the relationships among the presence of outside directors, their financial expertise, and their companies' earnings quality. We collect and analyze 2006 to 2008 data from all firms listed on Japanese stock exchanges.

We use well-accepted proxies to operationalize the core construct of earnings quality. To operationalize the construct of outside directors' expertise, we use the outside directors' experience by hand-collecting that information from numerous primary sources. To investigate the associations among the presence of outside directors, their financial expertise, and the core construct of quality of earnings, we use multivariate regression analyses while controlling for several alternative explanations. We perform robustness tests in

---

[2] Klein (2002, 438) specifically notes the distinct roles of outside and inside directors as; "Outside directors serve as monitors and help alleviate agency conflicts between shareholders and upper management. Inside and affiliated directors have the specialized expertise about the firm's activities to evaluate and ratify its future strategic plans."Prior international literature (Lin and Hwang 2010; Dhaliwal et al. 2007) and local literature (Ajward 2011) further extend Klein's (2002) argument to the context of enhancement of a firm's financial reporting function, and thereby emphasize the importance of both the financial expertise and independence of outside directors.

[3] Furthermore, Tokyo Stock Exchange (TSE) rule 436-2 specifies that in order to protect general investors, a company that is an issuer of listed domestic stocks must have at least one independent director or auditor (as defined in Company Act - 2006) who is unlikely to be inundated with conflicting interests with general investors (TSE 2011a). In contrast, the New York Stock Exchange (NYSE) specifies that listed companies must have a majority of independent directors, and states that such a requirement will increase the quality of the "oversight" of the board as well as reduce the detrimental conflicts of interest (NYSE 2009, Section 303A.01). Thus, a comparison between TSE and NYSE listing rules indicates that TSE rules are much more lenient in terms of the number of independent individuals required. Furthermore, the TSE definition of "independence" is rudimentary. For example, under the TSE's Enforcement Rules for Securities Listing Regulations (TSE 2011b),even a major shareholder could be an "independent" director/auditor, which only requires submission of an additional document (see rule 211, 4 [5]), whereas NYSE regulations clearly forbid directors of this nature (NYSE 2009, Section 303A.02).

[4] Detailed reviews of Commercial Law revisions that also fall under corporate governance reforms (e.g., revisions that pertain to outside directors and setting up the three committee system) include Miyajima (2007), Miyajima et al. (2009), Hirata (2004), Saito (2009), and Ajward (2011).

addition to our primary tests. Overall, we cannot conclude that the presence of outside directors—or their proportions to the sum of all board directors and board auditors[5]—positively correlates with the level of earnings quality. Furthermore, we are also unable to establish that the due financial expertise of outside directors positively correlates with a firm's level of earnings quality. Although firms with lower-quality earnings tend to deploy relatively more outside directors, such directors who lack due experience in those firms are unable to contribute effectively to the monitoring of internal control systems. On the other hand, the more experience (tenure) outside directors gain with a firm, the higher the level of earnings quality. Furthermore, the results of the additional tests in Section 5 indicate that the presence of inside board directors and inside board auditors correlates with a superior level of earnings quality via effective monitoring. This is an unexpected finding as the contemporary corporate governance reform movement in Japan mainly suggests introducing outside members to the boards to enhance the effectiveness of such boards by virtue of their independence.

Hence, our results cast doubt on whether the introduction of outside directors per se is a sufficient governance reform to establish effective financial monitors. Governance reform has focused on including outside directors to enhance monitoring, by virtue of those directors' independence. Thus, our study bears significant policy implications regarding adequate appraisal of the conventional governance system and the mere deployment of outside directors to the corporate boards of listed firms in Japan. In light of our findings, we call for further research that investigates the effectiveness of the conventional governance system.

The remainder of this paper is structured as follows. Section 2 briefly discusses the conventional Japanese board system, describes relevant prior literature, and develops the research hypotheses. Section 3 elaborates on our research methodology, including the research design and sample selection procedure, and provides descriptive statistics. Section 4 reports the main results and Section 5 describes the results of additional tests. Finally, Section 6 summarizes and concludes the study.

2. Background and Hypotheses Development

2.1 The Conventional Board System and Corporate Governance Reform in Japan

A unique feature that distinguishes this study from existing, international studies stems from the unique Japanese corporate governance system that dominates the corporate environment, despite contemporary corporate governance reforms. The conventional board system in Japan—the so-called *double-monitoring system*—makes use of a board of directors and a board of auditors. Although this Japanese system appears similar to the German two-tier system, in actuality, it is distinct from both the German and Anglo-American systems.[6] In the conventional Japanese system, both boards monitor operations simultaneously, and all members of these boards are elected at shareholder meetings. Thus, this system appears to be an effective one that incorporates the merits of both the one-tier and two-tier systems. In the midst of recent corporate governance reforms, however, the effectiveness of this conventional system has been subject to heavy criticism (Miyajima 2007; Saito 2009; Hirata 2004) and concern that this system is not functioning well. In

---

[5] The conventional board system in Japan consists of a board of directors and a board of auditors. We use the term "board directors" for members of the board of directors and the term "board auditors" for members of the board of auditors.

[6] In the Anglo-American corporate governance model, firms have a one-tier board system that comprises only a board of directors; directors in such a system are classified as inside directors who also work as officers of the firm, or as part-time outside directors who do not also work as officers. Board committees (e.g., audit, compensation, and nomination committees) are set up and deployed. The majority of these committee members are outside directors; they monitor the effectiveness of operations and make recommendations to the board. In contrast, the German model of corporate governance involves a two-tier board system that consists of a board of directors (i.e., a board that consists of insiders) and a board of auditors (i.e., a top-level supervisory board that consists of delegates from among shareholders and employees). The board of directors is entrusted only with the task of executing the operations of the firm, while the board of auditors is responsible only for monitoring the operations executed by the board of directors. Thus, each board in the German system plays a distinct role.

examining the possible sources of this criticism, we first note that in a hierarchical organization, the Chief Executive Officer (CEO) holds the de facto top position and boards of directors and boards of auditors likely cannot secure sufficient independence from the CEO. Second, authority and responsibility are not well-defined because functions often cannot be clearly demarcated, due to redundancy in the Japanese system with regard to the monitoring functions of directors and auditors. Thus, given the unique nature of the Japanese corporate governance system, we also control for the effect of boards of auditors as we investigate the associations between outside directors and their expertise with earnings quality; this feature distinguishes this study from other recent international studies.

Prior research studies note that the corporate governance reform movement in Japan commenced in 1997as a result of general deterioration in corporate performance, an increasing number of corporate scandals, and the declining role of the bank-centered governance system here (Miyajima 2007; Hirata 2004). According to these research studies, although the corporate board system in the Japanese context is *legally* similar to the U.S. system in its basic functions, the US-style board system is characterized by a relatively smaller board of directors and the feature of outside directors. It has been only since the aforementioned corporate governance reform movement that firms such as Sony introduced the US-style board system. Prior to the reforms, Japanese firms were entirely different from their U.S. counterparts in terms of board composition (i.e., Japanese boards fully comprised insiders). Moreover, due to this reform movement, Japanese commercial law was subject to revisions (see footnote 4) and as a result, outside directors were introduced to conventional all-insider boards in order to enhance the monitoring mechanism of Japanese public corporations (Miyajima 2007; Hirata 2004; Saito 2009).

2.2 Prior Literature and Hypotheses Development

Several international studies have examined the influence of outside directors on board effectiveness, where effectiveness is measured in terms of firm performance (Weisbach 1988; Hermalin and Weisbach 1991). Within the Japanese context, Miyajima (2007) finds that the presence of outside directors is positively associated with corporate performance. Furthermore, using a sample of 483 firms for the period 1996-2007, Saito (2009, 2010a) finds that introducing an outside director to an otherwise all-insider board has a positive and significant impact on board effectiveness and firm performance, and investors react positively to the introduction of outside directors. In addition, he documents the role of monitoring and the disciplinary role of a board containing (at least one) outside director, and finds that management's earnings forecasts are more realistic and accurate if such a firm has at least one outside director on its board of directors-thus establishing the advisory role of outside board directors, on account of their experience and expertise. Dechow et al. (2010) indicate that of numerous other proxies, the accuracy of earnings forecasts may also represent financial reporting integrity; therefore, the findings of Saito (2010a) also indirectly assert that the presence of outside directors on a board enhances financial reporting integrity.

Our study examines the relationships among outside directors, their independence and financial expertise, and the quality of earnings of the firms they serve. The relations among these constructs can be established along different dimensions. The literature pertaining to corporate governance observes that outside directors are expected to be effective monitors, on account of their *independence*. Accordingly, Fama (1980) and Fama and Jensen (1983) argue that due to the necessity to ensure their *reputational capital*, outside directors have an incentive to act as effective monitors in corporate boards. This argument maybe extended to the effective monitoring of accounting and internal control systems that relate to a firm's financial reporting, and thereby also to related aspects such as the earnings quality of firms.[7] Such an extension could be made via the

[7] The Committee of Sponsoring Organizations (COSO, 1992) indicates that internal control of an entity can be broadly defined as:

positive monitoring effect of outside directors on the *control environment* (i.e., by improving the overall consciousness of the management due to the presence of outside directors) of a firm as well as a *monitoring of the control system* itself, which are important elements of the internal control system of a firm.[8]

By deriving conclusions from experimental studies on dictator games, Saito (2009) explains that managers would act in the interest of shareholders even sacrificing their own welfare in face to face interactions with the shareholders (Saito [2009] then extends this phenomenon to the context of outside directors), which further strengthens the argument for their positive impact on the control environment of an internal control system. Moreover, as indicated above, due to concerns about their reputational capital (Fama 1980; Fama and Jensen 1983), outside directors are expected to *monitor the internal control system* (see footnote 8's fifth element of an internal control system), which directly establishes their role and quality of earnings. Thus, through the positive influence over the control environment and monitoring of the internal control system, the outside directors could be expected to contribute to enhancing the financial reporting function, and thereby quality of earnings of the firms in which they are engaged. Moreover, in establishing the relation between effective internal controls and earnings quality, Doyle et al. (2007) explain that effective internal controls limit both management discretion and errors alike, which leads to a higher level of accruals quality. B?dard (2006), using accrual-based earnings quality proxies, finds that overall, the 2002 Sarbanes-Oxley Act (SOX) internal control requirements improved earnings quality. This is a particularly important finding, as researchers (Ashbaugh-Skaife et al. 2007) have found that firms with internal control weaknesses have poor earnings quality (i.e., accruals quality).

In summary, we expect the presence of outside directors on a board of directors to be positively associated with the firm's earnings quality. This association occurs because the directors' independence leads to effective monitoring of the internal control system. Thus, we propose the following hypothesis:

H1: The presence of outside directors on a board of directors is positively associated with a firm's earnings quality.

O'Higgins (2002) indicates that outside directors bring experience and expertise, and their *financial expertise* should enhance the financial reporting function (Dhaliwal et al. 2007). As for audit committees, Dhaliwal et al. (2007) indicate that the existence of an audit committee with accounting expertise correlates positively with accruals quality. Lin and Hwang (2010), in their analysis of several studies, further document a positive correlation between the expertise within a firm's audit committee and that firm's accruals quality. However, there is no reason to limit the financial expertise of outside directors to the audit committee context. Thus, we extend the scope to the whole of the board, as any outside director on the board who has due financial expertise will be able to contribute to an effective monitoring function, and thus contribute to the

---

"a process, effected by an entity's board of directors, management and other personnel, designed to provide reasonable assurance regarding the achievement of objectives in the following categories:

1. Effectiveness and efficiency of operations.
2. Reliability of financial reporting.
3. Compliance with applicable laws and regulations."

The second objective, i.e., ensuring the reliability of financial reporting, is directly related to the enhancement of earnings quality of a firm, as effective internal control over the financial reporting processes increases the reliability of the financial reporting.

[8] COSO (1992) indicates that internal control consists of five interrelated components.

a) Control environment (which defines the tone of the firm that influences the consciousness of its individuals. Is the basis for all other components of internal control that provides discipline and structure)
b) Risk assessment
c) Control activities (policies and procedures that assist to ensure the management directions are executed as expected)
d) Information and communication
e) Monitoring (monitoring of the internal control systems to ensure the quality of its performance)

board in making appropriate financial decisions. The independence and financial expertise of outside directors, individually or together, are expected to bring about effective financial monitoring, which in turn leads to a stronger financial reporting function and higher earnings quality of the firms they serve. Thus, we observe that the independence of outside directors per se may not be sufficient, in itself, in enhancing the financial reporting function of a firm (Lin and Hwang 2010; Ajward 2011). Outside directors also need due financial expertise to effectively monitor financial reporting. Thus, we propose H2 below.

H2: The presence of outside directors with due financial expertise is positively associated with the firm's earnings quality.

3. Research Methodology

3.1 Definition, Operationalization, and Measurement of Earnings Quality

We investigate the associations among the presence of outside directors, those directors' financial expertise, and their firms' earnings quality. In this section, we discuss the definition, operationalization, and measurement aspects of earnings quality, our dependent variable.

3.1.1 Earnings Quality

In their seminal work, Dechow et al. (2010) indicate that earnings quality is based upon the firm's fundamental performance and the accounting system that measures such fundamental performance.[9] The Financial Accounting Standards Board (FASB, 1980) views the quality of accounting information from the perspective of decision usefulness to users. For the purpose of this research, we adopt Dechow et al.'s (2010) definition of earnings quality, which they define broadly as: "Higher quality earnings provide *more* information about the features of a firm's financial performance that are relevant to a *specific* decision made by a specific decision-maker" (Dechow et al. 2010, 344). This definition emphasizes that higher quality earnings provides more information on the features of the fundamental performance (which are often unobservable) of a firm for a specific decision-maker in making a specific decision (i.e., related to a specific decision model). For example, accounting accruals are value relevant for investors (Sloan 1996) in the context of an investor making a stock market investment decision (i.e., the *specific* decision context), and accounting accruals could be used to gain *more* information on the firm's unobservable fundamental performance (noting that earnings is the sum of accruals and operating cash flows).

After reviewing approximately 300 empirical studies, Dechow et al. (2010) note that much of the earnings quality research uses proxies such as earnings persistence, accounting accruals, smoothness, timeliness, loss avoidance, and investor responsiveness, as well as external indicators such as enforcement releases by the U.S. Securities and Exchange Commission and corporate restatements. Ultimately, however, they indicate that since earnings quality is context-specific, it is difficult to provide one precise definition for the construct of earnings quality.

In order to address this issue, we use several well-accepted alternative earnings-quality proxies (i.e., models) to operationalize the core construct of earnings quality. The use of these broad alternative operationalizations distinguishes this study from prior research, which often relies on rather narrow operationalizations.[10]

---

[9] We note, however, that the elusive concept of "earnings quality" lacks a universal definition. The definition of Dechow et al. (2010) provides a comprehensive view of the concept.

[10] Apart from deriving earnings quality proxies using models, Dechow et al. (2010) indicate external indicators such as accounting and auditing release statements (AAERs) issued by the U.S. Securities and Exchange Commission (SEC), U.S. SOX-required reports on internal control deficiencies, and earnings restatements. Our study does not use these kinds of external

3.1.2 Earnings Quality Models

Equations (1) through (6) in Exhibit 1 specify the six well-accepted earnings quality models that we use in this study.[11] These models fall into two broad groups: those based on accruals quality (abnormal accruals)[12,13] and those based on future cash flow predictability. Exhibit 1 also provides related definitions of the variables for each model.[14]

Dechow and Dichev (2002) note that the *residual term* obtained by regressing equation (1) in Exhibit 1, by definition, is the difference between the amounts accrued and the amounts realized. They indicate that this mapping error between past, present, and future cash flows could be used as a basis to represent (short-term) accruals quality. Hence, we regress equation (1) based on a sector-specific basis for each period, and fit the coefficients obtained via this procedure into equation (1.1) to obtain firm-specific residuals. Then, we derive the cross-sectional proxy measure *DD* by obtaining the absolute value of the residual term estimated via equation (1.1).

