



Managerial Auditing Journal

The consequences of audit committee quality

Yu-Chun Lin,

Article information:

To cite this document:

Yu-Chun Lin, (2018) "The consequences of audit committee quality", Managerial Auditing Journal,

<https://doi.org/10.1108/MAJ-03-2016-1350>

Permanent link to this document:

<https://doi.org/10.1108/MAJ-03-2016-1350>

Downloaded on: 07 March 2018, At: 21:43 (PT)

References: this document contains references to 106 other documents.

To copy this document: permissions@emeraldinsight.com

Access to this document was granted through an Emerald subscription provided by emerald-srm:320271 []

For Authors

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service information about how to choose which publication to write for and submission guidelines are available for all. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

Emerald is a global publisher linking research and practice to the benefit of society. The company manages a portfolio of more than 290 journals and over 2,350 books and book series volumes, as well as providing an extensive range of online products and additional customer resources and services.

Emerald is both COUNTER 4 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.

The consequences of audit committee quality

Audit
committee
quality

Yu-Chun Lin

Department of Finance, Shih Hsin University, Taipei, Taiwan

Abstract

Purpose – This study aims to examine the consequences when audit committees have different economic incentives (i.e. incentive-based compensation) to switch auditors.

Design/methodology/approach – The author focuses on companies experiencing an auditor switching event (client-initiated dismissals) and uses Heckman's (1997) two-stage estimation procedure to control endogenous bias. Audit committee quality is measured by the level of incentive-based compensation. Accrual quality and abnormal audit fees are examined over the periods of auditor switches.

Findings – Using 1,087 US companies between 2006 and 2014, the author found that audit committees' incentive-based compensation is negatively (positively) associated with accruals quality (abnormal audit fees) only when companies switch from Big 4 to non-Big 4 auditors or switch within non-Big 4 auditors. For companies that switch from non-Big 4 to Big 4 auditors, she found no evidence.

Research limitations/implications – This study provides a detailed discussion of the consequences of audit committee quality. The findings also contribute to the literature by concluding that economic incentives are associated with ineffective oversight, particularly after auditor switches.

Practical implications – Sarbanes–Oxley Act and its associated regulations significantly expanded the oversight role of audit committees. However, regulators bypassed restrictions on audit committee compensation. Accordingly, the author suggests that regulators focus on the issue of economic incentives to improve audit committee quality.

Originality/value – Minimal research has been conducted on the role of audit committees when companies switch to a new external auditor. The author shows that when companies switch auditors, incentive-based compensation significantly affects the monitoring quality of audit committees.

Keywords Audit fees, Audit committee, Compensation, Accruals quality, Auditor changes

Paper type Research paper

1. Introduction

Audit committees (ACs) play a vital role in the capital markets' investor protection framework through their oversight of audit engagement and financial reporting process based on the regulation of the Sarbanes–Oxley Act (SOX). According to SOX requirements, ACs are primarily responsible for independent supervision of outside financial reporting, internal controls to address key risks and auditor activity, including appointing external auditors and settling audit fees (SOX Section 301). Previous studies have indicated that independent ACs are more likely to demand auditors with stronger reputations (Chen and Zhou, 2007; Goodwin-Stewart and Kent, 2006; Lennox and Park, 2007). However, prior

The author appreciates the comments from all participants at the 2015 Annual Congress of the *European Accounting Association* and 2015 Southeast Region Meeting of the *American Accounting Association*. The author also thanks Chad Simon, Sarah E. Stein and Tsung-Wu Ho for their valuable comments. The research assistant, Yao-Kuan Chung, is also highly appreciated for the process of collecting research data. Thanks for the advanced editing service provided by Nandi B., Lea R. and Afton T.



literature notes that economic incentives are determinants of AC independence (Barrier, 2002; Bédard *et al.*, 2004; Carcello and Neal, 2003) and weaken the AC's objectivity and oversight quality (Archambeault *et al.*, 2008; Magilke *et al.*, 2009)[1]. Bierstaker *et al.* (2012) provide experimental evidence concerning the effects of stock options on AC monitoring performance, finding that perceived fairness is affected when AC compensation includes long-term stock options. Keune and Johnstone (2015) illustrate the agency conflicts that can arise when compensating ACs with stock options. The issue of the consequences of AC incentive compensation is increasingly important.

