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Abstract

This study examines whether board tenure of directors on the independent audit committee affects the effectiveness of the committee in oversight of financial reporting. Using a larger size sample of 7,700 firm-year observations over the period 1998 to 2005 in U.S., we document strong evidence that the proportion of long tenure directors on the independent audit committee is negatively associated with earnings management. The results are robust to several sensitivity analyses. Our findings further corroborate the notion that long tenure directors have greater expertise and experience to effectively monitor financial reporting process.

Keywords: Director Tenure, Independent Audit Committee, Earnings Management

1. Introduction

Audit committees play an important monitoring role in companies' financial reporting process. Klein (2002a) finds that higher proportion of outside directors on the audit committee (i.e., audit committee independence) is associated with lower earnings management, suggesting that audit committee independence reflects governance quality. However, this quality measure has become less practical in U.S. since U.S. stock exchanges required that listed firms must have audit committees consisting solely of outside directors (NYSE Corporate Governance 303A.05, NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules Sec 805). Moreover, directors may still differ in their monitoring effectiveness even though they are all "outside" or "independent" directors. Thus, it is of practical value to explore the quality difference between fully independent audit committees.

In addition to directors' independence, Bedard, Chtourou, and Courteau (2004) suggest that audit committee members' other characteristics may affect audit committee effectiveness. They argue that director board tenure may reflect monitoring effectiveness. On the one hand, directors with long board tenure have greater knowledge and experience, thus resulting in higher monitoring effectiveness. On the other hand, long tenure directors may be less effective because they are more likely to befriend managers and are less likely to adequately monitor managers (Vafeas, 2003). Bedard et al. (2004) examine whether audit committee members' average board tenure is associated with earnings management. They document marginally significant evidence that earnings management is lower when

audit committee members have long board tenure. Since they use a small size sample of 300 firms in 1996 and their evidence is marginally significant, further research into the relationship between director tenure and audit committee effectiveness is warranted.

To shed more light on this issue, this study employs a large size sample of 7,700 firm-year observation over the period 1998 to 2005 in U.S. We provide strong evidence that earnings management is negatively associated with the proportion of long tenure directors on the independent audit committees. The results are robust to several additional analyses. Our findings are consistent with the notion that long tenure directors are more effective in oversight of financial reporting because of their greater expertise and experience.

This study extends the research on the effect of director tenure on audit committee governance quality in the following two ways. First, we focus on independent audit committees. Unlike Bedard et al. (2004), our sample firms have a fully independent audit committee, which is practically important since audit committees of all U.S. firms have been required to be solely composed of independent directors. Second, we use a larger size sample compared to previous studies on audit committee effectiveness. Thus, our data analyses are more statistically powerful. Our evidence on the association between director tenure and audit committee effectiveness will be more convincing. Overall, this study contributes to the literature on audit committee effectiveness by providing more significant evidence on the monitoring quality of long tenure directors. Moreover, our findings provide a more explicit implication to corporate governance regulators that board tenure of independent directors may be considered when audit committee composition is regulated.

2. Prior Research

The audit committee plays a key role in overseeing, monitoring, and advising the management and outside auditors in preparing financial statements, conducting audits, and implementing internal accounting control systems. Previous studies (e.g., Klein, 2002a) usually use the proportion of outside directors on the audit committee (i.e., audit committee independence) to measure the quality of the audit committee. Those studies suggest that the audit committee is more effective if more outside directors are sitting on the committee.

Klein (2002a) examines whether audit committee independence is associated with earnings management. She finds that audit committee independence is negatively related to abnormal accruals, suggesting that audit committees structured to be more independent of the management are more effective in constraining earnings management. In addition to audit committee independence, Bedard et al. (2004) examine whether audit committee expertise affects earnings management. They measure audit committee expertise with respect to three aspects: financial, governance, and firm-specific expertise. Using a sample of 300 U.S. firms classified into three groups: one with aggressive income-increasing earnings management, one with aggressive income-decreasing earnings management, and one with low levels of earnings management in the year 1996, they find that the financial and governance expertise of audit committee members are negatively associated with the likelihood of aggressive earnings management. Moreover, they find that audit committee independence is negatively related to the likelihood of aggressive earnings management.