The proxy measure we estimate via Dechow and Dichev (2002), however, does not distinguish between discretionary and nondiscretionary accruals. Therefore, we use cross-sectional versions of both the modified Jones model (Dechow et al. 1995) and the cash flow modified Jones model (Kasznik 1999) to distinguish discretionary and nondiscretionary accruals. We estimate both *MJones* and *CFMJones* by first regressing equations (2) and (3) on a sector-specific basis for each period, and then fitting estimated coefficients to equations (2.1) and (3.1) to estimate firm-specific nondiscretionary accruals. We estimate the discretionary accruals by taking the difference between the total accruals and the nondiscretionary accruals. Finally, we use the absolute values of these discretionary accruals as additional alternative earnings quality proxies).

Barth et al. (2001) note that by disaggregating accruals into major components, one increases significantly the predictive ability of future cash flows. Compared to the variants of lagged aggregate earnings, the cash flow and accrual components of current income have significant ability to predict future cash flows.

---

indicators due to the differences in the contexts and inadequacy, which are explained below.

- *AAERs*: The TSE does not issue accounting or auditing enforcement releases that are similar to the U.S. SEC enforcement releases. Although not similar to AAERs, the Securities Exchange Surveillance Commission (SESC) in Japan reports a limited number of cases of general misstatements in its annual reports that detected during its surveillance (we found only 17 general financial misstatements that were reported in SESC annual reports for 2005/2006 to 2009/2010.Dechow et al. (2010)state that regulatory agencies (such as SESC in the local context) have limited resources and likely focus on firms that they can make a strong case against, which thereby introduces a sample selection bias. Due to the limited number of cases and the possible sample selection bias, we do not use SESC reported breaches as an external indicator for earnings quality.
- *Restatements*: The Japanese EDINET (Electronic Disclosure for Investors' NETwork) contains information on restatements. However, collecting restatement information from EDINET requires hand-collecting the data across a wide variety of reasons for restatements. We therefore do not use restatements as an earnings quality proxy in this study.
- *Reports on internal control deficiencies*: The non-expressed opinion indicated in the internal control reports in Japan corresponds to internal control weaknesses reported under U.S. SOX. In Japan, such reports were required to be submitted from 2008, and therefore are not available for two of our three sample years. In addition, during the fiscal period ended March 2009, only 2.4% of the all listed firms had issued a report of the non-expressed opinion in the internal control report. Due to these reasons, we do not use reports on the non-expressed opinion in the internal control reports as an external earnings quality proxy.

[11] Instead of the time-series versions, we use the cross-sectional versions of the related proxy models in order to minimize the effects of firm-specific economic fluctuations that might have taken place during the research period (Baxter and Cotter 2009). Further, our approach limits the possibility of introducing survival bias, as the time-series versions require consecutive financial data for the estimation of respective earnings quality measures.

[12] In the literature, "abnormal accruals" and "discretionary accruals" are used synonymously. We also include accruals estimation errors modeled by Dechow and Dichev (2002) in this blanket term.

[13] In estimating the earnings quality measures, total accruals are estimated using the direct cash flow statement approach; this involves the difference between earnings (adjusted for extraordinary items) and operating cash flows (Hribar and Collins 2002). Short-term accruals/change in working capital (see Ebihara et al., 2010) is estimated as: Δ*Current assets* - Δ*Cash & deposits* - Δ*Short-term investment securities* - Δ*Short-term loans receivable* - (Δ*Current liabilities* - Δ*Short-term loans payable* - Δ*Commercial papers* - Δ*Current portion of the long-term loans payable* - Δ*Current portion of the bonds and convertible bonds*). Δ is the change in a selected accounting element from the period t-1 to period t.

[14] Dechow et al. (2010) present the cross relations of these earnings quality measures.

Exhibit 1- Earnings Quality Models and Related Measures

Earnings Quality Model	Model Specifications*	Eqn. #
Earnings Quality Models Based on Accruals Quality		
Dechow and Dichev (2002) Model	$SAcc_t = \alpha_0 + \alpha_1 CFO_{t-1} + \alpha_2 CFO_t + \alpha_3 CFO_{t+1} + e_t$ $DD_t = \lvert\hat{e}_t\rvert$	(1) (1.1)
Modified Jones Model (Dechow et al., 1995)	$Acc_t = \alpha_0 + \alpha_1(\Delta Sales_t - \Delta AR_t) + \alpha_2 PPE_t + e_t$ $NdAcc_t = \hat{\alpha}_0 + \hat{\alpha}_1(\Delta Sales_t - \Delta AR_t) + \hat{\alpha}_2 PPE_t$ $MJones_t = \lvert Acc_t - NdAcc_t\rvert = \lvert\hat{e}_t\rvert$	(2) (2.1)
Cash Flow Modified Jones (Kasznik, 1999)	$Acc_t = \alpha_0 + \alpha_1(\Delta Sales_t - \Delta AR_t) + \alpha_2 PPE_t + \alpha_2 \Delta CFO_t + e_t$ $NdAcc_t = \hat{\alpha}_0 + \hat{\alpha}_1(\Delta Sales_t - \Delta AR_t) + \hat{\alpha}_2 PPE_t + \hat{\alpha}_3 \Delta CFO_t$ $CFMJones_t = \lvert Acc_t - NdAcc_t\rvert = \lvert\hat{e}_t\rvert$	(3) (3.1)
Earnings Quality Models Based on Cash Flow Predictability (Barth et al. 2001; Nikkinen and Sahlström 2004)		
Earnings Model	$CFO_{t+1} = \alpha_0 + \alpha_1 Ebxi_t + e_t$ $RES1_t = \lvert\hat{e}_t\rvert$	(4)
Cash Flows from Operations and Accruals Model	$CFO_{t+1} = \alpha_0 + \alpha_1 CFO_t + \alpha_2 Acc_t + e_t$ $RES2_t = \lvert\hat{e}_t\rvert$	(5)
Accruals Component Model	$CFO_{t+1} = \alpha_0 + \alpha_1 CFO_t + \alpha_2 \Delta AR_t + \alpha_3 \Delta Inv_t + \alpha_4 \Delta AP_t + \alpha_5 Dep_t + \alpha_6 Others_t + e_t$ $RES3_t = \lvert\hat{e}_t\rvert$	(6)

* Definitions of the variables in these models are as follows:

$SAcc_t$:	Short-term accruals at t, scaled by average total assets at t
CFO_t:	Operating cash flows at t, scaled by average total assets at t
DD_t:	Absolute value of the standard deviation of the estimation error at t, estimated based on the Dechow and Dichev (2002) model
Acc_t:	Total accruals at t, scaled by average total assets at t
$\Delta Sales_t$:	Change in sales from t-1to t, scaled by average total assets at t
ΔAR_t:	Change in accounts receivable from t-1to t, scaled by average total assets at t
PPE_t:	Property, plant and equipment at t, scaled by average total assets at t
$NdAcc_t$:	Non-discretionary accruals
$MJones_t$:	Absolute value of the abnormal accruals at t, estimated based on the modified Jones model (Dechow et al., 1995)
ΔCFO_t:	Change in operating cash flows from t-1 to t, scaled by average total assets at t
$CFMJones_t$:	Absolute value of the abnormal accruals at t, estimated based on the cash flow modified Jones model (Kasznik, 1999)
$Ebxi_t$:	Net earnings adjusted with extraordinary items at t, scaled by average total asset at t
$RES1_t$:	Absolute value of the residual term at t, estimated based on the earnings model (4)
$RES2_t$:	Absolute value of the residual term at t, estimated based on the cash flows from operations and accruals model (5)
$RES3_t$:	Absolute value of the residual term at t, estimated based on the accruals component model (6)
ΔAP_t:	Change in accounts payable from $t - 1$to t, scaled by average total asset at t
ΔInv_t:	Change in inventory from $t - 1$to t, scaled by average total asset at t
Dep_t:	Depreciation charge for t, scaled by average total asset at t
$Others_t$:	Other short-term accrual items at t, scaled by average total asset at t

Accordingly, in Exhibit 1, we use residuals *RES*1, *RES*2, and *RES*3—obtained through the regression of equations (4), (5), and (6), respectively—as additional alternative earnings quality measures.[15]

It should be specifically noted that higher magnitudes among any of Exhibit 1's proxy measures connote lower-quality earnings: an increase in the *DD* measure indicates higher mapping errors in the accruals; higher values in both *MJones* and *CFMJones* signify higher degree of managed earnings; and finally, an increase in *RES*1, *RES*2, or *RES*3 indicates higher errors in future cash flow predictability.

3.2 Research Design

To investigate our hypotheses, we use two alternative proxy categories to operationalize broadly the construct of earnings quality. Therefore, we use the two alternative multivariate regression specifications indicated in equations (7) and (8) below.

$$\begin{aligned} AbsAbAcc_t &= \beta_0 + \beta_1 ODDummy_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t \\ &+ \beta_6 AbsAcc_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 Size_t + \beta_{10} Leverage_t + \beta_{11} Loss_t + \beta_{12} Foreigner_t \\ &+ \beta_{13} Institution_t + \beta_{14} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned} \tag{7}$$

The dependent variable in model (7) is $AbsAbAcc_t$, the absolute value of abnormal accruals. This variable is alternatively estimated using Dechow and Dichev's (2002) model, the modified Jones (Dechow et al. 1995) model, and the cash flow modified Jones (Kasznik 1999) model (Exhibit 1: equations [1]-[3]). The control variables in this model are based on Ali et al. (2007) and Dechow and Dichev (2002). These variables are defined as follows:

$ODDummy_t$: Dummy variable that represents the presence of outside directors on the board: $ODDummy_t$ = 1 if at least one outside director is on the board, and 0 otherwise

$ODRatio_t$: Number of outside directors at the end period *t*, divided by the board size (board size is defined below)

$ARatio_t$: Number of total board auditors at the end of period *t*, divided by the board size

$BoardSize_t$: Number of board members (sum of number of board directors and number of board auditors) at the end of period *t*

$Committee_t$: Dummy variable that represents the existence of an Anglo-American style audit committee: $Committee_t$= 1 if a company has such an audit committee at period *t*, and 0 otherwise

[15] The table below reports statistically significant correlations among the abnormal accruals proxies and the cash flow predictability proxies. These two proxy categories are based on *different* conceptualizations of earnings quality. Both groups of proxies, however, are based on the *same* accounting system, which is subjected to a *similar* internal control system; we therefore view these as appropriate for our study. In contrast, the use of *CAR* as an alternative earnings quality proxy (see Dechow et al. [2010] for alternative proxies) may not be appropriate for our study, as we hypothesize that the selected corporate governance mechanisms increase the effectiveness of monitoring of the *internal control system* and thereby earnings quality (i.e., *CAR* is external to an accounting system and internal control). Thus, we select proxy categories of earnings quality on the basis of this argument.

	DD_t	$MJones_t$	$CFMJones_t$	$RES1_t$	$RES2_t$	$RES3_t$
DD_t		0.388**	0.412**	0.224**	0.219**	0.246**
$MJones_t$	0.296**		0.727**	0.260**	0.248**	0.256**
$CFMJones_t$	0.330**	0.620**		0.270**	0.259**	0.258**
$RES1_t$	0.215**	0.197**	0.200**		0.920**	0.870**
$RES2_t$	0.201**	0.211**	0.196**	0.889**		0.907**
$RES3_t$	0.220**	0.211**	0.211**	0.747**	0.797**	

This table shows Pearson (top right section to the diagonal) and Spearman (bottom left section to the diagonal) correlation coefficients. ** indicates significance at the 1% level.

$AbsAcc_t$:	Absolute value of total accruals at the end of period t (see footnote 13), deflated by average total assets
OC_t:	Operating cycle (in days) for the period t, estimated as: $[(AR_t+AR_{t-1})/2\div(Sales_t/360)]+[(INV_t+INV_{t-1})/2\div(COGS_t/360)]$, where AR_t is the firm's accounts receivable at the end of period t; $Sales_t$ is total sales for period t; INV_t is inventory at the end of period t; and $COGS_t$ is cost of goods sold in period t
ROA_t:	Return on assets for period t (i.e., profit before tax and extra ordinary items for period t, divided by average total assets)
$Size_t$:	Natural logarithm of total assets at the end of period t[16]
$Leverage_t$:	Total debt at the end of period t, divided by total assets at the end of period t
$Loss_t$:	Loss dummy variable: $Loss_t$= 1 if net income of the firm is negative for period t, and 0 otherwise
$Foreigner_t$:	Percentage of stock held by foreigners at the end of period t
$Institution_t$:	Percentage of stock held by institutional investors at the end of period t
$Boardmember_t$:	Percentage of stock held by director board members at the end of period t
D_i^{ind}:	Industry dummy variables based on the Nikkei Medium Classification Industry Code (two-digit Nikkei industry code)
D_n^{year}:	Year dummy variable for period n

In model (8) below, we use a different earnings-quality proxy: RES_t (i.e., residual estimates that are obtained via regression equations [4]-[6] in Exhibit 1). The control variables in this model are based on Ali et al. (2007) and Cohen (2004).

$$\begin{aligned} RES_t = {} & \beta_0 + \beta_1 ODDummy_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 Capital_t \\ & + \beta_7 SalesGrowth_t + \beta_8 Margin_t + \beta_9 OC_t + \beta_{10} ROA_t + \beta_{11} HerfIndex_t + \beta_{12} Size_t + \beta_{13} Leverage_t \\ & + \beta_{14} Foreigner_t + \beta_{15} Institution_t + \beta_{16} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned} \quad (8)$$

The definitions of the control variables in model (8) are similar to those in the regression specification (7) above. The definitions of the additional control variables are:[17]

$HerfIndex_t$:	Herfindahl index (which shows industry concentration), estimated as the sum of squares of the market shares of the firms in the industry for period t (based on two-digit Nikkei industry code)
$Capital_t$:	Net property, plant, and equipment at the end of period t, divided by total assets at the end of period t
$SalesGrowth_t$:	Growth in sales in period t
$Margin_t$:	Gross margin percentage for period t

According to H1, we expect the presence of outside directors to be positively associated with the firm's earnings quality. Accordingly, we predict positive associations between the selected earnings quality dimensions (i.e., accruals quality and future cash flow predictability) and the variable representing outside

[16] The natural logarithm of total assets is used, given the skewed nature of total assets.

[17] Variance Inflation Factor (VIF) analysis was performed in order to investigate possible multicollinearity issues, given the large number of variables in models (7) and (8). Our findings do not appear to suffer from these issues, as the VIF magnitudes are within tolerable limits.

directors (i.e., $ODDummy_t$ and $ODRatio_t$) under models (7) and (8). More specifically, we predict a negative sign predicted under each of models (7) and (8), as increments in both the $AbsAbAcc_t$ and RES_t variables connote reduced earnings quality.

Under H2, we predict that the financial expertise of outside directors is positively associated with a firm's earnings quality. Consistent with prior literature, we use outside directors' experience to proxy for the financial expertise of outside directors (Dhaliwal et al. 2007). That expertise can be categorized as follows, in a way appropriate to the Japanese context:

a. Accounting expertise: accountants, members of audit firms, members of auditors' associations, and academic researchers
b. Tax expertise: tax accountants, members with a former position in an Internal Revenue Service, and academic researchers
c. Law expertise:[18] lawyers, judicial scriveners, chartered patent agents, members of a prosecutor's office, and academic researchers
d. Bank expertise: former and current members of banks, trust banks, credit unions, and credit associations
e. Finance expertise: former and current members of security firms, security exchanges, security businesses, and investment fund companies

Accordingly, we introduce a generic expertise variable, $ExpertiseRatio_t$, which is the number of outside directors with a particular expertise who are on the board of directors at the end of period t, divided by $BoardSize_t$. In our analysis, $ExpertiseRatio_t$ can be any of the following variables corresponding to the five categories described above.