Since the Enron scandal and SOX, the audit market in US companies has undergone substantial changes (Ahmed, 2010; Ettredge *et al.*, 2007; Glass, Lewis & Co., 2005; Grothe and Weirich, 2007; Landsman *et al.*, 2009; Taub, 2004). One notable change is a growing trend in the number of companies realigning to non-Big 4 auditing firms. Carver *et al.* (2011) indicate that companies switching from Big 4 to non-Big 4 auditors experience a significant increase in discretionary accruals following these auditor switches[2]. However, Carver *et al.* (2011) ignore the role of ACs in the process of auditor switches. Prior research illustrates that the incentive-based compensation provided to AC members is associated with AC quality (Archambeault *et al.*, 2008; Bierstaker *et al.*, 2012; Campbell *et al.*, 2015; Keune and Johnstone 2015; Persellin 2013). This study extends these studies and addresses the following questions:

- Q1. Given that a company has dismissed its auditors, how do AC members' economic incentives affect their oversight of the new auditor?
- Q2. Does this relationship vary depending on the type of new auditor?

In this study's examination of companies experiencing an auditor switching event, I relate incentive-based compensation (i.e. stocks and stock options) to common output variables (i.e. accruals quality and abnormal audit fees) used in previous studies as a proxy for AC oversight effectiveness (Cohen *et al.*, 2014). One of the main issues in oversight effectiveness is financial reporting quality (Bruynseels and Cardinaels, 2014; Carcello *et al.*, 2011a; Gendron *et al.*, 2004). Accordingly, I focus on the company's level of earnings management using Srinidhi and Gul's (2007) method. Second, I also attempt to examine any anomaly in audit fees following auditor switches. Vafeas and Waeglein (2007) suggest that AC effectiveness, as a determinant of audit fees, partially drives the cost of corporate audit fees. Audit fees are determined by auditors with approval from ACs, who should assess the appropriateness of the fees (Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees, 1999). Any anomaly in audit fees could reveal whether audit engagements are underpriced or overpriced. Blankley *et al.* (2012) provide a robust regression model to determine the unusual or abnormal portion of audit fees. This study employs Blankley *et al.*'s (2012) measurement of abnormal audit fees.

This study focuses on companies publicly reporting the auditor switch as a client-initiated dismissal[3]. Based on a sample of 1,087 dismissals between 2006 and 2014, the empirical results indicate that AC incentive-based compensation is negatively associated with accruals quality and that this association is stronger when companies select non-Big 4 auditors as the successors (i.e. changes from Big 4 to non-Big 4 auditors and changes between two non-Big 4 auditors). The results also indicate that economic incentives are positively associated with abnormal audit fees only for companies hiring non-Big 4 successors.

In addition to providing a detailed discussion for testing auditor changes, this study also contributes to the literature in other ways. First, it reinforces the findings of Keune and

Johnstone (2015), who note a positive association between AC stock option compensation and the likelihood of managers being allowed to waive misstatements, resulting in companies missing analyst forecasts. The findings also add to the previous literature on AC compensation by suggesting that AC incentive-based compensation is associated with ineffective oversight, particularly after auditor switches. Finally, in the wake of SOX, regulators have expressed concerns about high concentration in the USA audit market (Landsman *et al.*, 2009). The diversity of AC compensation may serve as a basis for future research on auditor changes.

The remainder of this paper is organized as follows: Section 2 discusses the previous literature. Section 3 describes the sample selection procedure and research design. Section 4 reports the empirical results and discusses their implications. The paper concludes with a summary of findings in Section 5.

