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Anthony Chan

Guoping Liu

Jerry Sun
University of Windsor

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Jerry Sun
University of Windsor, jyksun@uwindsor.ca

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Abstract

This study examines whether independent audit committee members' board tenure affects audit fees. We find that audit fees are lower for firms with high proportion of long board tenure directors on the independent audit committee than for firms with low proportion of long board tenure directors on the independent audit committee. The results may suggest that auditors price the monitoring effectiveness arising from long board tenure. The results may also suggest that long board tenure audit committee members have a lower demand for audit effort.

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1. Introduction

An important duty of audit committees is to interact with external auditors during oversight of financial reporting process (Klein 2002). As audit committees engage in the audit scope negotiation process, their governance quality may affect the audit scope and plan, and thus audit fees. There could be a dual effect of audit committee governance quality on audit fees. On the one hand, high quality audit committees may have a higher demand for audit effort, resulting in higher audit fees. High quality audit committee members may have greater incentives to increase the audit scope in order to protect their reputational capitals and reduce litigation risks. Thus, audit committee governance may complement to the external audit. Carcello et al. (2002) examine whether board independence affects audit fees. They find that audit fees are positively associated with the proportion of independent directors on the board. Abbott et al. (2003) investigate the relationship between audit fees and audit committee characteristics. They find that firms with fully independent audit committees pay higher fees to auditors than other firms. These studies suggest that firms with high governance quality demand more audit effort. Likewise, Vafeas and Waegelein (2007) find a positive association between audit committee independence and audit fees.

On the other hand, high quality audit committees may have a lower supply of audit effort or even a lower demand for audit effort, resulting in lower audit fees. Auditors may expend less audit effort when they assign a lower control risk to clients with high corporate governance quality. Meanwhile, high quality audit committee members may have less pressure to increase audit effort because they can effectively oversee financial

report process themselves. As opposed to Carcello et al. (2002), Tsui et al. (2001) find that audit fees are lower for firms with high board independence than for firms with low board independence. Krishnan and Visvanathan (2009) examine the association between audit fees and audit committee accounting or financial expertise. They find that audit fees are lower when the audit committee has at least one member with accounting or financial expertise. Their results suggest that audit committee governance may substitute to the external audit, contrary to Abbott et al. (2003) and Vafeas and Waegelein (2007). Overall, prior research documents mixed evidence on the relationship between audit fees and board or audit committee governance. Thus, it is warranted to conduct more research on this issue.

This study examines whether independent audit committee members' board tenure affects audit fees. Since long board tenure outside directors possess greater knowledge and experience, they may have higher monitoring effectiveness than other outside directors. However, long board tenure directors are more likely to have friendly relationship with managers, which would impair their monitoring effectiveness. Empirically, prior research (e.g., Dhaliwal et al. 2010) documents that outside audit committee members' long board tenure reflects higher monitoring effectiveness. As long board tenure outside directors are more effective monitors, they are likely to demand more audit effort to ensure higher monitoring effectiveness and reduce their reputational losses. Thus, audit committee members' board tenure may be positively associated with audit fees. Nevertheless, auditors may assess clients' control risks based on audit committee effectiveness. Auditors may price outside directors' long board tenure as

independent audit committee effectiveness. Moreover, high quality audit committee members may have a lower demand for audit effort because of their own monitoring effectiveness. Thus, it is also likely that audit committee members' board tenure is negatively related to audit fees.

Using a sample of 1,561 firm-year observations for years 2005 and 2006, we find that audit fees are negatively associated with the proportion of long board tenure outside directors on the independent audit committee. The results suggest that auditors may assign lower control risks to clients with high proportion of long board tenure audit committee members than to clients with low proportion of long board tenure audit committee members. They also suggest that long board tenure audit committee members may have a lower demand for audit effort. Overall, our findings are consistent with the notion that audit committee governance may substitute to the external audit.

This study contributes to the literature in the following ways. First, we extend the research on the relationship between audit fees and audit committee effectiveness. Unlike prior research (Abbott et al. 2003; Krishnan and Visvanathan 2009), this study focuses on another facet of audit committee characteristics, namely, audit committee members' board tenure. We provide further evidence that audit fees decrease in audit committee effectiveness. Second, this study adds to the literature on the monitoring effectiveness of long board tenure directors. Extant studies (e.g., Dhaliwal et al. 2010; Bedard et al. 2004) investigate the effect of audit committees' board tenure on accounting quality. Our study focuses on the impact of audit committees' board tenure on audit effort.