$AccRatio_t$:	the number of outside directors with accounting expertise on the board at the end of period t, divided by $BoardSize_t$;
$TaxRatio_t$:	the number of outside directors with tax expertise on the board at the end of period t, divided by $BoardSize_t$;
$LawRatio_t$:	the number of outside directors with law expertise on the board at the end of period t, divided by $BoardSize_t$;
$BankRatio_t$:	the number of outside directors from banks (past and current members) on the board at the end of period t, divided by $BoardSize_t$; and
$FinRatio_t$:	the number of and outside directors from finance firms (current and past members) on the board at the end of period t, divided by $BoardSize_t$.

Our analysis introduces the various *ExpertiseRatio* variables into models (7) and (8) as additional variables, with all other variables remaining the same, in order to test the associations between these expertise variables and earnings-quality proxies. H2 predicts a positive association between outside directors' expertise and earnings quality, due to increments in effective monitoring function that are driven by due financial expertise. In other words, we predict negative coefficients for the expertise variables, which both connote a positive relationship between expertise and earnings quality.

[18] Expertise in law is vital to the effective monitoring of the corporate governance system of a firm, and therefore of a firm's financial reporting compliance, regulatory compliance, etc.

3.3 Data and Sample

We use data from 2006 to 2008 for all Japanese listed firms except banks, insurance, and other financial firms. Outside director data are extracted from *Directors' database* (published by Toyo Keizai, Inc., licensed by Chuo University).[19] Data regarding the percentage of stock held are obtained from the *Major Shareholders' database* (published by Toyo Keizai, Inc. licensed by Chuo University), while financial statement information and stock price information are extracted from *Nikkei NEEDS Financial Quest database* (published by Nikkei Digital Media, Inc.).

The experience of outside directors (i.e., that which represents their expertise—see the latter part of Subsection 3.2: Research Design) was hand-collected from corporate profiles, corporate websites, personal and professional profile listings, and other available primary sources for each outside director. The consolidated financial information relates to the 2005-2010 fiscal years, where the period end falls in any month within these selected fiscal periods.

Table 1 indicates the firm-year observations available for our analyses, classified according to the two main empirical analyses performed in this study: absolute value of abnormal accruals and predictability of future cash flows. Our final sample includes 8,623 firm-year observations for the absolute value of the abnormal accruals sample and 8,510 for the predictability of future cash flow sample.[20]

Table 2 reports the distribution of firms based on outside directors and on yearly basis. In both Panels A and B, the majority of the firms have not even a single outside director on their boards. Furthermore, the number of firms with five or more outside directors drops is sharply less than the number of firms having

Table 1. Sample Selection

	Absolute Value of Abnormal Accruals Sample	Predictability of Future Cash Flow Sample
No. of firms in Toyo Keizai's *Directors' database*	11,568	
Less: observations without percentage of stock held data	-969	
observations without financial statement data	-996	
observations without abnormal accruals	-388	
observations without cash flow prediction error		-369
top and bottom 0.5% of dependent and independent variables	-592	-724
Number of observations in the final analysis	8,623	8,510

Table 2. Number of Outside Directors

Panel A: Absolute Value of Abnormal Accruals Sample

No. of Outside Directors	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
2006	1,392	501	226	98	48	22	6	6	1	0	1	1	0	2,302
2007	1,860	734	368	155	62	28	7	8	0	0	1	0	0	3,223
2008	1,788	750	323	146	52	26	7	4	1	0	0	0	1	3,098
Total	5,040	1,985	917	399	162	76	20	18	2	0	2	1	1	8,623

Panel B: Predictability of Future Cash Flow Sample

No. of Outside Directors	0	1	2	3	4	5	6	7	8	9	10	11	12	Total
2006	1,407	486	222	93	45	22	6	6	1	0	0	1	0	2,289
2007	1,845	724	349	149	60	28	7	7	0	0	1	0	0	3,170
2008	1,759	739	320	145	49	25	8	4	1	0	0	0	1	3,051
Total	5,011	1,949	891	387	154	75	21	17	2	0	1	1	1	8,510

[19] We use the 2008-2010database version. Each year's database version tracks the movement of outside directors until April of the previous year; therefore, to obtain fiscal-year outside director data for 2006 to 2008, we use the 2008 through 2010 versions of the database.

[20] In Table 1, the top and bottom 0.5% of the firm-year observations are omitted to eliminate the effects of outliers from our analysis, as per the prior literature. Further, the other omitted firm-year observations that contain missing values were examined for the possibility of introducing bias (e.g., survival bias) into our analysis. We did not observe such bias from the omissions.

Table 3. Sample Distribution by Industry

	Absolute Value of Abnormal Accruals Sample		Predictability of Future Cash Flow Sample	
Air Transportation	0	0.00%	0	0.00%
Chemicals	552	6.40%	550	6.46%
Communication Services	79	0.92%	78	0.92%
Construction	526	6.10%	528	6.20%
Credit & Leasing	95	1.10%	91	1.07%
Drugs	123	1.43%	122	1.43%
Electric & Electronic Equipment	794	9.21%	788	9.26%
Fish & Marine Products	0	0.00%	0	0.00%
Foods	366	4.24%	362	4.25%
Iron & Steel	151	1.75%	150	1.76%
Machinery	662	7.68%	668	7.85%
Mining	0	0.00%	0	0.00%
Motor Vehicles & Auto Parts	223	2.59%	223	2.62%
Nonferrous Metal & Metal Products	365	4.23%	363	4.27%
Other Manufacturing	308	3.57%	314	3.69%
Petroleum	0	0.00%	0	0.00%
Precision Equipment	136	1.58%	139	1.63%
Pulp & Paper	65	0.75%	63	0.74%
Railroad Transportation	76	0.88%	67	0.79%
Real Estate	238	2.76%	230	2.70%
Retail Trade	581	6.74%	584	6.86%
Rubber Products	46	0.53%	18	0.21%
Sea Transportation	0	0.00%	0	0.00%
Services	1,701	19.73%	1,631	19.17%
Shipbuilding & Repairing	0	0.00%	0	0.00%
Stone, Clay & Glass Products	175	2.03%	182	2.14%
Textile Products	153	1.77%	152	1.79%
Transportation Equipment	0	0.00%	0	0.00%
Trucking	97	1.12%	96	1.13%
Utilities: Electric	0	0.00%	0	0.00%
Utilities: Gas	0	0.00%	0	0.00%
Warehousing & Harbor Transportation	118	1.37%	122	1.43%
Wholesale Trade	993	11.52%	989	11.62%
Total	8,623	100.00%	8,510	100.00%

This table is based on Nikkei Medium Classification Industry Codes (two-digit codes).

Table 4. Sample Distribution by Market

Market	Absolute Value of Abnormal Accruals Sample		Predictability of Future Cash Flow Sample	
Tokyo Stock Exchange 1st section	3,920	45.46%	3,880	45.59%
Tokyo Stock Exchange 2nd section	1,121	13.00%	1,110	13.04%
Mothers	325	3.77%	303	3.56%
Osaka Stock Exchange 1st section	70	0.81%	70	0.82%
Osaka Stock Exchange 2nd section	495	5.74%	495	5.82%
Nagoya Stock Exchange 1st section	17	0.20%	17	0.20%
Nagoya Stock Exchange 2nd section (including *Centrex*)	232	2.69%	233	2.74%
Fukuoka Stock Exchange (including *Q-Board*)	73	0.85%	73	0.86%
Sapporo Stock Exchange (including *Ambitious*)	45	0.52%	40	0.47%
JASDAQ	2,325	26.96%	2,289	26.90%
Total	8,623	100.00%	8,510	100.00%

fewer than five outside directors on their boards.[21]

Table 3 shows the firm-year observations grouped by industry classification (i.e., by two-digit Nikkei Medium Classification Industry Code) for our two main samples. In Panels A and B, there are zero firm-year observations for certain industries because in estimating the cross-sectional (i.e., based on industry classification) earnings-quality proxies, we omitted industries with fewer than 20 firms, as per the practice in the prior literature.

Table 4 shows the firm-year observations based on the listed firms in all Japanese stock exchanges that

[21] The difficulty of finding suitably qualified outside directors—as well as the great expense incurred in recruiting and deploying them—are cited in prior literature as possible reasons (Saito 2009; Hirata 2004; Kawamura 2008).

satisfy the criteria listed in Table 1,[22] separated into our two main samples. The majority of firms are listed in the first and second sections of the Tokyo Stock Exchange. On October 12, 2010, the Hercules market was consolidated with the JASDAQ market; Table 4 therefore pools the firm years in these two markets.

3.4 Descriptive Statistics

Panels A and B of Table 5 summarize descriptive statistics for the main variables for the samples in our two main analyses. Slightly more than 41 percent of the firm-years in both samples have at least one outside director (*ODDummy*) and similar to Saito (2010b), the outside directors' ratio (*ODRatio*) is approximately 6.5 percent. Firm-years that involve audit committees (*Committee*) comprise only approximately 1.6 percent of both samples, consistent with the survey findings of the Japan Corporate Auditors Association (JCAA 2004).[23] Notably, *ARatio*, which denotes the proportion of auditors on the board, is approximately 32

Table 5. Descriptive Analysis

Panel A: Absolute Value of Abnormal Accruals Sample						
	N	Mean	STD	Q1	Median	Q3
$AbsAcc_t$	8,623	0.049	0.048	0.018	0.036	0.065
$ARatio_t$	8,623	0.324	0.087	0.273	0.333	0.375
$Boardmember_t$	8,623	0.097	0.142	0.004	0.027	0.139
$BoardSize_t$	8,623	11.456	3.695	9.000	11.000	13.000
$CFMJones_t$	8,623	0.033	0.035	0.010	0.022	0.043
$Committee_t$	8,623	0.016	0.125	0.000	0.000	0.000
DD_t	8,623	0.030	0.037	0.009	0.019	0.038
$Foreigner_t$	8,623	0.085	0.110	0.007	0.040	0.126
$Institution_t$	8,623	0.041	0.049	0.000	0.023	0.069
$Leverage_t$	8,623	0.509	0.208	0.348	0.517	0.668
$Loss_t$	8,623	0.213	0.410	0.000	0.000	0.000
$MJones_t$	8,623	0.041	0.043	0.013	0.029	0.054
OC_t	8,623	134.994	87.650	72.600	125.886	177.799
$ODDummy_t$	8,623	0.416	0.493	0.000	0.000	1.000
$ODRatio_t$	8,623	0.065	0.103	0.000	0.000	0.111
ROA_t	8,623	0.058	0.069	0.026	0.053	0.091
$Size_t$	8.623	24.192	1.568	23.102	24.049	25.126
Panel B: Predictability of Future Cash Flow Sample						
	N	Mean	STD	Q1	Median	Q3
$ARatio_t$	8,510	0.323	0.087	0.273	0.333	0.375
$Boardmember_t$	8,510	0.097	0.141	0.004	0.026	0.138
$BoardSize_t$	8,510	11.476	3.702	9.000	11.000	13.000
$Capital_t$	8,510	0.272	0.175	0.134	0.257	0.383
$Committee_t$	8,510	0.016	0.126	0.000	0.000	0.000
$Foreigner_t$	8,510	0.085	0.110	0.007	0.040	0.127
$HerfIndex_t$	8,510	0.044	0.032	0.024	0.035	0.047
$Institution_t$	8,510	0.042	0.049	0.000	0.023	0.070
$Leverage_t$	8,510	0.509	0.206	0.350	0.518	0.667
$Margin_t$	8,510	0.265	0.163	0.150	0.228	0.337
OC_t	8,510	136.079	87.755	74.002	127.092	178.574
$ODDummy_t$	8,510	0.411	0.492	0.000	0.000	1.000
$ODRatio_t$	8,510	0.064	0.102	0.000	0.000	0.100
$RES1_t$	8,510	0.047	0.049	0.015	0.032	0.061
$RES2_t$	8,510	0.046	0.048	0.014	0.032	0.061
$RES3_t$	8,510	0.044	0.047	0.013	0.030	0.057
ROA_t	8,510	0.059	0.067	0.027	0.053	0.091
$SalesGrowth_t$	8,510	0.034	0.164	-0.044	0.024	0.093
$Size_t$	8.510	24.201	1.558	23.125	24.058	25.139

[22] Our analyses are based on the pooled firm-year observations of all stock markets. We obtain similar results (not tabulated) when the analyses are performed based on each individual stock market.

[23] Of the 936 listed companies that responded, only 1.7 percent have either implemented or considered implementing a committee system (Ajward 2011).

percent; this signifies that the majority of listed Japanese firms have established a conventional dual board (i.e., the board of directors and the board of auditors) governance system, in contrast to the Anglo-American unitary board system.

Table 6 summarizes the Pearson (top right section to the diagonal) and Spearman (bottom left section to the diagonal) correlation coefficients of the main variables for the abnormal accruals sample (Panel A) and the predictability of future cash flow sample (Panel B). In Panel A, all the accruals quality proxy variables—*DD*, *MJones*, and *CFMJones*—significantly and positively correlate with the outside directors' ratio (*ODRatio*) on a univariate basis. This pattern also holds among all three future cash flow predictability residuals—*RES*1, *RES*2, and *RES*3—and *ODRatio* in the predictability of future cash flows sample (Panel B). These observations run counter to our prediction of a negative correlation between these earnings-quality proxies and the presence of outside directors.[24] Furthermore, the total auditors' ratio (*ARatio*) also has the same significant and positive relationship with all earnings-quality proxies on a univariate basis; this too is counterintuitive.

The above relationships exist on a univariate basis, and they do not control for possible confounding factors. In order to investigate relations in a more robust manner by controlling for alternative explanations, we next consider the multivariate regression specifications.

4. Results

4.1 Presence of Outside Directors and Earnings Quality

Table 7 presents our findings for the first multivariate regression specification, model (7). Accordingly, we use the accruals quality proxies *DD*, *MJones*, and *CFMJones* (which denote abnormal accruals and are defined in Exhibit 1: equations [1]-[3]) as the dependent variables, and *ODDummy* and *ODRatio* as alternative variables to represent the presence of outside directors in respective firms. Each of the alternative accruals quality proxy variables has a significantly positive relationship with the outside directors' ratio, *ODRatio*, even after controlling for alternative explanations; this finding runs counter to our predictions. Except for the *MJones* accruals quality proxy, we observe the same statistically significant positive relationship between *DD* and *CFMJones* with the alternative variable that represents the presence of at least one outside director on the board of directors, *ODDummy*. These results indicate that the presence of outside directors is not associated with superior-quality earnings; these results, too, run counter to our predictions. We find no evidence of the effectiveness of the monitoring of outside directors that would ostensibly enhance earnings quality.[25]

---

[24] It should be noted that higher abnormal accruals or future cash flow predictability errors signify lower quality of earnings (see the final paragraph of Subsection 3.1.2: Earnings Quality Models).