2. Literature and hypothesis development

2.1 *The evidence of auditor changes*

In exploring the issue of auditor changes, prior accounting and auditing literature using pre-SOX samples provided empirical evidence of potential influence, including opinion shopping (Chow and Rice, 1982; Krishnan *et al.*, 1996), the cost of capital and information content (Datar *et al.*, 1991). SOX has intensified the resources devoted to the audit process, and many recent papers and reports, both in the academic literature and in the press, have suggested that SOX has resulted in a structural change in the US audit industry. As Asthana *et al.* (2009) argue, SOX resulted in a one-time significant change in the regulatory environment faced by auditors. An unexpected shift in the client portfolios of audit risks caused an increased frequency of auditor changes (Ettredge *et al.*, 2007).

Some research focuses on market reactions to auditor changes in the post-SOX period. Chang *et al.* (2010) analyzed market responses to auditor switches between 2002 and 2006. Big 4 auditors are also perceived to be more independent and provide higher quality audits, but Chang *et al.* (2010) find positive market reactions to auditor changes from Big 4 to non-Big 4 auditors. The investors' reactions measure perceived audit quality, but whether actual audit quality changes after auditor switches is unknown.

Many companies switch auditors to cut their audit fees. Such switches mainly occur from Big 4 to non-Big 4 auditors. Some research suggests that a switch from a Big 4 to non-Big 4 auditor might occur because companies attempt to dismiss auditors to cut high audit fees. As reported by Hackenbrack and Hogan (2005), auditing firms may sever their relationship with a client if they cannot recover the increasing costs of the audit process, and other audit firms may be willing to pick-up those dropped clients when they are better suited to serve them.

Ettredge *et al.* (2007) examined changes in the magnitude of audit fees for dismissal companies in the SOX environment. They focused only on the year 2003 and reported evidence that clients who experienced significant increases in their audit fees were more likely to dismiss their auditors. Specifically, Ettredge *et al.* (2007) find that among those companies who dismissed their auditors, small clients of Big 4 auditors were more likely to switch to non-Big 4 auditors and, as a consequence, experience smaller increases in their audit fees. Therefore, this study extends prior studies to investigate the effects of auditor changes types and AC on abnormal audit fees to provide further evidence regarding auditor changes.

2.2 *Audit committee incentive-based compensation*

The NASDAQ and NYSE listing standards mandate that ACs must exercise an oversight role in Securities and Exchange Commission (SEC) filings, including the earnings release

process (Bochner and Blake, 2008). Some research defines AC members as being neither employees nor affiliates of the companies (Abbott and Parker, 2000; Klein, 2002a; Lennox and Park, 2007). For example, Bruynseels and Cardinaels (2014) find that companies whose AC members have “friendship” ties to the chief executive officer purchase fewer audit services and engage in more earnings management.

AC incentive-based compensation has recently been investigated with respect to the issue of independence impairment. Bédard *et al.* (2004) suggest that stock options may reduce directors’ monitoring of earnings management. Archambeault *et al.* (2008) examine restatements between 1999 and 2002 and find that AC stock option compensation is associated with a higher likelihood of restatement. Cullinan *et al.* (2010) suggest a marginally significant association between stock compensation and the incidence of internal control weakness (ICW). Magilke *et al.* (2009) experimentally arranged students serving as AC members and suggested that AC members are less biased when there is no Economic incentive. Furthermore, Bierstaker *et al.* (2012) provide experimental evidence that AC members are more likely to support an external auditor in a situation involving a financial reporting disagreement when the AC is compensated with long-term stock options. Campbell *et al.* (2015) find that AC members’ stock-option awards and holdings are positively associated with the likelihood of meeting/beating analyst earnings forecasts. Persellin’s (2013) results confirm prior research on option compensation, finding that participants show less support for recording a proposed income-reducing audit adjustment when compensated primarily with stock options rather than cash.

ACs are mainly responsible for auditor activities, including selecting external auditors, overseeing the work of auditors, negotiating judgment in preparing financial statements and overseeing internal controls (Lander, 2004)[4]. When companies are involved in auditor switches, the question remains whether economic incentives impair AC quality. Keune and Johnstone (2015) provide evidence that AC incentive-based compensation leads to agency conflicts. Although previous literature found that economic incentives could affect AC oversight of the financial reporting process, the evidence concerning auditor switches is not addressed in prior studies.