The rest of this paper is organized as follows. Section 2 introduces the background and develops the hypothesis. Section 3 discusses the research design. Section 4 presents the empirical results. Section 5 concludes.

2. Background and Hypothesis

Monitoring Role of Audit Committees

Audit committees are operating committees of the board of directors charged with oversight of financial reporting process. Typically, audit committees have responsibilities including: (1) overseeing choice of accounting policies and principles, (2) hiring external auditors and overseeing the audit process, and (3) monitoring the internal control process. The audit committee plays an important role in the audit scope negotiation process (Abbott et al. 2003). Audit committees are recommended to discuss the audit scope and plan with the auditor to check the adequacy of audit coverage.[1] Based on audit committee reports or charters, Carcello et al. (2002) document that the audit committee usually reviews the scope of the auditor's proposed audit plan. DeZoort (1997) finds that audit committee members' responses to the survey indicate that a primary audit committee duty is to review the external auditor's work, suggesting that the audit committee is actively involved in external audit tasks.

Carcello and Neal (2000) document that the external auditor is more likely to issue a going-concern report for firms experiencing financial distress when the firms have higher audit committee independence. Klein (2002) finds that audit committee

[1] Refer to the Public Oversight Board (1993), *In the Public Interest: A Special Report by the Public Oversight Board of the SEC Practice Section* and the Blue Ribbon Committee (1999), *Audit Committee Characteristics and Restatements: A Study of the Efficacy of Certain Blue Ribbon Committee Recommendations*.

independence and board independence are negatively associated with earnings management. Abbott et al. (2004) find that the likelihood of financial restatement is less for firms with high audit committee independence than for firms with low audit committee independence. These studies suggest that independent directors can effectively oversee financial reporting. It is also found that audit committee independence and board independence are positively associated with audit fees (Carcello et al. 2002; Abbott et al. 2003), suggesting that independent directors demand a high level of audit coverage in order to enhance accounting quality. Thus, the proportion of independent directors on the audit committee reflects the effectiveness of audit committees.

As a reaction to highly profiled corporate and accounting scandals including Enron, Tyco International, and WorldCom, the Sarbanes-Oxley Act of 2002 (SOX) was signed into a U.S. federal law on July 30, 2002. The SOX had an unprecedented impact on corporate governance practices including audit committees. The SOX increased audit committees' responsibilities and authority and considerably affected the role of audit committees in the external audit. The SOX requires audit committees to: (1) preapprove audit and nonaudit services, (2) receive auditors' reports on critical accounting policies, discussions with management on alternative GAAP, the auditor's preference, and the material communications between the auditor and management, and (3) oversee the auditor engagement.

The SOX also heightens and impacts the membership criteria of audit committees. Under the SOX, audit committee members must be independent directors. In line with

the SOX, the U.S. stock exchanges additionally require that there should be at least one audit committee member who has accounting or financial expertise for U.S. listed companies.[2] As a result of all audit committee members being independent directors, the proportion of independent directors on the audit committee has been an obsolete measure of audit committee effectiveness. However, there still would be variation in governance quality among audit committees even though all audit committee members are independent directors. Therefore, it is of practical value to further explore audit committee members' characteristics that affect audit committee effectiveness.

Audit Fees and Corporate Governance

Simunic (1980) finds that audit fees are higher for large size clients and clients with great complexity of business, suggesting that audit fees reflect audit effort. By expending much effort on auditing, auditors can improve clients' financial reporting quality to reduce their reputational and litigation risks. Frankel et al. (2002) find that firms are more likely to meet earnings benchmarks when they have high percentile ranks of audit fees. They also find that the percentile rank of audit fees is negatively associated with the magnitude of discretionary accruals. Ashbaugh et al. (2003) find that the occurrence of small earnings increase is less for firms with high audit fees than for firms with low audit fees. Based on latent class mixture models, Larcker and Richardson (2004) also document a negative association between audit fees and total accruals. These results suggest that spending more audit effort can constrain earnings management. Srinidhi

[2] Refer to NYSE Corporate Governance 303A.05, NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules Sec 805.

and Gul (2007) examine the effect of audit fees on accrual quality. They find that audit fees are positively associated with accrual quality, suggesting that audit fees may reflect effort, which in turn reduces estimation errors and enhances accrual quality.