Prior research also investigates the association between audit committee characteristics and financial reporting quality not directly measured in earnings management. Abbott, Parker, and Peters (2004) examine the association of 88 financial restatements in the period 1991 to 1999 with audit committee characteristics. They find that the likelihood of financial restatement is less for firms with higher audit committee independence and more audit committee meetings. Farber (2005) explores audit committee characteristics of 87 firms identified by the SEC as fraudulently manipulating their financial statements. He finds that the fraud firms have lower audit committee expertise and fewer audit committee meetings compared to the control firms.

Previous studies also suggest that audit committee characteristics affect audit quality, thus enhancing financial reporting quality. Carcello and Neal (2000) examine the impact of audit committee quality on the issuance of auditors' going concern reports. They find that the auditor is more likely to issue a going-concern report for firms experiencing financial distress if the firms have higher audit committee independence. DeZoort and Salterio (2001) investigate whether audit committee members' experience and knowledge affect their judgements in auditor-corporate management conflict situations. They find that audit committee members with greater experience and greater accounting knowledge are more likely to support an auditor in disputes with the management. Abbott, Parker, Peters, and Raghunandan (2003) examine the association between audit committee characteristics and audit fees. They find that audit fees are positively associated with audit committee characteristics such as independence and financial expertise, suggesting that those characteristics can influence the level of audit coverage and thereafter audit quality.

Moreover, there is extant research into the relationship between audit committee characteristics and corporate disclosure quality. Karamanou and Vafeas (2005) examine whether audit committee structures are related to the voluntary disclosure of management earnings forecasts. They find that managers are more likely to issue or update earnings forecasts when firms have more effective audit committee structures. Mangena and Pike (2005) examine whether audit committee characteristics affect the level of disclosure in interim reports of 262 U.K. listed companies. They find that audit committee financial expertise exerts a positive impact on the level of interim disclosure.

In summary, prior research focuses on audit committee independence and financial expertise while investigating audit committee effectiveness. There is limited research on the relationship between audit committee members' board tenure and audit committee effectiveness.

3. Hypotheses Development

3.1. Effectiveness of Long Tenure

There is a large body of research into the effect of work experience on job performance in the literature (Quinones, Ford, and Teachout, 1995). Experience is the job-relevant knowledge gained over time (Fiedler, 1970). Hunter and Hunter (1984) find a correlation of 0.18 between work experience and job performance based on a meta-analysis. Using path analysis, Schmidt, Hunter, and Outerbridge (1986) show that work experience plays an important role in predicting job performance. McDaniel, Schmidt, and Hunter (1988) document a mean corrected correlation of 0.32 between work experience and job performance across a number of occupations. Those studies suggest that work experience can improve job performance. In addition, time on the job or tenure is used to measure work experience in most studies (Quinones et al., 1995).

Board directors should act in good faith in the interests of the company. Outside directors play an important role in monitoring the management as they are not affiliated with the company. They need to exercise the judgments on issues coming before the board or committee. Those issues include accounting treatments. Procedural knowledge means by the knowledge of the steps involved in actually performing a task, such as solving a particular type of problem or analyzing a particular issue.

Since procedure knowledge is important in dealing with accounting issues (Herz and Schultz, 1999), outside directors' job performance of monitoring accounting and auditing will involve the acquisition of procedure knowledge. Procedural knowledge can be learned "on-the-job", and is more likely to increase as a result of work experience (Quinones et al., 1995). Thus, outside directors acquire the procedural knowledge through performing the task of monitoring financial reporting process over time.

The effectiveness of the board or committee (including in particular the role played by outside directors) is dependent to a substantial content on the usefulness of the information that directors receive. Outside directors are less informed than inside directors (Bhagat and Black, 2002). Over time, outside directors can gain much knowledge of the company's internal control system and business

operations. Furthermore, outside directors may also establish working relationships with the management and, through those relationships, acquire more useful information for their judgements on accounting issues.

Long tenure directors may have high reputation developed over time. Those directors are likely to pay more attention to the job performance as the poor performance will dramatically impair their reputational capitals. In addition, directors who survive long tenure must perform well if the job market of directors is efficient (Vafeas, 2003).