2.3 Hypothesis development

Companies with more effective ACs are more likely to demand high-reputation auditors (Goodwin-Stewart and Kent, 2006). Previous research suggests that an effective AC is beneficial to audit quality (Bliss, 2011; Carcello *et al.*, 2002; Chen and Zhou, 2007; Lennox and Park, 2007). Carver *et al.* (2011) indicate that companies selecting smaller audit firms report a significant increase in signed discretionary accruals following the switch. However, the potential influence of AC quality on accruals quality is not controlled in Carver *et al.* (2011). In the study, I attempt to broaden the view regarding the consequences of ACs with different economic incentives to switch auditors.

ACs have incentive-based compensation that is not addressed by SOX and its associated regulations, and these incentives could affect AC quality. Keune and Johnstone (2015) find a positive association between long-term stock option compensation of ACs and the likelihood that managers are allowed to waive income-increasing misstatements when the company reports just miss, meet or beat the analysts’ forecast. Certain studies have indicated that AC compensation via stock options could increase the likelihood of restatements (Archambeault *et al.*, 2008), earnings management (Bédard *et al.*, 2004) and ICW (Cullinan *et al.*, 2010). To extend Carver *et al.*’s (2011) results, I predict that when companies hire smaller auditors (i.e. non-Big 4 auditors), the impact of AC incentive-based compensation could be more significant. I thus propose the following hypothesis:

H1. AC incentive-based compensation is negatively associated with accruals quality, especially when companies switch to non-Big 4 auditors.

Prior research also examines the characteristics of directors (AC members) as important factors related to audit fees (Harjoto *et al.*, 2015). Griffin *et al.* (2008) indicate that corporate governance can have an impact on the establishment of audit fees. Griffin *et al.* (2008) provide an economic framework suggesting that auditing is one governance mechanism and is positively correlated with similar mechanisms. Their research also finds a significant positive relationship between audit fees and several measures of governance, as the interaction of governance and audit risk affects audit pricing. Soltani (2007) states corporate governance is the monitoring function of the board of directors and AC. Prior research investigating AC incentive-based compensation focuses on its influence on financial reporting quality (Archambeault *et al.*, 2008; Bédard *et al.*, 2004; Keune and Johnstone, 2015), but there is relatively little investigation into the relationship between AC compensation types and audit fee anomalies.

The study also extends prior research examining the characteristics of directors (AC members) as they relate to audit fees (Harjoto *et al.*, 2015; Huang *et al.*, 2014) because AC serves an important role in auditing activities. AC could generate expectations concerning what audit fees would be reasonable and should carefully assess this reasonableness. Lower audit fees place auditors under greater pressure to complete audits, and this pressure may manifest as AC renegotiating the financial terms of the audits or in response to pressure from management (Blankley *et al.*, 2013). Several previous studies interpret larger than normal fees as an indication of additional audit effort (Blankley *et al.*, 2012; Hribar *et al.*, 2014; Doogar *et al.*, 2015). Any anomaly of audit fees could reveal whether audit engagements are underpriced or overpriced relative to the amount of risk present[5]. Blankley *et al.* (2013) suggest that AC could include industry experts or retired auditors who are capable of assessing the reasonableness of audit fees, and this action may seem useful to avoid overpaying.

Switching to a non-Big 4 auditor would probably result in a decrease in fees (Ettredge *et al.*, 2007). However, incentive-based compensation would sway the AC's independence more favorably toward management. Economic incentives create higher risks for ACs, as incentive-based compensation connects the companies' stock price to AC wealth. In Section 301 of SOX, Congress charged ACs with direct responsibility for the oversight of the work of external auditors. An anomaly in audit fees (i.e. positively and negatively abnormal audit fees) implies that ACs did not evaluate the appropriateness of the audit fees. I predict that incentive-based compensation affects AC's assessment of audit fees, as reflected in audit fee anomalies:

H2. AC incentive-based compensation is positively associated with audit fee anomalies, especially when companies select non-Big 4 auditors.