[25] As an additional test, we examine the influence of outside auditors on the absolute value of abnormal accruals by introducing a new variable *OARatio*, which is defined as outside auditors at the end of period *t*, divided by *BoardSize* at the end of period *t*. We replace *ARatio* (total auditors' ratio) in model (7) with *OARatio* and analyze the following model:

$$\begin{aligned} AbsAbAcc_t &= \beta_0 + \beta_1 ODRatio_t + \beta_2 OARatio_t + \beta_3 BoardSize_t + \beta_4 Committee_t + \beta_5 AbsAcc_t + \beta_6 OC_t \\ &+ \beta_7 ROA_t + \beta_8 Size_t + \beta_9 Leverage_t + \beta_{10} Loss_t + \beta_{11} Foreigner_t + \beta_{12} Institution_t \\ &+ \beta_{13} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned}$$

The results (not tabulated) are as follows:
The coefficient on *OARatio*, when the dependent variable is:

DD:	Positive (0.028) and significant at 1%
MJones:	Positive (0.006) but insignificant
CFMJones:	Positive (0.012) and significant at 1%

The summarized results indicate that, overall, the presence of outside auditors is not associated with superior-quality earnings (indicated by lower absolute values of abnormal accruals). Thus, we find no evidence for effective monitoring in the presence of

Results pertaining to the testing of model (8) appear in Table 8. Consistent with the results obtained under model (7), we again find a significantly positive relationship between all the absolute values of the forecast error *RES* (Exhibit 1: equations [4]-[6]) and presence of outside directors (proxied by both *ODDummy* and *ODRatio*, even after controlling for alternative explanations. These results again indicate that superior-quality earnings are not associated with firms that employ outside directors on their boards; once again, these results run counter to our prediction.[26]

Based on the results discussed above, we cannot support H1's prediction that the presence of outside directors correlates positively with earnings quality, proxied by either the absolute value of abnormal accruals [*DD*, *MJones*, and *CFMJones*] or the absolute value of future cash flow predictability errors [*RES*1, *RES*2, and *RES*3]. Instead, we obtain results contrary to our original expectations. The additional analyses reported in footnotes 25 and 26 indicate a similar conclusion on the association between the presence of outside auditors and earnings quality. Therefore, we next examine a more robust specification for the effect of the financial expertise of outside directors on earnings quality.

4.2 Presence of Outside Directors with Financial Expertise, and Earnings Quality

Table 9 reports the distribution of the five different expertise categories of outside directors for both of our main samples. In both samples, law expertise dominates over the other expertise categories, tax expertise scores the lowest, and accounting expertise is in between. Tables 10 and 11 report the results of our analysis after introducing each of the variables that represent the five expertise categories of outside directors (i.e., *AccRatio*, *TaxRatio*, *LawRatio*, *BankRatio*, and *FinRatio*) into the specifications of regression models (7) and (8) (with all other variables remaining the same.[27] Table 10 shows that of the outside director expertise variables, only tax expertise (*TaxRatio*) and bank expertise (*BankRatio*) have coefficients with the expected negative sign with the accruals-based earnings-quality proxy measure *DD* (Exhibit 1: equations [1] and [1.1]). The relationships are not statistically significant, however. However, there is a statistically significant positive association between finance expertise (*FinRatio*) and the earnings quality proxy *DD*, contrary to our prediction. Table 11 reports the results when the earnings-quality proxy measure is absolute value of the predictability of future cash flow, *RES*3 (Exhibit 1: equation [6]). Accounting expertise (*AccRatio*) and bank expertise (*BankRatio*) have the expected negative sign on their coefficients, but neither is statistically significant. Accordingly, based on the above results, we cannot support H2's prediction that financial

---

outside auditors (*OARatio*), similar to the case of outside directors (*ODRatio*).

[26] As in the case of the absolute value of abnormal accruals illustrated in the preceding footnote, we perform an additional test by introducing *OARatio*(denoted in footnote 25 as the outside auditor's ratio), instead of *ARatio*, in model (8); we do so, to examine the relationship between the absolute values of the cash flow predictability residuals (*RES*1, *RES*2, and *RES*3: Exhibit 1: equations [4]-[6]) and the presence of outside auditors. The model thus used is depicted as follows, in which all variables except *ARatio* remain the same as in model (8):

$$\begin{aligned} RES_t = {} & \beta_0 + \beta_1 ODRatio_t + \beta_2 OARatio_t + \beta_3 BoardSize_t + \beta_4 Committee_t + \beta_5 Capital_t + \beta_6 SalesGrowth_t \\ & + \beta_7 Margin_t + \beta_8 OC_t + \beta_9 ROA_t + \beta_{10} HerfIndex_t + \beta_{11} Size_t + \beta_{12} Leverage_t + \beta_{13} Foreigner_t \\ & + \beta_{14} Institution_t + \beta_{15} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned}$$

The results can be summarized as follows for the coefficients of the *OARatio* variable, when the dependent variable is:

*RES*1: Positive (0.040) and significant at 1%
*RES*2: Positive (0.039) and significant at 1%
*RES*3: Positive (0.038) and significant at 1%

The summary of the results indicate again that the presence of outside auditors is not associated with higher-quality earnings (i.e., lower absolute value of forecast errors) as predicted (Subsection 3.2: Research Design); thus, we find no evidence that effective monitoring leads to superior-quality earnings.

[27] Table 10 provides the results for the absolute value of abnormal accruals proxy (*DD*) and Table 11 provides the results for the absolute value of future cash flow predictability residual proxy (*RES*3) (see Exhibit 1: equations [1] and [6]). The results of the analyses performed using the other proxies (not tabulated) generate similar conclusions.

Table 6. Correlation Matrix of Tested Variables

Panel A: Absolute Value of Abnormal Accruals Sample

	DD_t	$MJones_t$	$CFMJones_t$	$ODDummy_t$	$ODRatio_t$	$ARatio_t$	$BoardSize_t$	$Committee_t$	$AbsAcc_t$	OC_t	ROA_t	$Size_t$	$Leverage_t$	$Loss_t$	$Foreigner_t$	$Institution_t$	$Boardmember_t$
DD_t		0.388**	0.412**	0.037**	0.078**	0.108**	-0.157**	0.018	0.328**	0.096**	-0.152**	-0.152**	0.081**	0.182**	-0.024*	-0.077**	0.090**
$MJones_t$	0.296**		0.727**	0.034**	0.049**	0.097**	-0.140**	-0.011	0.762**	0.095**	-0.065**	-0.152**	0.083**	0.119**	-0.027*	-0.071**	0.139**
$CFMJones_t$	0.330**	0.620**		0.048**	0.080**	0.100**	-0.139**	0.002	0.591**	0.098**	-0.116**	-0.141**	0.080**	0.163**	-0.009	-0.066**	0.106**
$ODDummy_t$	0.025*	0.021	0.038**		0.797**	-0.173**	0.132**	0.151**	0.040**	-0.070**	-0.007	0.085**	0.013	0.011	0.117	0.036**	-0.127**
$ODRatio_t$	0.047**	0.039**	0.061**	0.954**		-0.306**	-0.026*	0.531**	0.051**	-0.078**	-0.014	0.043**	0.000	0.049**	0.176**	0.009	-0.094**
$ARatio_t$	0.091**	0.090**	0.085**	-0.142**	-0.120**		-0.562**	-0.458**	0.070**	0.037**	-0.069**	-0.307**	-0.048**	0.118**	-0.168**	-0.123**	0.138**
$BoardSize_t$	-0.156**	-0.145**	-0.139**	0.157**	0.060**	-0.666**		-0.090**	-0.105**	-0.018	0.040**	0.601**	0.085**	-0.139**	0.274**	0.270**	-0.308**
$Committee_t$	0.023*	-0.011	0.001	0.151**	0.240**	-0.211**	-0.101**		0.000	-0.001	0.020	0.099**	-0.002	0.015	0.139**	0.053**	-0.038**
$AbsAcc_t$	0.199**	0.497**	0.353**	0.034**	0.044**	0.041**	-0.089**	0.004		0.064**	-0.083**	-0.110**	0.085**	0.147**	-0.017	-0.048**	0.113**
OC_t	0.066**	0.031**	0.028*	-0.074**	-0.091**	0.021*	0.031**	0.004	-0.058**		-0.120**	0.112**	0.018	0.042**	0.072**	0.057**	-0.098**
ROA_t	-0.065**	-0.045**	-0.081**	0.011	0.009	-0.074**	0.040**	0.034**	-0.064**	-0.122**		0.031**	-0.244**	-0.545**	0.186**	0.300**	0.150**
$Size_t$	-0.150**	-0.148**	-0.137**	0.071**	0.035**	-0.307**	0.612**	0.085**	-0.085**	0.142**	0.031**		0.177**	-0.126**	0.544**	0.510**	-0.424**
$Leverage_t$	0.077**	0.067**	0.070**	0.010	0.003	-0.053**	0.088**	-0.002	0.065**	-0.013	-0.286**	0.157**		0.125**	-0.144**	-0.119**	-0.059**
$Loss_t$	0.168**	0.123**	0.158**	0.011	0.031**	0.134**	-0.152**	0.015	0.145**	0.037**	-0.602**	-0.133**	0.127**		-0.112**	-0.192**	-0.001
$Foreigner_t$	-0.039**	-0.048**	-0.034**	0.095**	0.092**	-0.157**	0.322**	0.104**	-0.026*	0.112**	0.262**	0.610**	-0.200**	-0.143**		0.485**	-0.201**
$Institution_t$	-0.086**	-0.080**	-0.072**	0.033**	0.013	-0.144**	0.331**	0.061**	-0.034**	0.092**	0.342**	0.605**	-0.133**	-0.209**	0.666**		-0.144**
$Boardmember_t$	0.058**	0.091**	0.062**	-0.196**	-0.185**	0.161**	-0.334**	-0.082**	0.045**	-0.135**	0.094**	-0.531**	-0.103**	0.017	-0.300**	-0.243**	

Panel B: Predictability of Future Cash Flow Sample

	$RES1_t$	$RES2_t$	$RES3_t$	$ODDummy_t$	$ODRatio_t$	$ARatio_t$	$BoardSize_t$	$Committee_t$	$Capital_t$	$SalesGrowth_t$	$Margin_t$	OC_t	ROA_t	$HerfIndex_t$	$Size_t$	$Leverage_t$	$Foreigner_t$	$Institution_t$	$Boardmember_t$
$RES1_t$		0.960**	0.871**	0.020	0.047**	0.116**	-0.177**	-0.005	-0.207**	0.086**	0.056**	0.038**	-0.034**	-0.128**	-0.218**	0.045**	-0.027*	-0.074**	0.166**
$RES2_t$	0.922**		0.903**	0.022*	0.046**	0.115**	-0.178**	-0.008	-0.221**	0.075**	0.040**	0.049**	-0.043**	-0.134**	-0.227**	0.048**	-0.038**	-0.076**	0.165**
$RES3_t$	0.755**	0.798**		0.019	0.044**	0.121**	-0.183**	-0.007	-0.251**	0.078**	0.049**	0.074**	-0.034**	-0.144**	-0.225**	0.051**	-0.037**	-0.080**	0.170**
$ODDummy_t$	0.011	0.013	0.011		0.749**	-0.176**	0.118**	0.154**	-0.051**	0.014	0.040**	-0.067**	-0.001	-0.010	0.088**	0.013	0.118**	0.034**	-0.126**
$ODRatio_t$	0.029**	0.030**	0.028*	0.955**		-0.311**	-0.026*	0.539**	-0.078**	0.022*	0.089**	-0.077**	-0.004	-0.026*	0.049**	-0.002	0.182**	0.011	-0.091**
$ARatio_t$	0.104**	0.098**	0.114**	-0.144**	-0.122**		-0.560**	-0.462**	-0.088**	0.013	0.091**	0.038**	-0.065**	-0.081**	-0.305**	-0.048**	-0.166**	-0.121**	0.138**
$BoardSize_t$	-0.171**	-0.166**	-0.177**	0.135**	0.061**	-0.664**		-0.094**	0.133**	-0.022*	-0.145**	-0.020	0.037**	0.148**	0.598**	0.083**	0.269**	0.267**	-0.309**
$Committee_t$	0.007	0.003	0.001	0.154**	0.243**	-0.214**	-0.104**		-0.041**	-0.001	0.014	-0.003	0.019	0.003	0.100**	-0.003	0.135**	0.055**	-0.036**
$Capital_t$	-0.186**	-0.196**	-0.234**	-0.065**	-0.084**	-0.108**	0.145**	-0.040**		-0.093**	-0.042**	-0.175**	-0.083**	0.280**	0.144**	0.158**	-0.088**	-0.018	-0.116**
$SalesGrowth_t$	0.040**	0.025*	0.029**	0.012	0.013	-0.007	-0.003	0.002	-0.086**		0.110**	-0.080**	0.370**	-0.090**	-0.028**	0.041**	0.042**	0.084**	0.158**
$Margin_t$	0.017	0.004	0.019	0.031**	0.056**	0.090**	-0.148**	0.014	-0.024*	0.102**		0.016	0.313**	-0.164**	-0.176**	-0.339**	0.101**	0.046**	0.243**
OC_t	-0.007	0.008	0.023*	-0.071**	-0.087**	0.025*	0.026*	0.002	-0.121**	-0.117**	0.028*		-0.117**	0.095**	0.113**	0.021	0.065**	0.058**	-0.090**
ROA_t	0.005	-0.010	-0.002	0.013	0.013	-0.071**	0.036**	0.034**	-0.114**	0.439**	0.358**	-0.123**		-0.092**	0.030**	-0.256**	0.193**	0.305**	0.140**
$HerfIndex_t$	-0.099**	-0.102**	-0.117**	-0.030**	-0.049**	-0.073**	0.128**	0.007	0.256**	-0.139**	-0.190**	0.205**	-0.143**		0.215**	0.053**	0.039**	0.026*	-0.196**
$Size_t$	-0.181**	-0.188**	-0.191**	0.074**	0.040**	-0.304**	0.609**	0.085**	0.157**	-0.005	-0.178**	0.141**	0.029**	0.235**		0.169**	0.539**	0.509**	-0.427**
$Leverage_t$	0.048**	0.051**	0.042**	0.009	0.002	-0.052**	0.086**	-0.003	0.142**	0.022*	-0.359**	-0.013	-0.292**	0.078**	0.147**		-0.154**	-0.122**	-0.054**
$Foreigner_t$	-0.041**	-0.049**	-0.049**	0.097**	0.095**	-0.155**	0.318**	0.103**	-0.091**	0.086**	0.091**	0.109**	0.266**	0.055**	0.610**	-0.208**		0.484**	-0.200**
$Institution_t$	-0.078**	-0.083**	-0.090**	0.033**	0.015	-0.140**	0.326**	0.062**	0.006	0.124**	0.059**	0.091**	0.340**	0.032**	0.604**	-0.136**	0.667**		-0.143**
$Boardmember_t$	0.120**	0.125**	0.135**	-0.196**	-0.184**	0.162**	-0.363**	-0.080**	-0.121**	0.103**	0.219**	-0.131**	0.089**	-0.197**	-0.533**	-0.094**	-0.305**	-0.244**	

Pearson correlations appear above the diagonal and Spearman correlations appear below the diagonal.