Previous studies (e.g., Salancik, 1977; O'Reilly and Caldwell, 1981) suggest that directors' organizational commitment increases in tenure. Salancik (1977) develops a theory that people's actions become more committing if the revocability of the actions is lower. Furthermore, O'Reilly and Caldwell (1981) provide evidence that behavioural commitment is significantly associated with job turnover. Long tenure directors may have high job satisfactions. Those directors are less likely to reverse their job acceptance. Thus, extended director tenure can enhance the commitment of directors to fulfil their duties.

In summary, long tenure directors have greater experience, expertise, and reputation. Also, they have high commitment and willingness to work better. If an independent audit committee has more long tenure directors, the committee is more effective in constraining earnings management. Thus, we develop the following hypothesis:

H1: Independent audit committees with more long tenure directors are more effective in constraining earnings management than those with fewer long tenure directors.

3.2. Ineffectiveness of Long Tenure

On the other hand, long board tenure may lead to the entrenchment that reduces the effectiveness of outside directors. Long tenure directors are more likely to have a friendly relationship with the management, which is developed over time (Vafeas, 2003). Studies by Bebchuk, Fried, and Walker (2002) and Bebchuk and Fried (2003) suggest that the management may use their power to influence the nomination process of directors. Outside directors with strong personal ties with the management are more likely to be re-appointed and survive long term. Those directors will cease to operate independently, as said by Richard Koppes, former general counsel of CalPERS, "It is easier for a longer-tenured director to begin to operate as an insider" (Canavan, Jones, and Potter, 2004). Thus, the independence of outside directors may decrease in board tenure.

Long tenure directors are less mobile and less employable (Vafeas, 2003). They lack new insights and solutions to the company's issues (Canavan et al., 2004). As business operations are becoming more complex and changing more rapidly, it is increasingly difficult for long tenure directors to keep abreast of changes to technology, financial dealings, and business strategies. New directors can bring fresh ideas and critical thinking to the board or committee. However, long tenure directors may lack talent to deal with new issues.

Based on the above arguments, long tenure directors are likely to be ineffective. Whether the effectiveness of long tenure dominates its ineffectiveness is an empirical issue. Thus, we develop the following hypothesis opposite to H1:

H2: Independent audit committees with more long tenure directors are less effective in constraining earnings management than those with fewer long tenure directors.

4. Research Design

4.1. Sample Selection

The sample selection begins by searching the version of IRRC Directors' database updated in November 2006 for U.S. companies with audit committees consisting solely of outside directors. We focus on independent audit committees because we want to examine quality differences among

independent audit committees resulting from the tenure of outside directors. Based on the information of audit committee membership and director affiliations provided by IRRC, we identify a raw sample of 8,820 firm-year observations with independent audit committees from the population of 12,968 firms over the period 1998 to 2005. The IRRC determination of affiliated directors (i.e., not independent directors) is that "IRRC generally considers any director affiliated who is a former employee; is an employee of or is a service provider, supplier, customer; is a recipient of charitable funds; is considered an interlocking or designated director; or is a family member of a director or executive". The IRRC determination is close to the determinations of affiliated directors in U.S. stock exchanges' codes including NYSE Corporate Governance 303A.05, NASDAQ Rule 4350 (c), and AMEX Enhanced Corporate Governance Rules Sec 805 that became effective in later 2003. We use 1998 to 2005 as the sample period for tests because 1998 is the first year for which the IRRC provides audit committee membership data and 2005 is the latest data year of that version of IRRC Directors' database. We collect the data of directors' board service time, shareholding, audit committee size, and board independence from IRRC Directors. We also collect the data from Compustat database to compute financial variables. After excluding the observations with missing data, we reduce the sample size to 7,700 firm-year observations over the period 1998 to 2005.