External auditing is an important corporate governance mechanism. Several extant studies investigate the relationships between audit fees and other corporate governance mechanisms. Carcello et al. (2002) examine the association between board characteristics and audit fees. On the one hand, they argue that high quality boards would be more concerned with effectively fulfilling its monitoring duties and thus would be more supportive of external auditing. These boards are more willing to increase audit scope, resulting in higher audit fees. Thus, there could be a positive association between board governance quality and audit fees. On the other hand, Carcello et al. (2002) contend that high board governance quality may reduce the auditor's assessment of control risk as board governance may substitute to external auditing, which may decrease audit effort and thus audit fees. Consistent with the argument on the positive impact of board governance on audit effort, Carcello et al. (2002) document that audit fees increase in board independence in U.S. This suggests that outside directors may demand for more audit effort to protect corporate stakeholders and themselves.

Abbott et al. (2003) examine the association between audit committee characteristics and audit fees. They find that audit fees are higher when firms have a fully independent audit committee. They also find that audit fees are higher for firms with at least one accounting or financial expert on the audit committee than for firms without accounting or financial experts on the audit committee. Their results show that

not only directors' independence but also directors' competence can increase audit scope. Audit committee members with accounting experience may make judgments more similar to auditors. Knapp (1987) suggests that auditors are more likely to discuss accounting issues with knowledgeable audit committees. In addition, audit committee members with accounting experience may be more likely to understand the importance of external auditing than audit committee members without accounting experience. Therefore, from the perspective of both auditors and audit committees, audit committees' accounting or financial expertise can induce audit effort. Vafeas and Waegelein (2007) also examine the relationship between audit committee characteristics and audit fees. Similarly, they find that audit committee independence is positively associated with audit fees. In addition, they find that audit committee size and the proportion of audit committee members who serve on the audit committee of another Fortune 500 firm are positively related to audit fees.

Nevertheless, audit fees are likely to be lower for firms with high board or audit committee effectiveness than for firms with low board or audit committee effectiveness if auditors price corporate governance quality or if high quality directors have a lower demand for audit effort. Bedard and Johnstone (2004) investigate the effect of earnings manipulation risk and corporate governance risk on auditors' planning and pricing decisions. They suggest that inadequate corporate governance may increase audit effort and billing rates. Using a sample of firms in Hong Kong, Tsui et al. (2001) find that audit fees are negatively associated with board independence, inconsistent with U.S. evidence documented by Carcello et al. (2002). This suggests that board governance may

substitute rather than complement to the external audit. Recently, Krishnan and Visvanathan (2009) revisit the relationship between audit committee effectiveness and audit fees. As opposed to Abbott et al. (2003), they find that audit fees are negatively associated with the accounting or financial expertise of the audit committee. Their results may suggest that auditors price audit committee effectiveness because it is related to the control risk and thus the overall audit risk or that audit committee members with accounting experience have a lower demand for the external audit.

In summary, on the one hand, high quality boards or audit committees are more willing to increase audit effort to protect their reputational capitals and reduce their litigation risks. Thus, board or audit committee effectiveness may positively affect audit fees. On the other hand, auditors may be more willing to expend audit effort when clients' board or audit committee effectiveness is low or high quality directors may have less pressure to increase audit effort because of their own monitoring effectiveness. These may lead to a negative association between board or audit committee effectiveness and audit fees. Empirically, there is mixed evidence on the relationship between board or audit committee effectiveness and audit fees.

Board Tenure of Audit Committee Members and Hypothesis

Independent directors with long board tenure have greater experience and expertise in monitoring financial reporting process. Usually, work experience can improve job performance as experience is the job-relevant knowledge gained over time (Fiedler 1970). Herz and Schultz (1999) suggest that procedure knowledge is important

in dealing with accounting issues.[3] Quinones et al. (1995) argue that procedural knowledge can be learned "on-the-job" and thus increases in work experience. Long board tenure outside directors are more likely to acquire the procedural knowledge as a result of work experience. Since outside directors are less informed than inside directors, their monitoring effectiveness may depend on the usefulness of information they can receive. Long board tenure directors can gain much knowledge of the company's internal control system and business operations over time, and can also establish working relationships with the management to acquire more useful information for their judgments on accounting issues.

Long board tenure outside directors have greater reputational capitals that have been developed over time. Those directors are more concerned with their job performance since the poor job performance will damage their reputation. Salancik (1977) theoretically shows that people's actions become more committing if the revocability of the actions is lower. O'Reilly and Caldwell (1981) document that behavioral commitment is significantly associated with job turnover. Long board tenure outside directors are less likely to reverse their job acceptance as they may have high job satisfactions. Long board tenure may increase outside directors' commitment to fulfill their duties. In summary, long board tenure outside directors may have greater experience, expertise, reputation, commitment, and willingness to performance better. Thus, an independent audit committee with longer tenure directors may have higher monitoring effectiveness.