** indicates significance at the 1% level, * indicates significance at the 5% level.

Table 7. Outside Directors and Absolute Value of Abnormal Accruals, 2006–2008

$$AbsAbAcc_t = \beta_0 + \beta_1 ODDummy_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 AbsAcc_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 Size_t + \beta_{10} Leverage_t + \beta_{11} Loss_t + \beta_{12} Foreigner_t + \beta_{13} Institution_t + \beta_{14} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (7)$$

Variables	Predicted Sign	Dependent Variables											
		DD_t				$MJones_t$				$CFMJones_t$			
		Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.
Intercept	?	0.097	10.217**	0.093	9.738**	0.043	5.701**	0.042	5.433**	0.053	7.053**	0.050	6.542**
***ODDummy**$_t$*	–	**0.002**	**2.609****			**0.001**	**1.901**			**0.002**	**2.430***		
***ODRatio**$_t$*	–			**0.020**	**4.577****			**0.010**	**2.753****			**0.017**	**4.857****
ARatio$_t$	?	0.024	3.683**	0.027	4.036**	0.012	2.258*	0.013	2.451*	0.014	2.580**	0.016	2.979**
BoardSize$_t$	?	0.000	0.177	0.000	0.497	0.000	0.968	0.000	1.177	0.000	0.902	0.000	1.226
Committee$_t$	–	0.014	3.612**	0.008	1.807	0.001	0.262	–0.002	–0.660	0.005	1.481	–0.001	–0.292
AbsAcc$_t$	+	0.200	24.769**	0.199	24.671**	0.667	102.643**	0.667	102.600**	0.387	59.933**	0.386	59.905**
OC$_t$	+	0.000	7.477**	0.000	7.540**	0.000	6.773**	0.000	6.800**	0.000	7.276**	0.000	7.373**
ROA$_t$	?	–0.037	–5.249**	–0.036	–5.182**	0.010	1.813	0.010	1.856	–0.016	–2.804**	–0.015	–2.728**
Size$_t$	–	–0.004	–10.339**	–0.004	–10.088**	–0.002	–6.772**	–0.002	–6.643**	–0.003	–7.771**	–0.003	–7.525**
Leverage$_t$	+	0.013	6.281**	0.012	6.176**	0.006	3.727**	0.006	3.671**	0.007	4.213**	0.007	4.094**
Loss$_t$	+	0.006	5.721**	0.006	5.673**	0.000	0.444	0.000	0.387	0.003	3.850**	0.003	3.740**
Foreigner$_t$	?	0.031	7.021**	0.028	6.410**	0.016	4.541**	0.015	4.201**	0.021	6.152**	0.019	5.494**
Institution$_t$	?	0.029	3.086**	0.031	3.208**	–0.004	–0.460	–0.003	–0.391	0.010	1.308	0.011	1.437
Boardmember$_t$	?	0.003	0.953	0.004	1.282	0.007	2.764**	0.007	2.914**	–0.001	–0.265	0.000	0.126
Adjusted R^2		0.183	51.836**	0.184	52.293**	0.609	354.450**	0.609	354.718**	0.399	151.467**	0.400	152.242**
N		8,623		8,623		8,623		8,623		8,623		8,623	

Variable definitions:

DD_t is the absolute value of residuals, from Dechow and Dichev's (2002) model. $MJones_t$ is the absolute value of modified Jones model abnormal accruals, from Dechow et al. (1995). $CFMJones_t$ is the absolute value of cash flow modified Jones model abnormal accruals, from Kasznik (1999). These models are illustrated in Exhibit 1: Equations (1)–(3).

$ODDummy_t$ is 1 if at least one outside director is on the board, and 0 otherwise. $ODRatio_t$ is the number of outside directors, divided by $BoardSize_t$. $ARatio_t$ is the total number of auditors, divided by $BoardSize_t$. $BoardSize_t$ is the number of board members (sum of all directors and all auditors). $Committee_t$ is 1 if the company has committees, and 0 otherwise. $AbsAcc_t$ is the absolute value of accruals, deflated by average total assets. OC_t is the operating cycle (day) calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where *AR* is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. ROA_t is the return on assets. $Size_t$ is the natural logarithm of total assets. $Leverage_t$ is total debt, divided by total assets. $Loss_t$ is 1 if the net income of the firm is negative, and 0 otherwise. $Foreigner_t$ is the percentage of stock held by foreigners. $Institution_t$ is the percentage of stock held by institutional investors. $Boardmember_t$ is the percentage of stock held by board members.

The regression model includes dummy variables for industry and year. We use the two-digit *Nikkei Medium Classification Industry Code* as dummy variables for industry. (We do not report the industry and year dummy coefficients.) ** indicates significance at the 1% level, * indicates significance at the 5% level.

Table 8. Outside Directors and Predictability of Future Cash Flow, 2006–2008

$$RES_t = \beta_0 + \beta_1 ODDummy_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 Capital_t + \beta_7 SalesGrowth_t + \beta_8 Margin_t + \beta_9 OC_t + \beta_{10} ROA_t + \beta_{11} HerfIndex_t + \beta_{12} Size_t + \beta_{13} Leverage_t + \beta_{14} Foreigner_t + \beta_{15} Institution_t + \beta_{16} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (8)$$

Variables	Predicted Sign	Dependent Variables											
		RES1ₜ				*RES2ₜ*				*RES3ₜ*			
		Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.
Intercept	?	0.241	17.160**	0.238	16.901**	0.254	18.343**	0.251	18.049**	0.229	17.113**	0.226	16.840**
ODDummyₜ	–	**0.002**	**1.962***			**0.002**	**2.408***			**0.002**	**2.274***		
ODRatioₜ	–			**0.016**	**2.701****			**0.019**	**3.194****			**0.017**	**2.956****
ARatioₜ	?	0.024	2.710**	0.026	2.884**	0.022	2.469*	0.024	2.673**	0.024	2.808**	0.026	2.995**
BoardSizeₜ	?	0.000	1.067	0.000	1.276	0.000	1.335	0.000	1.586	0.000	1.259	0.000	1.493
Committeeₜ	–	0.008	1.546	0.003	0.535	0.007	1.280	0.001	0.129	0.007	1.475	0.002	0.393
Capitalₜ	+	–0.040	–11.862**	–0.040	–11.818**	–0.043	–12.804**	–0.043	–12.762**	–0.048	–14.815**	–0.048	–14.824**
SalesGrowthₜ	+	0.020	5.771**	0.019	5.716**	0.018	5.381**	0.018	5.318**	0.016	4.833**	0.015	4.775**
Marginₜ	?	0.011	2.840**	0.011	2.711**	0.009	2.233*	0.008	2.091*	0.010	2.648**	0.009	2.516*
OCₜ	+	–0.000	–0.802	–0.000	–0.755	–0.000	–0.561	–0.000	–0.511	0.000	1.572	0.000	1.615
ROAₜ	?	–0.062	–6.794**	–0.061	–6.677**	–0.062	–6.918**	–0.061	–6.783**	–0.051	–5.874**	–0.050	–5.751**
HerfIndexₜ	?	–0.129	–1.373	–0.128	–1.365	–0.164	–1.768	–0.163	–1.757	–0.078	–0.879	–0.078	–0.868
Sizeₜ	–	–0.009	–15.666**	–0.009	–15.541**	–0.009	–16.702**	–0.009	–16.557**	–0.009	–15.962**	–0.008	–15.831**
Leverageₜ	+	0.023	8.057**	0.022	7.986**	0.023	8.351**	0.023	8.268**	0.023	8.596**	0.023	8.521**
Foreignerₜ	?	0.044	7.417**	0.042	7.057**	0.041	7.103**	0.039	6.711**	0.037	6.653**	0.036	6.278**
Institutionₜ	?	0.052	4.061**	0.053	4.128**	0.060	4.701**	0.061	4.784**	0.049	4.049**	0.050	4.121**
Boardmemberₜ	?	0.009	2.107*	0.009	2.247*	0.010	2.371*	0.010	2.525*	0.009	2.372*	0.010	2.508*
Adjusted R^2		0.160	41.492**	0.160	41.594**	0.166	43.327**	0.166	43.459**	0.184	49.005**	0.185	49.115**
N		8,510		8,510		8,510		8,510		8,510		8,510	

Variable definitions:

$RES1_t$ is the absolute value of the forecast error from equation (4). $RES2_t$ is the absolute value of the forecast error from equation (5). $RES3_t$ is the absolute value of the forecast error from equation (6).

$ODDummy_t$ is 1 if at least one outside director is on the board, and 0 otherwise. $ODRatio_t$ is the number of outside directors, divided by $BoardSize_t$. $ARatio_t$ is the number of total auditors, divided by $BoardSize_t$. $BoardSize_t$ is the number of board members (sum of all directors and all auditors). $Committee_t$ is 1 if the company has committees, and 0 otherwise. $Capital_t$ is the net plant, property, and equipment, divided by total assets. $SalesGrowth_t$ is the current year's growth in sales. $Margin_t$ is the gross margin percentage. OC_t is the operating cycle (day), calculated as $[(AR_t + AR_{t-1})/ \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where AR is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. ROA_t is the return on assets. $HerfIndex_t$ is the Herfindahl index, calculated as the sum of squares of the market shares of the firms in the industry (based on the two-digit Nikkei industry code). $Size_t$ is the natural logarithm of total assets. $Leverage_t$ is total debt, divided by total assets. $Loss_t$ is 1 if the net income of the firm is negative, and 0 otherwise. $Foreigner_t$ is the percentage of stock held by foreigners. $Institution_t$ is the percentage of stock held by institutional investors. $Boardmember_t$ is the percentage of stock held by board members.

Table 9. Financial Expertise of Outside Directors

	Number of Observations	Without Outside Directors	With Outside Directors	With Accounting Expertise	With Tax Expertise	With Law Expertise	With Bank Expertise	With Finance Expertise
Absolute Value of Abnormal Accruals Sample	8,623	5,040	3,583	175	60	378	259	275
Predictability of Future Cash Flow Sample	8,510	5,011	3,499	171	57	370	250	296

Table 10. Financial Expertise among Outside Directors and Absolute Value of Residual, from Dechow and Dichev's (2002) Model, 2006–2008

$$DD_t = \beta_0 + \beta_1 ExpertiseRatio_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 AbsAcc_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 Size_t + \beta_{10} Leverage_t + \beta_{11} Loss_t + \beta_{12} Foreigner_t + \beta_{13} Institution_t + \beta_{14} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \qquad (9)$$

Variables	Predicted Sign	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.
Intercept	?	0.093	9.729**	0.093	9.739**	0.093	9.791**	0.093	9.721**	0.091	9.600**
AccRatio$_t$	–	**0.037**	**1.441**								
TaxRatio$_t$	–			**–0.064**	**–1.653**						
LawRatio$_t$	–					**0.024**	**1.290**				
BankRatio$_t$	–							**–0.005**	**–0.230**		
FinRatio$_t$	–									**0.071**	**4.464****
ODRatio$_t$	–	0.019	4.329**	0.021	4.741**	0.019	4.151**	0.020	4.547**	0.015	3.214**
ARatio$_t$	?	0.027	4.021**	0.027	4.033**	0.027	4.063**	0.027	4.042**	0.027	4.050**
BoardSize$_t$	?	0.000	0.480	0.000	0.467	0.000	0.558	0.000	0.499	0.000	0.548
Committee$_t$	–	0.007	1.628	0.008	1.888	0.007	1.714	0.008	1.807	0.008	1.828
AbsAcc$_t$	+	0.199	24.659**	0.199	24.694**	0.199	24.707**	0.199	24.669**	0.199	24.665**
OC$_t$	+	0.000	7.540**	0.000	7.563**	0.000	7.513**	0.000	7.538**	0.000	7.308**
ROA$_t$	?	–0.036	–5.182**	–0.036	–5.199**	–0.036	–5.170**	–0.036	–5.188**	–0.036	–5.158**
Size$_t$	–	–0.004	–10.064**	–0.004	–10.089**	–0.004	–10.145**	–0.004	–10.085**	–0.004	–9.898**
Leverage$_t$	+	0.012	6.156**	0.012	6.116**	0.012	6.196**	0.012	6.181**	0.012	5.92**
Loss$_t$	+	0.006	5.691**	0.006	5.673**	0.006	5.673**	0.006	5.664**	0.006	5.645**
Foreigner$_t$	?	0.028	6.394**	0.028	6.374**	0.028	6.401**	0.028	6.412**	0.026	5.867**
Institution$_t$	?	0.030	3.178**	0.031	3.203**	0.030	3.156**	0.031	3.212**	0.032	3.311**
Boardmember$_t$	?	0.004	1.189	0.004	1.316	0.004	1.205	0.004	1.288	0.004	1.296
Adjusted R^2		0.185	51.021**	0.185	51.021**	0.184	50.987**	0.184	50.954**	0.186	51.589**
N		8,623		8,623		8,623		8,623		8,623	

Variable definitions:

DD_t is the absolute value of residuals from Dechow and Dichev's (2002) model (see equation [1] in Exhibit 1).

$ExpertiseRatio_t$ is *$AccRatio_t$*, *$TaxRatio_t$*, *$LawRatio_t$*, *$BankRatio_t$*, or *$FinRatio_t$*. *$AccRatio_t$* is the number of outside directors with accounting expertise, divided by *$BoardSize_t$*. *$TaxRatio_t$* is the number of outside directors with tax expertise, divided by *$BoardSize_t$*. *$LawRatio_t$* is the number of outside directors with law expertise, divided by *$BoardSize_t$*. *$BankRatio_t$* is the number of outside directors from banks, divided by *$BoardSize_t$*. *$FinRatio_t$* is the number of outside directors from finance firms, divided by *$BoardSize_t$*. *$ODRatio_t$* is the number of outside directors, divided by *$BoardSize_t$*. *$ARatio_t$* is the number of total auditors, divided by *$BoardSize_t$*. *$BoardSize_t$* is the number of board members (sum of all directors and all auditors). *$Committee_t$* is 1 if the company has committees, and 0 otherwise. *$AbsAcc_t$* is the absolute value of accruals, deflated by average total assets. *OC_t* is the operating cycle (day) calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where *AR* is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is the cost of goods sales. *ROA_t* is the return on assets. *$Size_t$* is the natural logarithm of total assets. *$Leverage_t$* is total debt, divided by total assets. *$Loss_t$* is 1 if the net income of the firm is negative, and 0 otherwise. *$Foreigner_t$* is the percentage of stock held by foreigners. *$Institution_t$* is the percentage of stock held by institutional investors. *$Boardmember_t$* is the percentage of stock held by board members.

The regression model includes dummy variables for industry and year. We use the two-digit *Nikkei Medium Classification Industry Code* as dummy variables for industry. (We do not report the industry and year dummy coefficients.) ** indicates significance at the 1% level, * indicates significance at the 5% level.

Table 11. Financial Expertise among Outside Directors and Predictability of Future Cash Flow, 2006–2008

$$RES3_t = \beta_0 + \beta_1 ExpertiseRatio_t + \beta_2 ODRatio_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 Capital_t + \beta_7 SalesGrowth_t + \beta_8 Margin_t + \beta_9 OC_t + \beta_{10} ROA_t + \beta_{11} HerfIndex_t + \beta_{12} Size_t + \beta_{13} Leverage_t + \beta_{14} Foreigner_t + \beta_{15} Institution_t + \beta_{16} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (10)$$

Variables	Predicted Sign	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.
Intercept	?	0.226	16.853**	0.226	16.841**	0.227	16.900**	0.226	16.800**	0.226	16.818**
AccRatio$_t$	–	**–0.043**	**–1.278**								
TaxRatio$_t$	–			**0.040**	**0.782**						
LawRatio$_t$	–					**0.037**	**1.568**				
BankRatio$_t$	–							**–0.023**	**–0.804**		
FinRatio$_t$	–									**0.022**	**1.080**
ODRatio$_t$	–	0.018	3.110**	0.016	2.846**	0.015	2.525*	0.018	3.055**	0.015	2.556*
ARatio$_t$	?	0.026	3.004**	0.026	2.999**	0.026	3.020**	0.026	3.014**	0.026	2.994**
BoardSize$_t$	?	0.000	1.505	0.000	1.508	0.000	1.563	0.000	1.505	0.000	1.506
Committee$_t$	–	0.003	0.526	0.002	0.351	0.002	0.278	0.002	0.399	0.002	0.402
Capital$_t$	+	–0.048	–14.821**	–0.048	–14.827**	–0.048	–14.806**	–0.048	–14.815**	–0.048	–14.827**
SalesGrowth$_t$	+	0.015	4.756**	0.015	4.772**	0.015	4.756**	0.016	4.784**	0.016	4.788**
Margin$_t$	?	0.009	2.530*	0.009	2.484*	0.009	2.541*	0.009	2.530*	0.009	2.470*
OC$_t$	+	0.000	1.607	0.000	1.614	0.000	1.598	0.000	1.600	0.000	1.564
ROA$_t$	?	–0.050	–5.733**	–0.050	–5.745**	–0.050	–5.737**	–0.050	–5.775**	–0.050	–5.744**
HerfIndex$_t$	?	–0.079	–0.887	–0.077	–0.861	–0.078	–0.871	–0.077	–0.868	–0.077	–0.860
Size$_t$	–	–0.008	–15.850**	–0.008	–15.849**	–0.009	–15.909**	–0.008	–15.808**	–0.008	–15.784**
Leverage$_t$	+	0.023	8.539**	0.023	8.543**	0.023	8.551**	0.023	8.532**	0.023	8.446**
Foreigner$_t$	?	0.036	6.283**	0.036	6.298**	0.036	6.273**	0.036	6.283**	0.035	6.133**
Institution$_t$	?	0.051	4.148**	0.050	4.124**	0.050	4.074**	0.051	4.138**	0.051	4.143**
Boardmember$_t$	?	0.010	2.584**	0.010	2.495*	0.010	2.416*	0.010	2.546*	0.010	2.513*
Adjusted R^2		0.185	47.961**	0.184	47.930**	0.185	47.985**	0.184	47.931**	0.185	47.947**
N		8,510		8,510		8,510		8,510		8,510	

Variable definitions:

RES3$_t$ is the absolute value of the forecast error from equation (6).