Table 1: Sample Breakdown

Panel A. By year

Year	Frequency	Percent (%)
1998	802	10.42
1999	834	10.83
2000	929	12.06
2001	1,066	13.84
2002	903	11.73
2003	1,000	12.99
2004	1,076	13.97
2005	1,090	14.16
Total	7,700	100.00

Panel B. By industry

Industry	Frequency	Percent (%)
Agriculture, Forestry, and Fishing	13	0.17
Mining	298	3.87
Construction	80	1.04
Manufacturing	3,760	48.83
Transportation, Communications, Electric, Gas, and Sanitary Services	923	11.99
Wholesale Trade	287	3.73
Retail Trade	654	8.49
Finance, Insurance, and Real Estate	482	6.26
Services	1,184	15.38
Public Administration	19	0.25
Total	7,700	100.00

Table 1, panel A presents that the sample observations are evenly distributed over years. Table 2, panel B reports the distribution of the observations across industries. I find that the manufacturing (48.8%), services (15.4%), transportation, communication, electric, gas, and sanitary services (12.0%), retail trade (8.5%), and finance, insurance, and real estate (6.3%) are the most widely represented industries in the sample. We find the similar results if the observations in finance industry are excluded.

4.2. Measurement of Earnings Management

Discretionary accruals are commonly used to examine earnings management in the literature. Like prior research (e.g., Klein, 2002a; Chung and Kallapur, 2003), this study measures earnings management based on discretionary accruals. First, we estimate a cross-sectional variant of the Jones (1991) model using observations in each two-digit SIC industry-year:

$$ACC/TA_{-1} = a_0\ 1/TA_{-1} + a_1\ \Delta SALES/TA_{-1} + a_2\ PPE/TA_{-1} + e \quad (1)$$

where

ACC = total accruals measured as the difference between earnings before extraordinary items and discontinued operations and cash from operations,

TA_{-1} = total assets at the beginning of the year,

$\Delta SALES$ = change in sales between year t-1 and year t,

PPE = gross property, plant, and equipment.

Like Klein (2002a), we use all firm-year observations on Compustat over the period 1998 to 2005 and estimate the parameters in equation (1) for each two-digit SIC industry-year in which there are at least eight firms. Discretionary accruals for the sample observations are estimated as the residual values from model (1).

Second, we adjust estimated discretionary accruals by controlling for the impact of performance on the estimates. Following Kothari, Leone, and Wasley (2005), we match each firm-year observation in the sample with a firm-year observation from the population with the same two-digit SIC industry-year and the closest return on assets (ROA). The performance-matched discretionary accrual for each sample observation is computed as the discretionary accrual of the observation minus the discretionary accrual of the matched observation. We use the performance-matched approach to adjust discretionary accruals because Kothari, Leone, and Wasley (2005) show that the performance-matched discretionary accruals are less misspecified than other measures of discretionary accruals.

Finally, the absolute value of the performance-matched discretionary accruals is used to measure earnings management. Like prior research (e.g., Klein, 2002a; Chung and Kallapur, 2003), we take the absolute value for the measurement as the management manipulates earnings downward as well as upward (Levitt, 1998).

4.3. Regression Model

We estimate the following regression model to test the hypotheses:

$$ADAC = \beta_0 + \beta_1 LTNDIR + \beta_2 BLKDIR + \beta_3 ACMSIZE + \beta_4 BODIND + \beta_5 MB + \beta_6 ACNI + \beta_7 DEBT + \beta_8 SIZE + \beta_9 NEGNI + Year\ Dummies + \varepsilon \quad (2)$$

where

- $ADAC$ = the absolute value of performance-matched discretionary accruals based on the Jones model,
- $LTNDIR$ = the proportion of long tenure directors on the independent audit committee, where long tenure directors are directors with the board tenure of 10 or more years,
- $BLKDIR$ = the proportion of block shareholding directors on the independent audit committee, where block shareholding directors are directors who hold 5% or more of the firm's common equity,
- $ACMSIZE$ = audit committee size, measured as the number of directors on the audit committee,
- $BODIND$ = board independence, measured as the proportion of independent directors on the board,
- MB = the market-to-book ratio, measured by the ratio of the market value of the common equity to the book value of the common equity,
- $ACNI$ = the absolute value of the change in net income between year t-1 and year t, deflated by the total assets,
- $DEBT$ = the ratio of long-term debt to total assets,
- $SIZE$ = the log of total assets,
- $NEGNI$ = a dummy coded 1 if net income is negative for both year t-1 and year t, and 0 otherwise.