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[3] Procedural knowledge is the knowledge of the steps involved in actually performing a task, such as solving a particular type of problem or analyzing a particular issue.

In the literature, several studies have documented evidence on the positive relationship between directors' board tenure and their monitoring effectiveness. Beasley (1996) examines the association between board characteristics and the likelihood of financial reporting fraud. He finds that financial reporting fraud is less likely to occur for firms with long average tenure of outside directors than for firms with short average tenure of outside directors. Bedard et al. (2004) investigate the effect of audit committee characteristics on earnings management. They document some evidence that earnings management is negatively associated with average board tenure of outside directors on the audit committee. Recently, Dhaliwal et al. (2010) find that accrual quality is positively associated with average board tenure of audit committee members, suggesting that long tenure outside directors are more effective in oversight of financial reporting.

However, long board tenure outside directors may have a friendly relationship with the management, which could be developed over time. Since the management may be involved in the nomination process of outside directors, outside directors who have strong personal ties with the management are more likely to be re-appointed and survive long term. Those directors' independence could be impaired by their amiable relationship with managers. Moreover, long board tenure directors are less mobile and less employable, and lack new insights and solutions to the company's issues (Vafeas 2003; Canavan et al. 2004). Thus, it is possible that the positive effect of long board tenure on monitoring effectiveness is offset by its negative effect. Vafeas (2003) finds that compensation committees with long board tenure directors pay a higher CEO salary to CEOs than all others, suggesting that those directors may be less effective in

monitoring CEO compensation. Overall, extant research shows that the positive effect of long board tenure on monitoring effectiveness dominates over the negative effect of long board tenure on monitoring effectiveness, especially in overseeing financial reporting process.

Given that long board tenure outside directors have higher governance quality, they may be more concerned with reputational capitals and thus demand for more audit effort, which means that the external audit may complement to audit committee governance. Thus, there could be a positive association between the proportion of long board tenure directors on the independent audit committee and audit fees.

On the other hand, auditors may price audit committee effectiveness, namely, audit committee governance may substitute to external audit. In this case, auditors may expend less effort on clients with more long board tenure directors on the independent audit committee if long tenure directors have higher monitoring effectiveness. Moreover, long board tenure directors may have a lower demand for audit effort. Thus, there could also be a negative association between the proportion of long board tenure directors on the independent audit committee and audit fees. We formulate the unsigned hypothesis as follows:

H_1: Audit fees are significantly associated with the proportion of long board tenure directors on the independent audit committee.

3. Research Design

Sample Selection

We select sample firms from the IRRC database for years 2005 and 2006.[4] The IRRC database provides the data of directors including affiliation, board tenure, additional board seats, shareholding, etc. We find that there are 26,947 director-year observations in the IRRC database for years 2005 and 2006. The average board tenure of directors is 9.51 years, while the median and the 75th quartile of board tenure are 7 and 13 years, respectively. We review proxy statements downloaded from the EDGAR to manually collect the data on audit committee members' accounting or financial expertise, which are not provided by the IRRC database. We then collect the data of audit fees from the Compustat Audit Fees database and the financial statement data from the Compustat North America database. After the exclusion of observations with missing data, the final sample consists of 1,561 firm-year observations for years 2005 and 2006.

Model

We estimate the following regression model to test the hypothesis:

$$\begin{aligned} AUDFEE = {} & b_0 + b_1 LNTDIR + b_2 ACEDIR + b_3 OTHDIR + b_4 BLKDIR + b_5 ACSIZE \\ & + b_6 BDIND + b_7 BDSIZE + b_8 FSIZE + b_9 SEGMT + b_{10} FOREIGN + b_{11} LOSS \\ & + b_{12} DEBT + b_{13} ROA + b_{14} RECINT + b_{15} INVINT + \varepsilon \end{aligned} \quad (1)$$

where

AUDFEE = the log value of the sum of the fees of auditing financial statements and other audit related fees,

[4] The latest data year of the IRRC database that we used is 2006.

LNTDIR = the proportion of long board tenure directors on the audit committee,

ACEDIR = the proportion of directors with accounting expertise on the audit committee,

OTHDIR = the proportion of directors on the audit committee, who hold three or more additional board seats in other firms,

BLKDIR = the proportion of blockholding directors on the audit committee, who hold five or more percent of ownership (Klein 2002),

ACSIZE = audit committee size, measured as the number of directors on the audit committee,

BDIND = board independence, measured as the proportion of independent directors on the board,

BDSIZE = board size, measured as the number of directors on the board,

FSIZE = firm size, measured as the log of total assets,

SEGMT = the log value of the number of business segments (Larcker and Richardson 2004),

FOREIGN = the ratio of foreign sales to total sales,

LOSS = a dummy coded 1 if net income is negative and 0 otherwise,

DEBT = debt ratio, measured as the ratio of long-term debt to total assets,

ROA = return on assets, measured as the ratio of income before extraordinary items to total assets,

RECINT = receivables intensiveness, measured as the ratio of receivables to total assets,

INVINT= inventory intensiveness, measured as the ratio of inventory to total assets.