3. Research design

3.1 Data and sample

The sample consists of auditor dismissals from the *audit analytics* database during the fiscal years between 2006 and 2014[6]. I mainly identify client-initiated dismissals according to the *audit analytics* classification. For companies without definite reasons and classification, I use the 8-K Form to crosscheck the reasons why auditors were dismissed (Appendix). As do most other studies that investigate auditor changes, I exclude financial institutions (SIC codes 6000-6999) because their audit fee determinants and accounting and financial features

are too different from those of industrial and commercial companies (Simunic, 1980; Audoussset-Coulier, 2015). I only include companies traded on the NASDAQ and the NYSE. Companies making duplicate or repeated dismissal disclosures in the same year are also excluded. After removing missing values or companies without the audit fee data necessary to compute abnormal audit fees, the final sample for the analysis consists of 1,087 auditor dismissal observations. Table I summarizes the sample selection procedure.

Financial data are collected from COMPUSTAT and CRSP. Corporate governance and director compensation data are primarily obtained from *audit analytics* and *ExecuComp*. For companies without AC compensation data, I collect compensation and background data from proxy statements in EDGAR.

3.2 Measure of accruals quality and abnormal audit fees

3.2.1 Measure of accruals quality. As noted in the discussion of Srinidhi and Gul (2007), recent studies use accruals quality as the proxy for audit quality because high-quality auditors tend to reduce accruals estimation errors. Managers may use accruals to provide an inaccurate picture of companies' performance, leading to accruals being less predictive of future cash flows. Accruals are temporary adjustments that shift cash flows across time. In this study, I use the accruals measurement used by Francis *et al.* (2005) and Doyle *et al.* (2007), which is a modification of the original Dechow and Dichev (2002) model. *ACCQUAL* is calculated by the absolute values of accrual estimation errors:

$$TCA_{i,t} = \beta_0 + \beta_1 OCF_{i,t-1} + \beta_2 OCF_{i,t} + \beta_3 OCF_{i,t+1} + \beta_4 \Delta REV_{i,t} + \beta_5 PPE_{i,t} + \varepsilon_{i,t} \quad (ACQ)$$

where TCA is $\Delta CA - \Delta Cash - (\Delta CL - \Delta STDebt)$; ΔCA equals the change in current assets (COMPUSTAT #4); $\Delta Cash$ is the change in cash balance (COMPUSTAT #1); ΔCL is the change in current liabilities (COMPUSTAT #5); $\Delta STDebt$ is the change in short-term debt included in current liabilities; OCF is the operating cash flow from the cash flow statement (COMPUSTAT #308); ΔREV is the change in revenues (COMPUSTAT #12); and PPE is the gross value of property, plant and equipment (COMPUSTAT #7). All changes are between period $t - 1$ and period t unless otherwise specified, and all variables are scaled by average total assets. Higher *ACCQUAL*, the absolute values of the residual term in equation (ACQ), indicates low earnings quality (Doyle *et al.*, 2007; Srinidhi and Gul, 2007).

I use accruals quality rather than discretionary accruals as a proxy for earnings quality because traditional "discretionary accruals" show incentive earnings management, but the measure of accruals quality is not limited to opportunistic behavior (Doyle *et al.*, 2007). Accruals quality is measured by how well accruals map onto cash

All auditor dismissals during fiscal year 2006 to 2014 collected in the <i>audit analytics</i> database	8,328
Less: financial institutions (SIC codes 6000-6999)	(2,341)
Less: companies not traded on NASDAQ and NYSE	(1,399)
Less: companies making duplicate or repeated dismissal disclosures	(1,282)
Less: observations without financial data and AC compensation	(2,219)
Final sample for the analysis	1,087

Table I.

Sample selection procedure

Notes: All sample companies have complete data on Compustat and CRSP. Audit committee compensation data and other related information are obtained from companies' Form DEF 14A using the EDGAR

flows and is a better proxy for the auditors' ability to reduce accruals estimation errors (Srinidhi and Gul, 2007)[7].