We define long tenure directors by using 10 years of board service time as the cut-off point because this level is close to the average tenure of directors on the audit committee. *BLKDIR* is included in model (2) because directors with high stock ownership may have stronger incentives to monitor the management (Shivdasani and Yermack, 1999). Moreover, Klein (2002a) documents some evidence that an outside block shareholder sitting on the audit committee can constrain earnings management. We add audit committee size (*ACMSIZE*) to model (2) as previous studies on board size suggest that audit committee size may affect audit committee effectiveness. For instance, Bushman, Chen, Engel, and Smith (2004) argue that smaller size boards have the disadvantage of fewer advisors and monitors of management. Agrawal and Knoeber (1999) advocate larger size boards in firms where information is otherwise difficult to obtain. These studies suggest that larger audit committees could be more effective. It is also probably more difficult for managers to exert influence over a large committee. On the other hand, Jensen (1993) argues that in the context of boards of directors, larger boards can be ineffective because of higher cooperation costs and more free riding, suggesting that larger audit committees could be less effective. We control for the effect of board governance on audit committee effectiveness by including board independence (*BODIND*) in model (2). Board independence is commonly used as a measure of board governance quality in the literature (e.g., Klein, 2002b; Boone, Field, Karpoff, and Raheja, 2007).

We also include several additional variables in model (2) to control for the factors that may affect the absolute value of discretionary accruals or audit committee effectiveness. We include *MB* because Klein (2002b) provides evidence that audit committee independence is related to the market-to-book ratio and Skinner and Sloan (2002) suggest that growth firms, proxied by high market-to-book ratio, are more likely to manage earnings. We include *ACNI* and *DEBT* because previous studies (e.g., Dechow, Sloan, Sweeney, 1996; Klein, 2002a) find that those variables are positively associated with earnings management. We include *SIZE* because political costs, proxied by firm size, are negatively associated with earnings management (Cahan, 2002). Furthermore, Klein (2002b) shows that firm size and negative earnings dummy (*NEGNI*) affect audit committee independence. Thus, we also include *NEGNI*. Finally, we include year dummies in model (2) to control for fixed year effects.

We estimate model (2) on pooled cross-sectional, time series data. We expect a negative (positive) and significant coefficient for β_1 if H1 (H2) is supported. In addition, we expect a negative coefficient for β_2, β_3, β_4, and β_8, and a positive coefficient for β_5, β_6, β_7, and β_9.

5. Empirical Results

Table 2 reports the tenure characteristics of directors on the independent audit committees. The average tenure of outside directors is 9.54 years. 35.41% of the outside directors have at least 10 years' board service time. 9.37% of the outside directors have at least 20 years' board service time.

Table 2: Tenure Characteristics of Independent Directors

Total number of independent director-year observations	27,343
Average tenure of independent directors (years)	9.54
Percent of directors with 10 or more years' tenure	35.41%
Percent of directors with 20 or more years' tenure	9.37%

Table 3 presents the descriptive statistics of variables. The mean and median of the absolute value of performance-matched discretionary accruals (*ADAC*) are 0.098 and 0.062, respectively. The average proportion of long tenure directors (with board service time of at least 10 years) on the audit committee is 27.3%. The average proportion of block shareholding directors (with the shareholding of at least 5% of the common equity) is 0.5%. The average audit committee size is 3.55 members. The average proportion of independent directors on the board is 70.4% for firms with the independent audit committee.

Table 3: Descriptive Statistics

Variable	N	Mean	Median	Std	Q1	Q3
ADAC	7,700	0.098	0.062	0.109	0.028	0.125
LTNDIR	7,700	0.273	0.250	0.283	0.000	0.500
BLKDIR	7,700	0.005	0.000	0.042	0.000	0.000
ACMSIZE	7,700	3.550	3.000	1.086	3.000	4.000
BODIND	7,700	0.704	0.727	0.150	0.600	0.833
MB	7,700	3.102	2.164	3.469	1.452	3.593
ACNI	7,700	0.052	0.023	0.085	0.009	0.055
DEBT	7,700	0.196	0.185	0.166	0.034	0.307
SIZE	7,700	7.429	7.271	1.531	6.302	8.383
NEGNI	7,700	0.094	0.000	0.291	0.000	0.000