Long board tenure directors are directors with the board tenure of 10 or more years. We define long board tenure directors by using 10 years of board service time in a firm as the cut-off point because this level is close to the average tenure of directors. We also use alternative cut-off points to define long board tenure directors in additional analyses. We expect that the coefficient on *LNTDIR* will be significantly positive or negative) if the hypothesis is supported.

As in Krishnan and Visvanathan (2008), we define directors with accounting or financial expertise as directors who are or were certified public accountants, auditors, principal or chief financial officers, controllers, or principal or chief accounting officers. Abbott et al. (2003) document a positive association between audit fees and audit committees' accounting or financial expertise. Thus, we expect a positive coefficient on *ACEDIR*. Bedard et al. (2004) suggest that directors who serve on additional boards have greater expertise and reputation to work well. However, Core et al. (1999) argue that those directors are busy and thus may have lower governance quality. We do not expect the sign of the coefficient on *OTHDIR*. Directors with high additional directorship are defined as those who hold at least three additional board seats (Shivdasani 1993). Shivdasani and Yermack (1999) suggest that directors with high stock ownership could have stronger incentives to monitor the CEO. Klein (2002) finds that outside directors with block shareholding more effectively constrain earnings management. Thus, the coefficient on *BLKDIR* is expected to be positive given that blockholding directors have a higher demand for audit effort.

Bushman et al. (2004) assert that small size boards have the disadvantage of fewer advisors and monitors of management. Therefore, it is likely that large size audit committees or boards have higher governance quality. We expect that the coefficients on both *ACSIZE* and *BDSIZE* are positive if large size audit committees induce greater audit effort. We include *BDIND* in the model since Carcello et al. (2002) find that audit fees are positively associated with board independence.

Based on prior research into audit fees (Carcello et al. 2002; Abbott et al. 2003; Larcker and Richardson 2004), we include several control variables in the model. We expect that the coefficients on *FSIZE*, *SEGMT*, *FOREIGN*, *LOSS*, *RECINT*, and *INVINT* are positive, while the coefficient on *ROA* is negative. Firms with high financial leverage may have high insolvency risks, thus resulting in high audit fees. However, Jensen and Meckling (1976) argue that financial leverage can reduce agency costs, which may lead to a lower demand for corporate governance. Thus, it is unclear whether audit fees are positively or negatively associated with financial leverage. We do not predict the sign of the coefficient on *DEBT*.

4. Empirical Results

Table 1 reports the descriptive statistics of variables. On average, 29% of audit committee members have the board tenure of 10 or more years. 43% of audit committees have at least one member with accounting or financial expertise. 9% of audit committee members hold three or more additional board seats in other firms. There are only 0.2% of audit committee members who hold five or more percent of ownership. The average size

of audit committees is three members. Approximate 72% of board members are independent directors. Usually, the board has nine members.

Insert Table 1 about here

Table 2 provides the Pearson correlation coefficients between independent variables. The maximum absolute value of the coefficients is 0.627 between *LOSS* and *ROA* as both of them reflect earnings performance.[5] Overall, there are no extremely high correlations between the independent variables. Thus, it is less likely that multicollinearity is a substantive issue in the analyses.

Insert Table 2 about here

Table 3 presents the results of the main regression. We find that the coefficient on *LNTDIR* is negative and significant (*t*-statistic = -3.32, *p*-value<0.01). These results show that audit fees are lower when more long board tenure directors sit on the audit committee. The results may suggest that auditors price independent audit committees' long board tenure as they assign lower control risk to clients with higher audit committee effectiveness. Our findings may also suggest that audit committee members with long board tenure demand a lower quantity of audit effort from the external auditor because they can effectively oversee financial reporting process themselves.