3.2.2 *Measure of abnormal audit fees.* In alignment with previous research (Blankley et al., 2013; Choi et al., 2009; Ittonen et al., 2015; Srinidhi and Gul, 2007), I determine abnormal audit fees by regressing audit fees to a number of publicly available variables representing issues that would affect audit activities: complexity, audit risk, capital structure and firm characteristics. Building a model based on extant literature (Choi et al., 2009; Craswell et al., 1995; Dao et al., 2012; Ettredge et al., 2007; Higgs and Skantz, 2006)[8], I propose the following:

$$\begin{aligned} LnAFEE_{i,t} = & \alpha_0 + \alpha_1 LnASSET_{i,t} + \alpha_2 INVARECA_{i,t} + \alpha_3 FOREIGN_{i,t} \\ & + \alpha_4 NUMSEGA_{i,t} + \alpha_5 LOSS_{i,t} + \alpha_6 DEBTA_{i,t} + \alpha_7 OPINION_{i,t} \\ & + \alpha_8 QUICK_{i,t} + \alpha_9 ROA_{i,t} + \alpha_{10} EXDISC_{i,t} + \alpha_{11} BIGA_{i,t} + \alpha_{12} YE_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (AF)$$

The definitions of all variables are summarized in Table II.

Following most auditing studies (Blankley et al., 2012, 2013; Numana and Willekens, 2012; Picconi and Reynolds, 2013; Srinidhi and Gul, 2007), I use the natural log of audit fees (denoted by *LnAFEE*) as the dependent variable in equation (AF) because the natural log transforms the dependent variable. Using estimated coefficients of the variables, I estimate the values of audit fees and use them as "normal audit fees". I then measure abnormal audit fees (denoted by *ABAFEE*) by measuring the differences between actual audit fees and normal audit fees.

Picconi and Reynolds (2013) identify a number of issues that should be considered when developing and explaining the results of audit fee models. Their estimation model has high explanatory power (approximately 75-82 per cent) and was generated using a pooled sample. Therefore, I adopt the control variable used by Picconi and Reynolds (2013). The demand for audit services is likely to increase with firm size (Picconi and Reynolds, 2013; Choi et al. 2009; Simunic 1980), and I therefore include the natural log of total assets (denoted by *LnASSET*) to control for firm size. Audit fees are more likely to be higher in more complex businesses (Dao et al., 2012; Hay et al., 2006). Following previous studies (Ashbaugh-Skaife et al., 2008; Ittonen et al., 2013), companies with more inventory experience a greater impact on reported earnings. I therefore include the variables *INVARECA*, *FOREIGN* and *NUMSEGS* to proxy for client complexity. *INVARECA* is measured by the sum of inventories and receivables divided by total assets. *FOREIGN* is a dummy variable that equals 1 if foreign sale of the company is positive in year *t*, and 0 otherwise. *NUMSEGS* is measured by the number of business segments. Because auditors charge higher fees for clients with additional risk (Hoffman and Nagy, 2016; Craswell et al., 1995; Hay et al., 2006), the variables *LOSS*, *DEBTA*, *OPINION* and *QUICK* are used to proxy for risk characteristics. *LOSS* is an indicator variable that is equal to 1 if operating income is less than 0 in year *t*, and 0 otherwise. *DEBTA* is measured by total debt divided by total assets. *OPINION* is an indicator variable defined as 1 if the company received an adverse opinion because of material weaknesses in internal controls during the year, and 0 otherwise. *QUICK* is the quick ratio. In addition, following Picconi and Reynolds (2013) and Hoffman and Nagy (2016), I also control for firm performance and return on assets (denoted by *ROA*) and report any extraordinary or discontinued items (denoted by *EXDISC*). Prior studies showed that Big 4 auditors exhibit a fee premium in comparison with their smaller competitors (Gonthier-