Table 4 provides the Pearson correlations between independent variables. The correlation coefficient between *LTNDIR* and *BODIND* is significantly negative, suggesting that long tenure directors on the audit committee may substitute to board governance. The negative correlations of *LTNDIR* with *MB*, *DEBT*, and *NEGNI* suggest that long tenure directors are less likely to sit on the audit committee of firms with high growth, high financial leverage, or negative earnings. The maximum absolute value among the correlation coefficients is 0.38 between *ACMSIZE* and *BODIND*. Since the correlations between the independent variables are not excessive, multicollinearity is unlikely to be a substantive issue.

Table 4: Pearson Correlations (N=7,700)

Variable	***BLKDIR***	***ACMSIZE***	***BODIND***	***MB***	***ACNI***	***DEBT***	***SIZE***	***NEGNI***
LTNDIR	0.004	0.007	-0.059***	-0.042***	-0.081***	-0.028**	-0.004	-0.033***
BLKDIR		-0.045***	-0.025**	0.016	0.043***	-0.008	-0.089***	0.038***
ACMSIZE			0.379***	-0.008	-0.175***	0.085***	0.377***	-0.112***
BODIND				0.010	-0.061***	0.066***	0.185***	-0.024**
MB					0.093***	-0.082***	0.008	-0.066***
ACNI						-0.058***	-0.226***	0.288***
DEBT							0.238***	0.079***
SIZE								-0.154***

Notes: *** and ** indicate a significance at the level of 1%, and 5%, respectively (two-tailed tests).

Table 5 contains the results of the regression that examines the effect of director tenure on the effectiveness of the independent audit committee in constraining earnings management. We find a negative and significant coefficient for *LTNDIR* (*t*-statistic = -3.48), consistent (inconsistent) with H1 (H2). Thus, the independent audit committee with high proportion of long tenure directors is more effective in constraining earnings management than that with a low proportion of long tenure directors. This suggests that the expertise side of long director tenure overwhelmingly dominates its management friendliness side at the level of audit committee governance. These results are consistent with those in the Beasley (1996)'s study that the likelihood of financial statement fraud decreases as outside director tenure on the board increases. On the other hand, my results are inconsistent with the Vafeas (2003)'s argument that long tenure directors are more affiliated and then less effective.

Table 5: Effect of Director Tenure on Independent Audit Committee Effectiveness

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	0.115	13.08***
LTNDIR	- / +	-0.015	-3.48***
BLKDIR	-	0.036	1.25
ACMSIZE	-	-0.003	-2.66***
BODIND	-	-0.001	-0.08
MB	+	0.002	6.89***
ACNI	+	0.284	18.86***
DEBT	+	-0.030	-4.00***
SIZE	-	-0.004	-4.03***
NEGNI	+	0.037	8.44***
N			7,700
F-statistic			58.49***
Adj. R^2			10.67%

Notes: *** indicates a significance at the level of 1% (two-tailed tests).

In Table 5, we also find a negative and significant coefficient for *ACMSIZE*, suggesting that large audit committees are more effective in constraining earnings management. Consistent with previous studies (e.g., Klein, 2002a), we find that the absolute value of discretionary accruals is positively associated with *MB*, *ACNI*, or *NEGNI*, and negatively associated with *SIZE*. Thus, firms with high growth, high change in earnings, or negative earnings are more likely to manage earnings, whereas large firms are less likely to engage in earnings management. However, we find a negative coefficient for *DEBT*, which is inconsistent with the Klein (2002a) findings that high financial leverage firms are more likely to manipulate earnings.

We also conduct several additional analyses as follows. First, we examine whether the results are sensitive to using discretionary accruals computed by the following modified Jones model (Dechow, Sloan, and Sweeney, 1995):

$$ACC/TA_{-1} = a_0\ 1/TA_{-1} + a_1\ (\Delta SALES - \Delta REC)\ /TA_{-1} + a_2\ PPE/TA_{-1} + e \quad (3)$$

where

ΔREC = change in receivables between year *t*-1 and year *t*.