Insert Table 3 about here

We also find that audit committee members' accounting or financial expertise is not significantly related to audit fees, inconsistent with prior research (Abbott et al. 2003; Vafeas and Waegelein 2007; Krishnan and Visvanathan 2009). The inconsistency could

[5] We find similar results if we drop either *LOSS* or *ROA* from the model.

be due to the following reasons. First, there is no specific definition of a director's accounting or financial expertise in the corporate governance standards issued by the U.S. stock exchanges. Thus, listed companies can identify a director as an accounting or financial expert based on their own criteria, which may be different from our definition of expertise. Moreover, these self-identified experts may work as well as our defined experts, resulting in no significant difference in accounting or financial expertise between audit committees. Second, the disclosure of directors' accounting or financial expertise in proxy statements is voluntary rather than mandatory. Therefore, it is difficult to accurately measure directors' accounting or financial expertise based on a specific definition.

The results in Table 3 indicate that audit committee members' additional directorship in other firms is not significantly associated with audit fees. If additional directorship can reflect directors' expertise and reputational capital, audit committees with high additional directorship may demand for more audit effort. Nevertheless, directors with high additional directorship are also regarded as busy directors, who may less effectively monitor financial reporting process, resulting in lower audit fees. Thus, the positive effect of additional directorship on audit fees could be offset by its negative effect. We find that audit committee members' blockholding is also not significantly related to audit fees. A concern on this measure is that most of audit committee members are not block shareholders. The lower variation in this measure may reduce the statistical power of testing this audit committee characteristic.

We also find that audit committee size is not significantly related to audit fees. This is inconsistent with Vafeas and Waegelein (2007) that document a positive association between audit committee size and audit fees. We note that Vafeas and Waegelein (2007) focus on Fortune 500 firms whose average audit committee size is four members. However, this study's average audit committee size is three members because our sample includes non-Fortune 500 firms. This suggests that the results on audit committee size may be subject to firm size. As expected, we document that both board independence and board size are positively associated with audit fees. These results suggest that high quality boards demand for more audit effort from the external auditor. In addition, we find that audit fees are positively associated with firm size, the number of business segments, foreign operations, loss-making, and receivables intensiveness, and are negatively associated with financial leverage and return on assets. A negative relationship between financial leverage and audit fees suggests that a lower demand for oversight by firms with high financial leverage may lead to a lower demand for audit effort.

We conduct the following additional analyses to test the robustness of our results. First, we estimate regression model (1) for years 2005 and 2006, separately. Columns 3 and 4 in Table 4 report the results based on the data for 2005. We find that audit fees are negatively associated with the proportion of long-term board tenure directors on the audit committee (t-statistic = -2.39, p-value<0.01). Columns 5 and 6 in Table 4 include the results based on the data for 2006. We still find that the coefficient on *LNTDIR* is

significant and negative (*t*-statistic = -2.26, *p*-value<0.01). Overall, the results of yearly regressions are similar to the results of the pooled regression.

Insert Table 4 about here

Second, we examine whether audit committee members' average board tenure affects audit fees.[6] If long board tenure directors on the audit committee have a lower supply of audit effort or a lower demand for audit effort, we expect a negative association between audit committee members' average board tenure and audit fees. We estimate model (1) by replacing *LNTDIR* with *ABDTEN* (i.e., audit committee members' average board tenure). Table 5 provides the results on average board tenure. We also find that the coefficient on *ABDTEN* is significant and negative (*t*-statistic = -2.64, *p*-value<0.01). This suggests that audit committee members with long length of board tenure may have a lower supply of or demand for audit effort from the external auditor. These results are consistent with the results based on the proportion of long-term board tenure directors on the audit committee.

Insert Table 5 about here

Third, we test the sensitivity of using alternative cut-off points of board tenure in defining long-term board tenure directors to our results. We choose two alternative cut-off points including the median and the 75th quartile (i.e., Q3) of board tenure. Columns 3 and 4 in Table 6 show the results when the median of board tenure is used as the cut-off point. We find that audit fees are negatively associated with *LNTDIR* (*t*-statistic = -1.78, *p*-value<0.05). The results of using the 75th quartile as the cut-off point are reported in

[6] Using average board tenure instead of the proportion of long-term board tenure directors can avoid the arbitrariness of choosing the cut-off level for defining long-term board tenure directors.

Columns 5 and 6 in Table 6. Likewise, we document a negative and significant coefficient on *LNTDIR* (*t*-statistic = -2.14, *p*-value<0.01). Thus, our results are robust to using these two alternative cut-off points of board tenure.

Insert Table 6 about here

5. Conclusion

This study examines the relationship between independent audit committee members' board tenure and audit fees. We find that audit fees are lower for firms with high proportion of long board tenure outside directors on the independent audit committee than for firms with low proportion of long board tenure outside directors on the independent audit committee. The results suggest that auditors may price the monitoring effectiveness arising from long board tenure or that long board tenure audit committee members have a lower demand for audit effort. Our findings also indicate that audit committee governance may substitute to the external audit.