Table II.
Variable definitions

Variables	Pred. sign	Definitions
<i>Dependent variables</i>		
ACCQUAL		The accruals estimation errors measured by the absolute value of the residuals estimated in equation (ACQ)
ABAFEE		The differences between actual audit fee and predicted audit fees
<i>Variables for abnormal audit fees estimation</i>		
LnAFEE		Natural log of external audit fee
LnASSET	+	Natural log of total assets at end of year t
INVARECA	+	The sum of inventories and receivables divided by total assets (Compustat (RECT + INVT)/AT)
FOREIGN	+	Dummy variable that equals 1 if foreign sale of company is positive in year t and 0 otherwise
NUMSEGS	+	The number of business segments
LOSS	+	An indicator variable that is equal to 1 if operating income is less than 0 in year t and 0 otherwise
DEBTA	+	Total debt divided by total assets
OPINION	+	An indicator variable that is equal to 1 if the company received an adverse opinion due to material weaknesses in internal controls during the year, and 0 otherwise (from audit analytics)
QUICK	+	Quick ratio (Compustat (ACT - INVT)/LCT)
ROA	-	Return on assets, defined as net income before extraordinary items divided by total assets
EXDISC	+	An indicator variable that is equal to 1 if the company reported any extraordinary or discontinued items for the year, and 0 otherwise (based on Compustat XI > 0)
BIG4	+	An indicator variable that is equal to 1 when a firm is audited by Big 4 auditors and 0 otherwise
YE	+	An indicator variable that is equal to 1 if the fiscal year of companies ends between December and March and 0 otherwise
<i>Variables for first-stage model (auditor dismissal)*</i>		
DISMISSAL		An indicator variable that is equal to 1 if a company dismisses its auditor in year t and 0 otherwise
MB	+	Market value to book value of equity
LEVERAGE	+	Total debt divided by total equity
INDSHARE	+	Auditor's market share in the client's industry, based on the percentage of the square root of total assets that the auditor audits for all companies in the client's industry
M & A	+	An indicator variable that equals 1 if there was an acquisition during the misstated period, otherwise 0

(continued)

Variables	Pred. sign	Definitions
<i>Control variables for second-stage model (accruals quality and abnormal audit fees)*</i>		
<i>ICW</i>		An indicator variable that is equal to 1 if companies report ICWs in year t and 0 otherwise
<i>OPCYCLE</i>	+	Operating cycle for the firm, measured by $360/(\text{sales}/\text{average account receivables})+360/(\text{cost of goods sold}/\text{average inventory})$
<i>SALESVLT</i>	+	Volatility in sales revenue (in millions) measured by the standard deviation in quarterly sales for 20 quarters prior to year t
<i>EXPERTISE</i>	-	An indicator variable that equals 1 if the successor (or incumbent) auditor is an industry expert, and 0 otherwise. I use the classification in Hogan and Jeter (1999)
<i>OVERVALUED</i>	+	Each firm's extent of equity overvaluation, measured by its annual abnormal return in year t
<i>Auditor change variables</i>		
<i>NTOB4</i>		An indicator variable that equals 1 if a company with a non-Big 4 auditor switched to Big 4 and 0 otherwise
<i>BATON</i>		An indicator variable that equals 1 if a company with a Big 4 auditor switched to a non-Big 4 and 0 otherwise
<i>NWINB4</i>		An indicator variable that equals 1 if a company with a non-Big 4 auditor switched to a non-Big 4 and 0 otherwise
<i>AC characteristics and compensation</i>		
<i>ACSIZE</i>	-	Number of AC members
<i>MEETING</i>	-	Number of annual AC meetings
<i>ACCEXPT</i>	-	Ratio of the number of AC members who are CPA or have accounting-related experience to AC size
<i>CASHCOM</i>	-	Annual cash payments to AC (measured by the natural log of amounts)
<i>EQUITYCOM</i>	+	Annual equity-based compensation to audit committee, including common stocks, restricted stocks, deferred stock units, phantom stock units, and short-term and long-term options (measured by the natural log of amounts)

Note: * The same as the above definition is not repeated

Table II.

Audit
committee
quality

Besacier and Schatt, 2007). I include Big 4 to capture the effect of audit quality differentiation on audit fees (Choi *et al.*, 2008, 2009). McMeeking *et al.* (2006) suggest companies audited during the “busy” period may be charged higher audit fees because of the higher cost of the auditing process. I thus use a dummy variable (*YE*), which equals 1 if the company’s fiscal year ends between December and March, and 0 otherwise.