The Jones model is modified by adjusting the change in sales revenue for the change in account receivables as if the change in account receivables arises from earnings management. Table 6 reports the results when we use the performance-matched discretionary accruals based on the modified Jones model. We still find a negative and significant coefficient for *LTNDIR* (*t*-statistic = - 3.26). Likewise, the results support H1 but not H2.

Table 6: Results Based on the Modified Jones Model

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	0.119	12.77***
LTNDIR	- / +	-0.014	-3.26***
BLKDIR	-	0.026	0.90
ACMSIZE	-	-0.003	-2.11**
BODIND	-	-0.012	-1.29
MB	+	0.002	6.37***
ACNI	+	0.294	18.84***
DEBT	+	-0.029	-3.59***
SIZE	-	-0.003	-3.51***
NEGNI	+	0.039	8.60***
N			7,442
F-statistic			57.40***
Adj. R^2			10.82%

Notes: *** and ** indicate a significance at the level of 1% and 5%, respectively (two-tailed tests).

Table 7: Results on An Alternative Measure of Long Tenure Director

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	0.112	12.86***
LTNDIR	-/ +	-0.023	-2.71***
BLKDIR	-	0.037	1.29
ACMSIZE	-	-0.003	-2.67***
BODIND	-	0.000	0.03
MB	+	0.002	6.91***
ACNI	+	0.285	18.98***
DEBT	+	-0.030	-3.94***
SIZE	-	-0.004	-4.06***
NEGNI	+	0.036	8.41***
N			7,700
F-statistic			58.15***
Adj. R^2			10.62%

Notes: *** indicates a significance at the level of 1% (two-tailed tests).

Second, the documented dominance of long tenure directors' expertise over their amiable relationships with the management could be due to the shorter cut-off point of 10 years used to identify long tenure directors. As the cut-off point of long tenure moves up, it is likely that the management friendliness side of long tenure directors may dominate its expertise side. This is because the expertise of long tenure directors may be a learning curve of director tenure (Katz, 1982). To mitigate this concern, we retest the hypotheses by increasing the cut-off point. Like Vafeas (2003), we define long tenure directors as those who served the board for 20 or more years. Table 7 presents evidence that the coefficient on *LTNDIR* is negative and significant (*t*-statistic = -2.71) when the cut-off point for long director tenure is increased to 20 years of board service time. These results suggest that the dominance of long tenure directors' expertise is still evident.

Third, some audit committee or board structure metrics in model (2) may be endogenous. Since this study focuses on director tenure, we test the hypotheses again by allowing for the endogeneity of director tenure. We re-estimate model (2) using a two-stage regression procedure similar to a procedure used by Frankel, Kothari, and Weber (2006). The first-stage regression involves modelling the determinants of the proportion of long tenure directors on the audit committee (i.e., *LTNDIR*). Based on prior research on the determinants of audit committee composition (e.g., Klein, 2002b), we include the market-to-book ratio, firm size, negative earnings dummy, and board independence in the first-stage regression. We also include the portfolio rank of *LTNDIR* (i.e., *LTNDIR_RANK*) in the first-stage model. We add *LTNDIR_RANK* in the first-stage model because endogeneity is likely to affect the variation in *LTNDIR* rather than the level of *LTNDIR* (e.g., Greene, 2000). Hentschel and Kothari (2001) note that a relatively crude measure of the endogenous variable can be used as an instrumental variable because it is likely to capture the level of the variable but not the endogenously determined variations around those levels. We rank firm-year observations by *LTNDIR* and then categorize them into three equal-sized portfolios. *LTNDIR_RANK* is measured by 0, 1 or 2 for firms in the lowest, middle or highest portfolio, respectively. Thus, we model the determinants of long tenure directors as follows:

$$LTNDIR = \mu_0 + \mu_1 MB + \mu_2 SIZE + \mu_3 NEGNI + \mu_4 BODIND + \mu_5 LTNDIR\_RANK + e \quad \text{(Model 4)}$$

After estimating model (4), the second stage regression (i.e., model (2)) is run using the fitted value of *LTNDIR* from model (4). Table 8 reports the results after controlling for the endogeneity of director tenure. We still find that the absolute value of discretionary accruals is negatively associated with the proportion of long tenure directors on the audit committee (*t*-statistic = -3.21), consistent with H1.