This study has its own caveats. We employ the data on audit committees from the IRRC database that generally includes large firms. As audit committee effectiveness may be affected by firm size, it is unclear whether our results can be generalized for small firms. Future research on audit committees may consider small firms in the sample. Moreover, while we control for several audit committee members' characteristics in the analyses, which are confined to the IRRC database, it is still likely that some governance quality related characteristics are omitted in the model. Thus, it is worth conducting more investigation of audit committee members' characteristics in the future.

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Table 1. Descriptive statistics of variables
(N= 1,561)

Variable	Mean	Median	Std	Q1	Q3
AUDFEE	7.788	7.666	1.007	7.062	8.407
LNTDIR	0.293	0.333	0.292	0.000	0.500
ACEDIR	0.427	0.000	0.495	0.000	1.000
OTHDIR	0.093	0.000	0.180	0.000	0.167
BLKDIR	0.002	0.000	0.035	0.000	0.000
ACSIZE	3.172	3.000	1.125	2.000	4.000
BDIND	0.715	0.727	0.143	0.625	0.833
BDSIZE	9.174	9.000	2.133	8.000	11.000
FSIZE	7.667	7.495	1.488	6.587	8.568
SEGMT	0.976	1.099	0.740	0.000	1.609
FOREIGN	0.264	0.190	0.266	0.000	0.467
LOSS	0.094	0.000	0.292	0.000	0.000
DEBT	0.165	0.144	0.148	0.018	0.262
ROA	0.060	0.057	0.066	0.031	0.096
RECINT	0.150	0.131	0.107	0.075	0.194
INVINT	0.115	0.087	0.119	0.017	0.166

AUDFEE = the log value of the sum of the fees of auditing financial statements and other audit related fees,
LNTDIR = the proportion of long-term directors on the audit committee,
ACEDIR = the proportion of directors with accounting expertise on the audit committee,
OTHDIR = the proportion of directors on the audit committee, who hold three or more additional board seats in other firms,
BLKDIR = the proportion of blockholding directors on the audit committee, who hold five or more percent of ownership (Klein, 2002),
ACSIZE = audit committee size, measured as the number of directors on the audit committee,
BDIND = board independence, measured as the proportion of independent directors on the board,
BDSIZE = board size, measured as the number of directors on the board,
FSIZE = firm size, measured as the log of total assets,
SEGMT = the log value of the number of business segments (Larcker and Richardson, 2004),
FOREIGN = the ratio of foreign sales to total sales,
LOSS = a dummy coded 1 if net income is negative and 0 otherwise,
DEBT = debt ratio, measured as the ratio of long-term debt to total assets,
ROA = return on assets, measured as the ratio of income before extraordinary items to total assets,
RECINT = receivables intensiveness, measured as the ratio of receivables to total assets,
INVINT= inventory intensiveness, measured as the ratio of inventory to total assets.

BLKDIR	*ACSIZE*	*BDIND*	*BDSIZE*	*FSIZE*	*SEGMT*	*FOREIGN*	*LOSS*	*DEBT*	*ROA*	*RECINT*	*INVINT*
-0.011	-0.001	-0.097***	-0.042*	-0.025	0.008	0.026	-0.010	-0.073***	0.005	0.082***	-0.084***
0.003	0.177***	0.041	0.028	-0.034	-0.043*	0.023	-0.021	0.063**	-0.005	0.034	-0.022
-0.020	0.060**	0.083***	0.104***	0.160***	0.061**	0.042*	0.008	0.041	-0.014	-0.021	-0.021
	-0.016	-0.035	-0.043*	-0.077***	-0.073***	-0.007	-0.001	-0.053**	0.036	-0.003	-0.009
		0.178***	0.343***	0.281***	0.170***	-0.015	-0.043*	0.077**	-0.001	0.064**	-0.015
			0.075***	0.147***	0.144***	0.131***	0.018	0.105***	-0.042*	0.048*	0.023
				0.581***	0.245***	-0.002	-0.066***	0.178***	-0.045*	-0.005	-0.036
					0.322***	0.061**	0.224***	-0.008	-0.055**	-0.103***	-0.117***
						0.033	0.120***	-0.088***	0.140***	-0.101***	-0.022
							0.090***	-0.148***	-0.013	0.192***	-0.016
								0.130***	-0.627***	0.004	0.028
									-0.288***	-0.144***	-0.136***
										-0.028	0.063**
											0.030

e level of 1%, 5%, and 10%, respectively (two-tailed tests).