AccRatio$_t$ is the number of outside directors with accounting expertise, divided by *BoardSize*$_t$. *TaxRatio*$_t$ is the number of outside directors with tax expertise, divided by *BoardSize*$_t$. *LawRatio*$_t$ is the number of outside directors with law expertise, divided by *BoardSize*$_t$. *BankRatio*$_t$ is the number of outside directors from banks, divided by *BoardSize*$_t$. *FinRatio*$_t$ is the number of outside directors from finance firms, divided by *BoardSize*$_t$. *ODRatio*$_t$ is the number of outside directors, divided by *BoardSize*$_t$. *ARatio*$_t$ is the number of total auditors, divided by board size. *BoardSize*$_t$ is the number of board members (sum of all directors and all auditors). *Committee*$_t$ is 1 if the company has committees, and 0 otherwise. *Capital*$_t$ is net plant, property, and equipment, divided by total assets. *SalesGrowth*$_t$ is the current year's growth in sales. *Margin*$_t$ is the gross margin percentage. *OC*$_t$ is the operating cycle (day) calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where *AR* is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. *ROA*$_t$ is the return on assets. *HerfIndex*$_t$ is the Herfindahl index, calculated as the sum of squares of market shares of the firms in the industry (based on two-digit Nikkei industry code). *Size*$_t$ is the natural logarithm of total assets. *Leverage*$_t$ is total debt, divided by total assets. *Loss*$_t$ is 1 if the net income of the firm is negative, and 0 otherwise. *Foreigner*$_t$ is the percentage of stock held by foreigners. *Institution*$_t$ is the percentage of stock held by institutional investors. *Boardmember*$_t$ is the percentage of stock held by board members.

The regression model includes dummy variables for industry and year. We use the two-digit *Nikkei Medium Classification Industry Code* as dummy variables for industry. (We do not report the industry and year dummy coefficients.) ** indicates significance at the 1% level, * indicates significance at the 5% level.

expertise is consistently positively associated with earnings quality.[28] In the next section, we attempt to address the inconclusive findings obtained in this section.

5. Additional Robustness Testing

5.1 Reverse Causality

The possibility that firms with lower-quality earnings tend to engage a higher number of outside directors than firms with higher-quality earnings raises the issue of reverse causality with regard to our hypotheses. To investigate reverse causality, we first compare the earnings quality measures for firms with outside directors versus firms with no outside directors. Table 12 provides evidence that firms with outside directors (*ODDummy*=1) tend to have lower-quality earnings than firms with no outside directors (*ODDummy*=0), as the mean difference is statistically significant for a majority of the earnings quality measures.[29] This finding is consistent with an interpretation that firms with lower-quality earnings tend to engage a higher number of outside directors than firms with higher-quality earnings, indicating a possible reverse-causality issue. However, in untabulated results, do not find reverse causality to constitute a major issue that significantly influences the findings and conclusions in Section 4.[30]

5.2 Internality: The Effect of Tenure on Earnings Quality

Table 12, however, also shows the average estimates of the earnings-quality proxies, classified according to

---

[28] Because expertise can affect the monitoring capabilities of other outside directors via knowledge-sharing with them-which in turn leads to higher effective monitoring among outside directors on an overall basis-we run additional tests after introducing the interaction variable *ODRatio* × *ExpertiseDummy*, where *ExpertiseDummy* is the presence (i.e., coded as = 1 if present, and 0 otherwise) of at least one outside director with a particular subcategory of expertise (i.e., *AccRatio*, *TaxRatio*, *LawRatio*, *BankRatio*, or *FinRatio*).We investigate the difference in effect on earnings quality by outside directors with or without relevant financial expertise, using the following models;

$$\begin{aligned} DD_t = {} & \beta_0 + \beta_1 ODRatio_t + \beta_2 ODRatio_t * ExpertiseDummy_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t \\ & + \beta_6 AbsAcc_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 Size_t + \beta_{10} Leverage_t + \beta_{11} Loss_t + \beta_{12} Foreigner_t + \beta_{13} Institution_t \\ & + \beta_{14} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned}$$

$$\begin{aligned} RES_t = {} & \beta_0 + \beta_1 ODRatio_t + \beta_2 ODRatio * ExpertiseDummy_t + \beta_3 ARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t \\ & + \beta_6 Capital_t + \beta_7 SalesGrowth_t + \beta_8 Margin_t + \beta_9 OC_t + \beta_{10} ROA_t + \beta_{11} HerfIndex_t + \beta_{12} Size_t \\ & + \beta_{13} Leverage_t + \beta_{14} Foreigner_t + \beta_{15} Institution_t + \beta_{16} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned}$$

In untabulated results, we find that the coefficients for the interaction variable, *ODRatio* × *ExpertiseDummy*, have the same sign as the coefficients for the expertise variables in Tables 10 and 11. These results lead to the same conclusions, i.e., there is no consistent, positive relationship between financial expertise and earnings quality.

[29] Recall that a higher value of an earnings-quality proxy signifies lower-quality earnings.

[30] The lower earnings-quality firms may undertake corporate governance reforms and thereby deploy outside directors, while higher earnings-quality firms may not engage in such reforms. In addition, the ratio of outside directors of lower earnings-quality firms may increase due to termination of inside directors after recruitment of outside directors.

To investigate these possibilities, we perform the following additional analysis. For each earnings quality sample (i.e., samples based on earnings quality measures *DD*, *MJones*, *CFMJones*, *RES1*, *RES2*, and *RES3*), we compute means for *ODDummy*, Number of outside directors, *ODRatio*, *BoardSize* and Number of directors, and we compute the deciles of each earnings quality measure. The results (untabulated) show that as earnings quality increases, the variables: *ODDummy*, Number of outside directors, and *ODRatio* tend to decrease; but after the 6th decile (of the relevant earnings quality measure), these variables (which relate to the outside directors) commence to increase, which depicts a U-shaped relationship between these variables and the level of earnings quality. Furthermore, as earnings quality increases, *BoardSize* and Number of directors tend to increase, but after the 8th decile (of the relevant earnings quality measure), these variables commence to decrease. Overall, there exists a U-shaped relationship between the variables related to the outside directors and the level of each earnings quality measure.

Thus, in summary, the issue of reverse causality is not found to be a major problem that would significantly influence our earlier findings and conclusions.

Table 12. Average Tenure (Years of Experience) of Outside Directors and Earnings Quality Measures, 2006–2008

		$ODDummy_t = 1$						$ODDummy_t = 0$		Mean diff.
						Total				
		$Tenure_t < 1$	$1 \leqq Tenure_t < 5$	$5 \leqq Tenure_t < 10$	$10 \leqq Tenure_t$	Mean	SD	Mean	SD	t-value
Panel A:	DD_t	0.033	0.032	0.032	0.023	0.032	0.040	0.029	0.035	3.459**
Absolute Value of	$MJones_t$	0.043	0.044	0.044	0.038	0.043	0.045	0.040	0.041	3.173**
Abnormal Accruals Sample	$CFMJones_t$	0.035	0.036	0.034	0.027	0.035	0.037	0.032	0.032	4.474**
	N	1,440	1,649	377	117	3,583		5,040		
Panel B:	$RES1_t$	0.050	0.047	0.048	0.040	0.048	0.050	0.046	0.048	1.849
Predictability of	$RES2_t$	0.050	0.046	0.048	0.039	0.048	0.050	0.046	0.047	1.957*
Future Cash Flow Sample	$RES3_t$	0.048	0.043	0.046	0.034	0.045	0.048	0.043	0.046	1.818
	N	1,405	1,615	367	112	3,499		5,011		

four categories of outside directors' average tenure (years of experience) for firm-years with outside directors (*ODDummy*=1). Panel A shows that the absolute value of abnormal accruals decreases as tenure increases and Panel B shows that the absolute value of future cash flow predictability errors decreases as tenure increases. These results provide evidence that earnings quality improves when tenure increases. Thus, it can be argued that the mere number of outside directors may not be as important as their experience with or within the firm, as far as improving earnings quality is concerned.

One requires experience with or within a firm to become familiar with and effectively monitor the sophisticated internal control system, which is an important mechanism to manage earnings quality. We use the term "internality" to connote states in which the outside director or outside auditor becomes accustomed to monitoring the company or becomes familiar with the internal circumstances of the company. We also use "internality" for the state of being an inside director or inside auditor on the auditor board. We use the term "externality" to connote the state in which the outside director (or outside auditor on the auditor board) is merely independent and lacks due experience in the firm, and therefore is unable to monitor effectively the execution of the sophisticated internal control system of the firm.

With respect to outside directors, it can be argued that *internality* is important, above and beyond mere *independence* or *externality* (i.e., simply being an outside director). Hence, we investigate the effect of outside director internality on earnings quality. We begin by using outside directors' tenure to proxy for internality. We expand our original models (7) and (8) by introducing the variable *Tenure* (defined as average years of experience of outside directors, up to the end of period *t*). Further, we add the interaction between *Tenure* and *ODRatio*: *Tenure×ODRatio*.[31] We expect a negative coefficient for *Tenure×ODRatio*, signifying a positive relationship between the tenure of outside directors and earnings quality.[32]

Tables 13 and 14 report the regression results for the alternative earnings quality proxies of absolute value of abnormal accruals and future cash flow predictability errors, respectively. In both tables, *Tenure×ODRatio* has a negative coefficient for all alternative earnings-quality proxies, as well as statistical significance in almost all cases. Thus, as expected, the results show a statistically significant positive relationship between the tenure of outside directors and earnings quality. This indicates that *internality* is important, above and beyond mere *independence* or *externality*, *per se*, for improving earnings quality. When we contrast these findings with those in Section 4 (where we find no expected relationship between the presence of outside directors, with or without financial expertise, and earnings quality), it is apparent that the issue of reverse causality has not significantly distorted the findings and conclusions derived in Section 4's main analysis. The following section provides further robustness tests on the effect of *internality* on earnings quality.

5.3 Internality: The Effect of Inside Directors and Inside Auditors on Earnings Quality

We next further investigate the effect of internality on earnings quality by focusing on internality with respect to internal elements (inside directors and inside board auditors).[33] For this purpose, we add to our

---

31 Except for these two new variables, all other variables remain the same as in our original models (7) and (8).

32 A negative sign is expected for the same reason explained in footnote 24.

33 The following table reports descriptive statistics for the tenure of (both inside and outside) directors and board auditors:

		N	Mean	STD	Q1	Median	Q3
Panel A:	$Tenure_t$	3,583	2.578	3.381	0.750	1.750	4.917
Accruals Quality Measures	$OATenure_t$	8,401	3.724	3.179	1.667	2.750	4.833
	$IDTenure_t$	8,623	7.558	4.508	4.222	6.625	10.000
	$IATenure_t$	8,481	5.675	6.352	0.750	3.750	8.250
Panel B:	$Tenure_t$	3,499	2.552	3.301	0.750	1.750	03.500
Predictability of Future Cash	$OATenure_t$	8,288	3.734	3.206	1.694	2.750	4.944
Flow Measures	$IDTenure_t$	8,510	7.586	4.503	4.250	6.667	10.000
	$IATenure_t$	8,369	5.721	6.383	0.750	3.750	8.500

Definitions of the variables: $Tenure_t$ is the average years of experience of each outside director. $OATenure_t$ is the average years of experience of each outside auditor. $IDTenure_t$ is the average years of experience of each inside director. $IATenure_t$ is the average years of experience of each inside auditor.

In the both Panels A and B above, for both mean and median, the inside directors have the highest tenure, while outside directors have the lowest tenure, among the four categories of individuals. Accordingly, inside directors, on average, possess more experience than outside directors. The same pattern holds for the inside auditors and outside auditors in the board of auditors, but the difference in tenure is not as large as it is for directors.

Table 13. Tenure of Outside Directors and Absolute Value of Abnormal Accruals, 2006–2008

$$DD_t = \beta_0 + \beta_1 Tenure_t + \beta_2 ODRatio_t + \beta_3 ODRatio_t \times Tenure_t + \beta_4 ARatio_t + \beta_5 BoardSize_t + \beta_6 Committee_t + \beta_7 AbsAcc_t + \beta_8 OC_t + \beta_9 ROA_t + \beta_{10} Size_t + \beta_{11} Leverage_t + \beta_{12} Loss_t + \beta_{13} Foreigner_t + \beta_{14} Institution_t + \beta_{15} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (11)$$

Variables	Predicted Sign	Dependent Variables					
		DD_t		$MJones_t$		$CFMJones_t$	
		Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.
Intercept	?	0.093	9.820**	0.042	5.538**	0.050	6.540**
Tenure$_t$	–	**0.000**	**1.198**	**0.001**	**2.866****	**–0.000**	**–0.047**
ODRatio$_t$	–	0.033	6.127**	0.012	2.847**	0.019	4.424**
ODRatio$_t$×Tenure$_t$	–	**–0.007**	**–3.266****	**–0.004**	**–2.405***	**–0.001**	**–0.463**
ARatio$_t$	?	0.027	4.053**	0.013	2.461*	0.016	2.976**
BoardSize$_t$	?	0.000	0.688	0.000	1.021	0.000	1.281
Committee$_t$	–	0.008	1.909	–0.000	–0.109	–0.001	–0.316
AbsAcc$_t$	+	0.198	24.584**	0.667	102.552**	0.386	59.793**
OC$_t$	+	0.000	7.559**	0.000	6.821**	0.000	7.370**
ROA$_t$	?	–0.037	–5.274**	0.010	1.815	–0.015	–2.739**
Size$_t$	–	–0.004	–10.209**	–0.002	–6.729**	–0.003	–7.518**
Leverage$_t$	+	0.012	6.085**	0.006	3.696**	0.007	4.069**
Loss$_t$	+	0.006	5.591**	0.000	0.348	0.003	3.727**
Foreigner$_t$	?	0.028	6.375**	0.015	4.330**	0.019	5.459**
Institution$_t$	?	0.031	3.247**	–0.003	–0.359	0.011	1.441
Boardmember$_t$	?	0.005	1.502	0.007	2.967**	0.000	0.168
Adjusted R^2		0.186	50.191**	0.610	337.432**	0.400	144.627**
N		8,623		8,623		8,623	

Variable definitions:

DD_t is the absolute value of residuals, from Dechow and Dichev's (2002) model. $MJones_t$ is the absolute value of modified Jones model abnormal accruals, from Dechow et al. (1995). $CFMJones_t$ is the absolute value of cash flow modified Jones model abnormal accruals, from Kasznik (1999). These models are illustrated in Exhibit 1: Equations (1)–(3).