Table 8: Results after Allowing for Endogeneity

Variable	Predicted sign	Coefficient	*t*-statistic
Intercept	?	0.115	13.04***
LTMDIR	-	-0.015	-3.21***
BLKDIR	-	0.036	1.25
ACMSIZE	-	-0.003	-2.36**
BODIND	-	-0.002	-0.18
MB	+	0.002	6.88***
ACNI	+	0.285	18.93***
DEBT	+	-0.030	-3.97***
SIZE	-	-0.004	-4.10***
NEGNI	+	0.037	8.44***
N			7,700
F-statistic			58.36***
Adj. R^2			10.65%

Notes: *** and ** indicate a significance at the level of 1% and 5%, respectively (two-tailed tests).

Fourth, we examine whether the results hold after two more audit committee structure metrics, i.e., the proportion of directors who have at least three board seats of other firms and the proportion of directors who are the CEO of other firms, are added in equation (2). Like long tenure directors, directors with more additional directorships and directors with CEO title may have greater expertise. Directors who serve on many boards have reputations as effective monitors (Shivdasani and Yermack, 1999). Previous studies (e.g., Shivdasani, 1993; Brickley, Linck, and Coles, 1999; Coles and Hoi, 2003) provide evidence that directors with more board seats are more effective. Similarly, CEO directors may have more experience and knowledge about business operations.

Also like long tenure directors, directors with more additional directorships and directors with CEO title may be less effective. Directors with more additional directorships are too busy to monitor the management. Core, Holthausen, and Larcker (1999) and Fich and Shivdasani (2006) find that those directors have lower monitoring effectiveness. Since CEOs are a relatively homogenous, cohesive collection of individuals (e.g., Useem, 1984), the presence of CEOs from other firms on the audit committee may result in a general propensity to support the CEO when deciding on accounting treatments (e.g., Lorsch and MacIver, 1989; Daily, Johnson, Ellstrand, and Dalton, 1998). Thus, CEO directors may be less likely to preclude earnings management.

We re-run model (2) by including the two audit committee metrics, i.e., the proportion of directors with more additional directorships and the proportion of CEO directors. Untabulated results show that the coefficient is still negative and significant for *LTNDIR*, but insignificant for the two added variables. These results suggest that the effect of *LTNDIR* dominates the effect of the two added metrics that may reflect a certain extent of directors' expertise.

Fifth, we examine whether long tenure directors are equally effective in constraining both upward and downward earnings management. We use signed discretionary accruals as the dependent variable in model (2) and run the regression separately for observations with positive or negative discretionary accruals. Of 7,700 firm-year observations, 3,454 and 4,246 observations have positive and negative performance-matched discretionary accruals, respectively, suggesting that "cookie-jar accounting" is pervasive in practice (Levitt, 1998). We find that the coefficient on *LTNDIR* is negative but insignificant when earnings are manipulated upward, whereas the coefficient on *LTNDIR* is positive and significant when earnings are manipulated downward. Thus, firms manage earnings less downward if they have more long-term directors sitting on the audit committee.

Finally, we estimate model (2) using yearly observations from 1998 to 2005 to control for the potential autocorrelations of time-series data. We find that the coefficient on *LTNDIR* is negative for seven of the eight annual regressions, of which the coefficient is significant for four regressions. Overall, these results are consistent with H1 rather than H2.

6. Conclusion

This study examines whether board tenure of directors on the independent audit committee affects the effectiveness of the committee in constraining earnings management. We document strong evidence that the proportion of long tenure directors on the independent audit committee is negatively associated with earnings management, suggesting that independent audit committee members with long board tenure have greater expertise and experience to effectively oversee financial reporting. Our results are robust to various sensitivity tests. This study provides the following contributions to the literature. First, this study adds to the literature by considering board tenure of directors on the independent audit committee. Focusing on independent audit committees is of practical value. Second, this study employs a larger size sample over a longer period than other studies on audit committees. We document more convincing evidence that director tenure affects audit committee effectiveness.

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