Table 3. Main regression

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	3.139	31.34***
LNTDIR	?	-0.148	-3.32***
ACEDIR	+	0.003	0.12
OTHDIR	?	0.067	0.93
BLKDIR	+	0.229	0.63
ACSIZE	+	-0.002	-0.18
BDIND	+	0.429	4.62***
BDSIZE	+	0.014	1.91**
FSIZE	+	0.483	42.94***
SEGMT	+	0.190	10.16***
FOREIGN	+	0.984	19.58***
LOSS	+	0.169	2.96***
DEBT	?	-0.189	-1.98**
ROA	-	-0.742	-2.88***
RECINT	+	1.077	8.66***
INVINT	+	0.056	0.51
N			1,561
F-statistic			318.94***
Adj. R^2			75.59%

*** and ** indicate significance at the level of 1% and 5%, respectively (one-tailed tests).

Table 4. Yearly regression

Year		2005		2006	
Variable	Predicted sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
Intercept	?	3.121	21.68***	3.150	22.12***
LNTDIR	?	-0.160	-2.39***	-0.136	-2.26***
ACEDIR	+	0.014	0.37	-0.005	-0.13
OTHDIR	?	0.079	0.72	0.057	0.59
BLKDIR	+	0.248	0.32	0.255	0.62
ACSIZE	+	0.004	0.20	-0.004	-0.21
BDIND	+	0.399	2.98***	0.457	3.46***
BDSIZE	+	0.014	1.29*	0.014	1.29*
FSIZE	+	0.480	29.64***	0.484	30.61***
SEGMT	+	0.191	7.19***	0.191	7.13***
FOREIGN	+	1.020	14.31***	0.948	13.19***
LOSS	+	0.148	1.83**	0.198	2.41***
DEBT	?	-0.115	-0.85	-0.262	-1.93**
ROA	-	-0.562	-1.58*	-0.961	-2.53***
RECINT	+	1.051	5.96***	1.110	6.26***
INVINT	+	0.094	0.61	0.013	0.08
N			812		749
F-statistic			156.60***		159.53***
Adj. R^2			74.21%		76.07%

***, **, and * indicate significance at the level of 1%, 5%, and 10%, respectively (one-tailed tests).

Table 5. Results on audit committee members' average board tenure

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	3.216	28.41***
ABDTEN	?	-0.065	-2.64***
ACEDIR	+	0.003	0.13
OTHDIR	?	0.076	1.06
BLKDIR	+	0.213	0.59
ACSIZE	+	0.001	0.09
BDIND	+	0.431	4.63***
BDSIZE	+	0.015	1.95**
FSIZE	+	0.482	42.81***
SEGMT	+	0.190	10.16***
FOREIGN	+	0.980	19.48***
LOSS	+	0.171	2.99***
DEBT	?	-0.189	-1.98**
ROA	-	-0.720	-2.79***
RECINT	+	1.065	8.57***
INVINT	+	0.058	0.53
N			1,561
F-statistic			317.83***
Adj. R^2			75.29%

*** and ** indicate significance at the level of 1% and 5%, respectively (one-tailed tests).

Table 6. Results on alternative cut-off points of board tenure

Cut-off level		Median		Q3	
Variable	Predicted sign	Coefficient	*t*-statistic	Coefficient	*t*-statistic
Intercept	?	3.113	30.68***	3.107	31.13***
LNTDIR	?	-0.074	-1.78**	-0.111	-2.14***
ACEDIR	+	0.005	0.19	0.010	0.36
OTHDIR	?	0.076	1.06	0.071	0.98
BLKDIR	+	0.227	0.62	0.227	0.62
ACSIZE	+	-0.002	-0.16	-0.004	-0.29
BDIND	+	0.446	4.80***	0.439	4.71***
BDSIZE	+	0.015	1.98**	0.015	1.92**
FSIZE	+	0.482	42.73***	0.483	42.88***
SEGMT	+	0.189	10.09***	0.191	10.20***
FOREIGN	+	0.980	19.46***	0.981	19.48***
LOSS	+	0.171	2.98***	0.171	2.98***
DEBT	?	-0.179	-1.87**	-0.188	-1.96**
ROA	-	-0.722	-2.80***	-0.742	-2.87***
RECINT	+	1.066	8.54***	1.056	8.50***
INVINT	+	0.063	0.57	0.072	0.66
N			1,561		1,561
F-statistic			316.80***		317.18***
Adj. R^2			75.23%		75.25%

*** and ** indicate significance at the level of 1% and 5%, respectively (one-tailed tests).