$Tenure_t$ is the average years of experience of each outside director. $ODRatio_t$ is the number of outside directors, divided by $BoardSize_t$. $ARatio_t$ is the number of total auditors, divided by $BoardSize_t$. $BoardSize_t$ is the number of board members (sum of all directors and all auditors). $Committee_t$ is 1 if the company has committees, and 0 otherwise. $AbsAcc_t$ is the absolute value of accruals, deflated by average total assets. OC_t is the operating cycle (day) calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where AR is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. ROA_t is the return on assets. $Size_t$ is the natural logarithm of total assets. $Leverage_t$ is total debt, divided by total assets. $Loss_t$ is 1 if the net income of the firm is negative, and 0 otherwise. $Foreigner_t$ is the percentage of stock held by foreigners. $Institution_t$ is the percentage of stock held by institutional investors. $Boardmember_t$ is the percentage of stock held by board members.

The regression model includes dummy variables for industry and year. We use the two-digit *Nikkei Medium Classification Industry Code* as dummy variables for industry. (We do not report the industry and year dummy coefficients.) ** indicates significance at the 1% level, * indicates significance at the 5% level.

Table 14. Tenure of Outside Directors and Predictability of Future Cash Flow, 2006–2008

$$RES_t = \beta_0 + \beta_1 Tenure_t + \beta_2 ODRatio_t + \beta_3 ODRatio_t \times Tenure_t + \beta_4 Aratio_t + \beta_5 BoardSize_t + \beta_6 Committee_t + \beta_7 Capital_t + \beta_8 SalesGrowth_t + \beta_9 Margin_t + \beta_{10} OC_t + \beta_{11} ROA_t + \beta_{12} HerfIndex_t + \beta_{13} Size_t + \beta_{14} Leverage_t + \beta_{15} Foreigner_t + \beta_{16} Institution_t + \beta_{17} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (12)$$

Variables	Predicted Sign	Dependent Variables					
		$RES1_t$		$RES2_t$		$RES3_t$	
		Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.
Intercept	?	0.239	16.949**	0.252	18.111**	0.227	16.870**
Tenure$_t$	–	**0.000**	**0.898**	**0.000**	**0.979**	**0.000**	**0.369**
ODRatio$_t$	–	0.031	4.235**	0.033	4.575**	0.029	4.175**
ODRatio$_t$×Tenure$_t$	–	**–0.007**	**–2.734****	**–0.007**	**–2.705****	**–0.006**	**–2.115***
ARatio$_t$	?	0.026	2.921**	0.024	2.705**	0.026	3.022**
BoardSize$_t$	?	0.000	1.475	0.000	1.768	0.000	1.696
Committee$_t$	–	0.004	0.656	0.002	0.275	0.002	0.412
Capital$_t$	+	–0.039	–11.491**	–0.042	–12.439**	–0.047	–14.529**
SalesGrowth$_t$	+	0.019	5.703**	0.018	5.292**	0.015	4.750**
Margin$_t$	?	0.010	2.698**	0.008	2.078*	0.009	2.500*
OC$_t$	+	–0.000	–0.691	–0.000	–0.447	0.000	1.670
ROA$_t$	?	–0.060	–6.660**	–0.061	–6.768**	–0.050	–5.737**
HerfIndex$_t$	?	–0.129	–1.377	–0.164	–1.770	–0.078	–0.875
Size$_t$	–	–0.009	–15.678**	–0.009	–16.676**	–0.009	–15.935**
Leverage$_t$	+	0.022	7.861**	0.022	8.149**	0.022	8.404**
Foreigner$_t$	?	0.042	7.037**	0.039	6.698**	0.035	6.248**
Institution$_t$	?	0.053	4.156**	0.061	4.808**	0.051	4.143**
Boardmember$_t$	?	0.010	2.442*	0.011	2.718**	0.011	2.680**
Adjusted R^2		0.161	39.956**	0.167	41.710**	0.185	47.046**
N		8,510		8,510		8,510	

Variable definitions:

$RES1_t$ is the absolute value of the forecast error from equation (4). *$RES2_t$* is the absolute value of the forecast error from equation (5). *$RES3_t$* is the absolute value of the forecast error from equation (6).

$Tenure_t$ is the average years of experience of each outside director. *$ODRatio_t$* is the number of outside directors, divided by *$BoardSize_t$*. *$ARatio_t$* is the number of total auditors, divided by *$BoardSize_t$*. *$BoardSize_t$* is the number of board members (sum of all directors and all auditors). *$Committee_t$* is 1 if the company has committees, and 0 otherwise. *$Capital_t$* is net plant, property, and equipment, divided by total assets. *$SalesGrowth_t$* is the current year's growth in sales. $Margin_t$ is the gross margin percentage. *OC_t* is the operating cycle (day) calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where *AR* is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. *ROA_t* is the return on assets. *$HerfIndex_t$* is the Herfindahl index, calculated as the sum of squares of market shares of the firms in the industry (based on two-digit Nikkei industry code). *$Size_t$* is the natural logarithm of total assets. *$Leverage_t$* is total debt, divided by total assets. *$Loss_t$* is 1 if the net income of the firm is negative, and 0 otherwise. *$Foreigner_t$* is the percentage of stock held by foreigners. *$Institution_t$* is the percentage of stock held by institutional investors. *$Boardmember_t$* is the percentage of stock held by board members.

original models (7) and (8) the following additional variables that signify *internality* (all other variables remain the same):

$IRatio_t$:	Number of inside board directors and inside board auditors at the end of period t, divided by *BoardSize*
$IDRatio_t$:	Number of inside board directors at the end of period t, divided by *BoardSize*
$IARatio_t$:	Number of inside board auditors at the end of period t, divided by *BoardSize*

Tables 15 and 16 report the results of the multivariate regression analyses for the modified regression models on the alternative earnings-quality proxy categories: absolute value of abnormal accruals and future cash flow predictability errors, respectively (Exhibit 1). In almost all cases, the expected negative sign appears for the coefficients of the *internality* variables (*IRatio*, *IDRatio*, and *IARatio*) and the majority of relationships are statistically significant. These findings indicate that inside directors and inside board auditors are effective in improving earnings quality—a finding we did not derive in Section 4 for outside directors and outside board auditors. This underscores the importance of *internality* as opposed to *externality* or independence, as we observe in the case of tenure. This finding also reconfirms that the conclusions derived in Section 4 are not tainted—at least not significantly so—by the issue of reverse causality.

Thus, as far as improving earnings quality is concerned, there is a serious flaw with the strategy of merely introducing outside directors, under contemporary corporate governance reforms. The results of the additional tests reported in Tables 15 and 16 (as well as the results in Tables 13 and 14) confirm the importance of *internality* above and beyond *externality* or *independence*. Governance reforms that call for the introduction of outside directors to enhance effective monitoring of internal control systems—on account of the directors' *externality* or *independence*—are not alone expected to improve earnings quality. In contrast, our findings indicate that *internality* enhances effective monitoring, and internality is not expected to be promoted simply by appointing outside directors and outside board auditors.

6. Summary and Conclusion

Using a sample of listed firms in Japanese stock exchanges for the period 2006-2008, this study investigates the associations among the presence of outside corporate board directors, those directors' financial expertise, and quality of their firms' earnings. Due to the introduction of contemporary corporate governance reforms in Japan, many firms have deployed outside directors to their corporate boards, and these conditions provide us with a unique opportunity to evaluate their effectiveness in different dimensions, inclusive of enhancing the financial reporting quality and thereby the quality of their companies' reported earnings. To overcome limitations in some prior studies, we operationalize quality of earnings with a broad range of well-accepted earnings-quality proxies (Exhibit 1). These earnings-quality proxies include accruals quality proxies and residuals based on cash flow predictability. Further, we operationalize the "financial expertise" of outside directors in accordance with the unique Japanese context, via hand-collected data.

Based on the findings, overall, we cannot conclude that either the presence of outside directors or their ratio to total directors and board auditors is positively associated with their companies' earnings quality. Furthermore, we cannot conclude that various aspects of outside directors' financial expertise correlate positively with their companies' earnings quality. However, in additional analysis, we find evidence that firms with lower-quality earnings tend to engage more outside directors than do firms with higher-quality earnings. Nevertheless, we observe that the greater tenure (a measure of experience) that outside directors gain with one firm, the higher the earnings quality, presumably due to enhancements in effective monitoring. Thus, although firms with lower-quality earnings tend to engage more outside directors, outside directors who lack due experience with those firms are likely unable to effectively monitor internal control systems. Moreover, the presence of inside directors and inside board auditors is associated with superior-quality earnings, presumably on account of effective monitoring. This is an unexpected finding.

Based on our findings, as far as earnings quality is concerned, a serious flaw is committed in promoting the *mere* introduction of outside directors as a governance reform. Although the introduction of outside directors would be expected to enhance monitoring by virtue of those directors' *independence*, the findings of this study contradict this notion. Therefore, we see policy implications arising from our findings vis-à-vis financial reporting quality, as the introduction of new systems (e.g., introducing outside directors for the mere sake of introducing them) may not always bring expected results. Furthermore, our findings suggest

Table 15. Internal Directors, Internal Auditors, and Absolute Value of Abnormal Accruals, 2006–2008

$$\begin{aligned} AbsAbAcc_t = {} & \beta_0 + \beta_1 IRatio_t + \beta_2 IDRatio_t + \beta_3 IARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 AbsAcc_t + \beta_7 OC_t + \beta_8 ROA_t + \beta_9 Size_t \\ & + \beta_{10} Leverage_t + \beta_{11} Loss_t + \beta_{12} Foreigner_t + \beta_{13} Institution_t + \beta_{14} Boardmember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \end{aligned} \quad (13)$$

Variables	Predicted Sign	Dependent Variables											
		DD_t				$MJones_t$				$CFMJones_t$			
		Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.	Coeff.	t-stat./F-stat.
Intercept	?	0.114	12.232**	0.112	11.887**	0.051	6.782**	0.052	6.799**	0.064	8.609**	0.065	8.616**
IRatio$_t$	?	**−0.022**	**−6.427****			**−0.008**	**−2.838****			**−0.014**	**−5.344****		
IDRatio$_t$	?			**−0.012**	**−3.936****			**−0.006**	**−2.498***			**−0.010**	**−4.418****
IARatio$_t$	?			**−0.007**	**−3.301****			**−0.000**	**−0.098**			**−0.003**	**−1.387**
BoardSize$_t$	?	−0.000	−0.744	−0.000	−2.416*	0.000	0.356	−0.000	−0.462	0.000	0.771	−0.000	−0.671
Committee$_t$	−	0.002	0.766	−0.001	−0.247	−0.004	−1.771	−0.005	−2.065*	−0.002	−0.881	−0.005	−1.742
AbsAcc$_t$	+	0.197	24.394**	0.197	24.436**	0.666	102.378**	0.667	102.469**	0.385	59.563**	0.386	59.66**
OC$_t$	+	0.000	7.559**	0.000	7.525**	0.000	6.780**	0.000	6.802**	0.000	7.339**	0.000	7.368**
ROA$_t$	?	−0.036	−5.223**	−0.037	−5.281**	0.010	1.810	0.010	1.799	−0.015	−2.771**	−0.016	−2.798**
Size$_t$	−	−0.004	−9.555**	−0.004	−9.338**	−0.002	−6.387**	−0.002	−6.36**	−0.002	−7.218**	−0.002	−7.065**
Leverage$_t$	+	0.013	6.307**	0.012	6.240**	0.006	3.733**	0.006	3.609**	0.007	4.256**	0.007	4.106**
Loss$_t$	+	0.006	5.718**	0.006	5.845**	0.000	0.460	0.000	0.514	0.003	3.788**	0.003	3.89**
Foreigner$_t$	?	0.027	6.159**	0.028	6.351**	0.015	4.206**	0.015	4.240**	0.019	5.457**	0.019	5.509**
Institution$_t$	?	0.031	3.301**	0.032	3.308**	−0.003	−0.358	−0.003	−0.356	0.011	1.468	0.011	1.482
Boardmember$_t$	?	0.003	1.097	0.003	0.887	0.007	2.714**	0.007	2.761**	−0.000	−0.161	−0.000	−0.117
Adjusted R^2		0.185	53.967**	0.184	52.160**	0.609	364.055**	0.609	354.321**	0.400	156.324**	0.400	151.947**
N		8,623		8,623		8,623		8,623		8,623		8,623	

Variable definitions:

DD_t is the absolute value of residuals from Dechow and Dichev's (2002) model. $MJones_t$ is the absolute value of modified Jones model abnormal accruals, from Dechow et al. (1995). $CFMJones_t$ is the absolute value of cash flow modified Jones model abnormal accruals, from Kasznik (1999). These models are illustrated in Exhibit 1: Equations (1)–(3).

$IRatio_t$ is the number of inside directors and inside auditors, divided by $BoardSize_t$. $IDRatio_t$ is the number of inside directors, divided by $BoardSize_t$. $IARatio_t$ is the number of inside auditors, divided by $BoardSize_t$. $BoardSize_t$ is the number of board members (sum of all directors and all auditors). $Committee_t$ is 1 if the company has committees, and 0 otherwise. $AbsAcc_t$ is the absolute value of accruals, deflated by average total assets. OC_t is the operating cycle (day), calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where AR is the firm's accounting receivables, $Sales$ is total sales, INV is inventory, and $COGS$ is cost of goods sales. ROA_t is the return on assets. $Size_t$ is the natural logarithm of total assets. $Leverage_t$ is total debt, divided by total assets. $Loss_t$ is 1 if the net income of the firm is negative, and 0 otherwise. $Foreigner_t$ is the percentage of stock held by foreigners. $Institution_t$ is the percentage of stock held by institutional investors. $Boardmember_t$ is the percentage of stock held by board members.

The regression model includes dummy variables for industry and year. We use the two-digit *Nikkei Medium Classification Industry Code* as dummy variables for industry. (We do not report the industry and year dummy coefficients.) ** indicates significance at the 1% level, * indicates significance at the 5% level.

Table 16. Internal Directors, Internal Auditors, and Predictability of Future Cash Flow, 2006–2008

$$RES_t = \beta_0 + \beta_1 IRatio_t + \beta_2 IDRatio_t + \beta_3 IARatio_t + \beta_4 BoardSize_t + \beta_5 Committee_t + \beta_6 Capital_t + \beta_7 SalesGrowth_t + \beta_8 Margin_t + \beta_9 OC_t + \beta_{10} ROA_t + \beta_{11} HerfIndex_t + \beta_{12} Size_t + \beta_{13} Leverage_t + \beta_{14} Foreigner_t + \beta_{15} Institution_t + \beta_{16} BoardMember_t + \sum \gamma_i D_i^{ind} + \sum \delta_n D_n^{year} + \varepsilon_t \quad (14)$$

Variables	Predicted Sign	Dependent Variables											
		RES1$_t$				*RES2$_t$*				*RES3$_t$*			
		Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.	Coeff.	*t*-stat./*F*-stat.
Intercept	?	0.259	18.713**	0.253	18.080**	0.272	19.933**	0.268	19.333**	0.247	18.721**	0.242	18.115**
IRatio$_t$	?	**−0.024**	**−5.336****			**−0.026**	**−5.675****			**−0.024**	**−5.499****		
IDRatio$_t$	?			**−0.009**	**−2.319***			**−0.011**	**−2.797****			**−0.010**	**−2.584****
IARatio$_t$	?			**−0.014**	**−4.700****			**−0.014**	**−4.679****			**−0.013**	**−4.471****
BoardSize$_t$	?	0.000	0.836	−0.000	−0.375	0.000	1.526	0.000	0.241	0.000	1.079	−0.000	−0.191
Committee$_t$	−	−0.004	−1.007	−0.008	−1.829	−0.005	−1.148	−0.009	−2.072*	−0.005	−1.169	−0.008	−2.002*
Capital$_t$	+	−0.040	−11.668**	−0.040	−11.844**	−0.042	−12.554**	−0.043	−12.770**	−0.047	−14.642**	−0.048	−14.830**
SalesGrowth$_t$	+	0.019	5.554**	0.019	5.591**	0.017	5.143**	0.017	5.170**	0.015	4.614**	0.015	4.648**
Margin$_t$	?	0.010	2.687**	0.011	2.941**	0.008	2.065*	0.009	2.306*	0.009	2.504*	0.010	2.745**
OC$_t$	+	−0.000	−0.711	−0.000	−0.863	−0.000	−0.470	−0.000	−0.613	0.000	1.658	0.000	1.510
ROA$_t$	?	−0.060	−6.625**	−0.062	−6.828**	−0.060	−6.713**	−0.062	−6.917**	−0.049	−5.708**	−0.051	−5.913**
HerfIndex$_t$	?	−0.127	−1.358	−0.127	−1.354	−0.161	−1.743	−0.161	−1.743	−0.077	−0.861	−0.077	−0.860
Size$_t$	−	−0.008	−15.193**	−0.008	−14.841**	−0.009	−16.272**	−0.009	−15.911**	−0.008	−15.479**	−0.008	−15.127**
Leverage$_t$	+	0.023	8.075**	0.023	8.225**	0.023	8.359**	0.023	8.480**	0.023	8.628**	0.023	8.745**
Foreigner$_t$	?	0.040	6.707**	0.041	6.867**	0.037	6.382**	0.038	6.520**	0.034	5.942**	0.035	6.097**
Institution$_t$	?	0.054	4.239**	0.054	4.253**	0.062	4.877**	0.062	4.897**	0.052	4.230**	0.052	4.244**
Boardmember$_t$	?	0.010	2.324*	0.008	1.956	0.010	2.583**	0.009	2.246*	0.010	2.563*	0.009	2.219*
Adjusted R^2		0.162	43.106**	0.162	42.072**	0.168	45.087**	0.168	43.976**	0.186	50.833**	0.186	49.532**
N		8,510		8,510		8,510		8,510		8,510		8,510	

Variable definitions:

RES1$_t$ is the absolute value of the forecast error from equation (4). *RES2$_t$* is the absolute value of forecast error from equation (5). *RES3$_t$* is the absolute value of forecast error from equation (6).

IRatio$_t$ is the number of inside directors and inside auditors, divided by *BoardSize$_t$*. *IDRatio$_t$* is the number of inside directors, divided by *BoardSize$_t$*. *IARatio$_t$* is the number of inside auditors, divided by *BoardSize$_t$*. *BoardSize$_t$* is the number of board members (sum of all directors and all auditors). *Committee$_t$* is 1 if the company has committees, and 0 otherwise. *Capital$_t$* is net plant, property, and equipment, divided by total assets. *SalesGrowth$_t$* is the current year's growth in sales. Margin$_t$ is the gross margin percentage. *OC$_t$* is the operating cycle (day), calculated as $[(AR_t + AR_{t-1})/2 \div (Sales_t/360)] + [(INV_t + INV_{t-1})/2 \div (COGS_t/360)]$, where *AR* is the firm's accounting receivables, *Sales* is total sales, *INV* is inventory, and *COGS* is cost of goods sales. *ROA$_t$* is the return on assets. *HerfIndex$_t$* is the Herfindahl index, calculated as the sum of squares of market shares of the firms in the industry (based on two-digit Nikkei industry code). *Size$_t$* is the natural logarithm of total assets. *Leverage$_t$* is total debt, divided by total assets. *Loss$_t$* is 1 if the net income of the firm is negative, and 0 otherwise. *Foreigner$_t$* is the percentage of stock held by foreigners. *Institution$_t$* is the percentage of stock held by institutional investors. *Boardmember$_t$* is the percentage of stock held by board members.

that the conventional system should be subjected to further vigorous investigation and analysis before companies change over to new systems.

The controversy surrounding the effectiveness of outside directors over inside directors, as discussed in this paper, can also be found in discussions within the general local literature. Saito (2009) indicates that *Keidanren* (Federation of Economic Organizations) is strongly opposed to revisions in commercial law that promote the introduction of outside directors, for two reasons. First, outside directors are not well suited to executing a useful function in the *highly relational* world of Japanese corporate affairs, and second, companies will experience difficulties in finding outside directors with suitable experience. The first reason may explain why outside directors may be unable to execute their expected monitoring function with respect to the accounting internal control system, en route to enhancing their companies' financial reporting function (and thereby their companies' earnings quality).

Further, similar concerns appear in two recent reports (Corporate Governance Study Group, Ministry of Economy, Trade and Industry 2009; Financial System Council, Sectional Committee on Financial System, Financial Service Agency 2009) that evaluate the argument that boards should have a certain number or percentage of outside directors and *reject the embracing of a mandatory outside director system* as premature. Moreover, the report by the Corporate Governance Study Group, Ministry of Economy, Trade and Industry (2009) indicates that outside directors are not universally effective in enhancing all possible functions in a firm.

Prior to commercial law revisions in 2000, corporate governance was improved through enhancements in the conventional auditor system (i.e., the board of auditors in the Japanese dual board system); and the outside director system was adopted to fulfill the monitoring function of the board of directors, which had been introduced under the commercial law revision in 1950. The conventional auditor system was improved through many subsequent commercial law revisions to the point where it was believed to be effective. Consequently, the monitoring function of an outside director system might have limited incremental effectiveness in terms of corporate governance.

There is some evidence, however, that the introduction of outside directors is significantly related to better corporate performance (Saito 2009, 2010a). Therefore, in conclusion, the findings in this study assert that the mandatory outside director system could be legitimized by a performance view that may differ from the corporate governance view *per se*. In any case, the outside directors' effective monitoring of the internal controls system, within the context of the U.S. corporate governance system, seems quite distinct from that within the Japanese context.

The results and conclusions derived from this study should be generalized with caution. Although there is overwhelming evidence asserting that outside directors enhance a company's financial reporting system (and therefore its earnings quality) by way of effectively monitoring accounting and internal control systems, other confounding factors may be involved. Thus, as future research directions, we call for more rigorous case-study-based research that evaluates the effectiveness of governance mechanisms in more detail and with greater precision. Furthermore, we would like to encourage using alternative methods to control for the issue of reverse causality (see Section 5),such as the two-stage least squares estimation (2SLS), 3SLS, Heckman's two-stage estimation, and differences in difference analysis.[34]

---

[34] We note a similar caveat as Larcker and Richardson (2004, 656) in the context of their research. This endogeneity is ignored in our analysis and our results are subject to the traditional econometric problems caused by endogeneity. With the exception of the structural modeling approach in Antle et al. (2002), this limitation is inherent in all prior research examining the relation between non-audit services and accrual behavior. It is important for future research to develop a more complete set of structural models with a sophisticated selection of exogenous (or instrumental) variables.

Acknowledgements

The authors thank Tomohiko Adachi, Masayuki Aobuchi, Dionysia Dionysiou, Hany Mohamed Aziz Elzahar, Ian Fraser, Kimihiro Furuse, Alan Goodacre, Patrick Herbst, Hiroshi Itagaki, Chihiro Iwai, Magdalena Jerzemowska, Akihiro Koyama, Keiichi Kubota, Junko Maru, Yuko Nikaido, Susumu Saito, Mutsumi Sakai, Hitoshi Takehara, Ken Togo, Toshihiro Umezawa, and workshop participants at University of Stirling, and the 2011 East Japan Conference of Japan Finance Association. Additionally, we have benefited from helpful discussions with Masashi Okumura, Isaac Tabner, and EikoTsujiyama. We also thank Susumu Ueno (editor-in-chief), Ella Mae Matsumura (co-editor), and anonymous reviewers for their insightful suggestions. The authors acknowledge financial support through a Grant-in-Aid for Scientific Research ([A] 21243029) and a Grant-in-Aid for Young Scientists ([B] 21730383), both from the Ministry of Education, Culture, Sports, Science and Technology of Japan. All remaining errors are our own.

References

Adams, R., B. Hermalin, and M. Weisbach. 2010. The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of Economic Literature* 48 (1): 58-107.

Ajward, A. R. 2011. An empirical evaluation of the effectiveness of audit committees in terms of earnings quality, *Bulletin of the Graduate School of Commerce* (*Waseda University*) 72: 107-132.

Ali, A., T. Chen, and S. Radhakrishnan. 2007. Corporate disclosures by family firms. *Journal of Accounting and Economics* 44: 238-286.

Antle, R., E. A. Gordon, G. Narayanamoorthy, and L. Zhui. 2002. The Joint Determination of Audit Fees, Non-Audit Fees and Abnormal Accruals.Working paper, Yale University.

Ashbaugh-Skaife, H., D. Collins, andW. Kinney. 2005. The Discovery and Consequences of Internal Control Deficiencies Prior to SOX-Mandated Audits. Working paper, University of Wisconsin-Madison, University of Iowa, and University of Texas-Austin.

Barth, M., D. Cram, and K. Nelson. 2001. Accruals and the prediction of future cash flows. *Accounting Review* 76 (1): 27-58.

Baxter, P., and J. Cotter. 2009. Audit Committees and earnings quality. *Accounting & Finance* 49 (2): 267-290.

Beasley, M. S. 1996. An empirical analysis of the relation between the board of director composition and financial fraud. *The Accounting Review* 71: 443-465.

Bebenrotha, R., and L.Donghaob. 2007. Performance impact at the board level: Corporate governance in Japan. *Asian Business & Management* 6: 303-326.

Bédard, J. 2006. Sarbanes Oxley internal control requirements and earnings quality.Working paper, Université Laval.

Cohen, D. 2004. Quality of financial reporting choice: Determinants and economic consequences. Working paper, University of Southern California.

Corporate Governance Study Group, Ministry of Economy, Trade and Industry. 2009. *The Corporate Governance Study Group Report*. Japan: Ministry of Economy, Trade and Industry.

Committee of Sponsoring Organizations (COSO). 1992. *Internal Control - Integrated Framework*. Available at: http://www.coso.org/IC-IntegratedFramework-summary.htm

Dechow, P. M., and I. D. Dichev. 2002. The quality of accruals and earnings: The role of accrual estimation errors. *The Accounting Review* 77 (Supplement): 35-59.

Dechow, P. M., W. Ge, and C. M. Schrand. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics* 50(2-3): 344-401.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1995. Detecting earnings management. *The Accounting*

Review 70(April): 193-225.

Dechow, P. M., R. G. Sloan, and A. P. Sweeney. 1996. Causes and consequences of earnings manipulation: An analysis of firms subject to enforcement actions by the SEC. *Contemporary Accounting Research* 13: 1-36.

Dhaliwal, D., V. Naiker, and F. Navissi. 2007. Audit committee financial expertise, corporate governance, and accruals quality: An empirical analysis. Working paper, University of Arizona, University of Auckland, and Monash University.

Doyle, J. T.,W. Ge, and S. E. McVay. 2007. Accruals quality and internal control over financial reporting. *The Accounting Review* 82: 1141-1170.

Ebihara, T., K. Kubota, H. Takehara, and E. Yokota. 2010. Earnings quality of family firms: Evidence from Japan. *SSRN eLibrary.*

Fama, E. F. 1980. Agency problems and the theory of the firm. *Journal of Political Economy* 88: 715-732.

Fama, E. F., and M. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* 26(2): 301-325.

Financial Accounting Standards Board (FASB). 1980. *Qualitative Characteristics of Accounting Information.* Statement of Financial Accounting Concepts No. 2. Stamford, CT: FASB.

Financial System Council, Sectional Committee on Financial System, Financial Service Agency. 2009. *Report by the Financial System Council's Study Group on the Internationalization of Japanese Financial and Capital Markets.* Japan: Financial Service Agency.

Gibbs, P. A. 1993. Determinants of corporate restructuring: The relative importance of corporate governance, takeover threat, and free cash flow. *Strategic Management Journal Summer Special Issue* 14: 51-68.

Hermalin, B., and M. Weisbach. 1991. The effect of board composition and direct incentives on firm performance. *Financial Management* 20: 101-112.

Hirata, M. 2004. Compliance and governance in large Japanese companies. *Keieironshu* 62: 29-46.

Hribar, P., and D. W. Collins. 2002. Errors in estimating accruals: Implications for empirical research. *Journal of Accounting Research* 40: 105-134.

Japan Corporate Auditors Association (JCAA). 2004. *Results on the internet survey on corporate governance* (part 4). Available at: http://www.kansa.or.jp/PDF/enquet4_040514.pdf (in Japanese).

Kasznik, R. 1999. On the association between voluntary disclosure and earnings management. *Journal of Accounting Research* 37: 57-81.

Kawamura K. 2008. Board of directors reform: Authority and independence. Developing the Research Frontier in Corporate Governance Analysis (column 12). Retrieved from http://www.rieti.go.jp/en/projects/cgp/columns/12.html.

Klein, A. 2002. Economic determinants of audit committee independence. *The Accounting Review* 77(2): 435-452.

Larcker, D. F., and S. A. Richardson. 2004. Fees paid to audit firms, accrual choices, and corporate governance. *Journal of Accounting Research* 42 (3): 625-658.

Lin, J. W., and M. I. Hwang. 2010. Audit quality, corporate governance, and earnings management: A meta-analysis. *International Journal of Auditing* 14 (1): 57-77.

Miyajima, H. 2007. The performance effects and determinants of corporate governance reform. In *Corporate Governance in Japan: Institutional Changeand Organizational Diversity*, edited by M. Aoki, G. Jackson & H. Miyajima, 330-369. Oxford, UK: Oxford University Press.

Miyajima, H., S. Kawamoto, Y. Omi, andN. Saito.2010. Corporate ownership and performance in twentieth century Japan.WIAS discussion paper (No. 2009-001). Waseda Institute for Advanced Study.

New York Stock Exchange. 2009. *Listed Company Manual.* New York: NYSE. Retrieved from http://nysemanual.nyse.com/LCMTools/PlatformViewer.asp?selectednode=chp_1_4_3&manual=%2

Flcm%2Fsections%2Flcm-sections%2F
Nikkinen, J., and P. Sahlström. 2004. Impact of an accounting environment on cash flow prediction. *Journal of International Accounting, Auditing and Taxation* 13 (1): 39-52.
O'Higgins, E. 2002. Non-executive directors on boards in Ireland: Co-option, characteristics and contributions. Corporate Governance: *An International Review* 10: 19-28.
Rosenstein, S., and J. Wyatt. 1990. Outside directors, board independence, and shareholder wealth. *Journal of Financial Economics* 26: 175-191.
Saito, T. 2009. Presence of outside directors, board effectiveness and firm performance: Evidence from Japan. Working paper, Kyoto Sangyo University.
Saito, T.. 2010a. Boards with and without outside directors: An empirical comparison. Working paper, Kyoto Sangyo University.
Saito, T.. 2010b. Determinants of board composition when managers control director selection: Evidence from Japan. Working paper, Kyoto Sangyo University.
Sarbanes-Oxley Act of 2002 (SOX). H.R. 3763, 107th Congress of the USA, Second Session U.S. 2002.
Tokyo Stock Exchange (TSE). 2011.*Securities Listing Regulations*. Tokyo: Tokyo Stock Exchange, Inc. Retrieved from http://www.tse.or.jp/english/about/rules/b7gje600000044tu-att/listing_regulations.pdf
Tokyo Stock Exchange (TSE). 2011.*Enforcement Rules for Securities Listing Regulations*. Tokyo: Tokyo Stock Exchange, Inc. Retrieved from
http://www.tse.or.jp/english/about/rules/b7gje600000044tu-att/listing_regulations_enforcement_rules.pdf
Weisbach, M. 1988. Outside directors and CEO turnover. *Journal of Financial Economics* 20: 431-460.