3.3 Heckman’s two-stage estimation and regression model

3.3.1 *First-stage model – dismissal companies.* The factors that influence a company’s auditor switch decisions might also be endogenously associated with financial reporting quality and company characteristics (Calderon and Ofobike, 2007; Cahan and Zhang, 2006; Kim *et al.*, 2003). To partly mitigate this concern, Heckman *et al.*’s (1997) two-stage estimation procedure is adopted to control for self-selection bias. In the first stage, I estimate the following probit model of auditor changes:

$$\begin{aligned} DISMISSAL_{i,t} = & \alpha_0 + \alpha_1 LnASSET_{i,t} + \alpha_2 MB_{i,t} + \alpha_3 LEVERAGE_{i,t} + \alpha_4 LOSS_{i,t} \\ & + \alpha_5 INDSHARE_{i,t} + \alpha_6 M\&A_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (DS)$$

The definitions of all of the variables are summarized in Table II.

In estimating equation (DS), the dependent variable, *DISMISSAL*, is a dummy variable that equals 1 if companies change auditors during the sample period (i.e. client-initiated auditor changes), and 0 otherwise. I rely on prior auditor change research (Krishnan and Krishnan, 1997; Shu, 2000; Ettredge *et al.*, 2007; Cenker and Nagy, 2008) to determine adequate control variables. I control for firm size (denoted by *LnASSET*), market-to-book ratio (denoted by *MB*), total debt divided by total equity (denoted by *LEVERAGE*), financial condition (denoted by *LOSS*), industry shares (denoted by *INDSHARE*) and mergers and acquisitions (denoted by *M & A*) (Chow and Rice, 1982; Hoffman and Nagy, 2016; Landsman *et al.*, 2009; Schwartz and Menon, 1985).

3.3.2 *Second-stage model (I) – accruals quality.* I use the following regression model to examine the effects of incentive-based compensation on accruals quality:

$$\begin{aligned} ACCQUAL_{i,t} = & \alpha_0 + \alpha_1 CASHCOM_{i,t} + \alpha_2 EQUITYCOM_{i,t} + \alpha_3 NTOB_{i,t} + \alpha_4 BATON \\ & + \alpha_5 NWINB_{i,t} + \alpha_6 LnASSET_{i,t} + \alpha_7 LOSS_{i,t} + \alpha_8 ICW_{i,t} \\ & + \alpha_9 OPCYCLE_{i,t} + \alpha_{10} SALESVLT_{i,t} + \alpha_{11} EXPERTISE_{i,t} \\ & + \alpha_{12} ACSIZE_{i,t} + \alpha_{13} MEETING_{i,t} + \alpha_{14} ACCEXPT_{i,t} + \alpha_{15} Lambda_{i,t} \\ & + \varepsilon_{i,t} \end{aligned} \quad (M1)$$

The definitions of all of variables are summarized in Table II.

I use the absolute value of estimation errors in equation (ACQ) as a dependent variable. Higher accruals estimation errors imply weaker AC oversight effectiveness.

3.3.2.1 *Audit committee compensation.* Two variables, *CASHCOM* and *EQUITYCOM*, are included in equation (M1)[9]. Compensation variables are calculated by the natural log of the original amount of total compensation. Based on the hypothesis, I expect a positive association between accruals estimation errors and AC incentive-based compensation.

3.3.2.2 Auditor dismissal types. Following previous literature related to auditor switches (Ahmed, 2010; Craswell and Francis, 1999), the Four distinct types of auditor dismissals include the following: changes within Big 4 firms, changes within non-Big 4 firms, switches from non-Big 4 to Big 4 firms and switches from Big 4 to non-Big 4 firms. I adopt three dummy variables denoted by *NTOB4*, *B4TON* and *NWINB4* to represent changes from non-Big 4 to Big 4 firms, from Big 4 to non-Big 4 firms and within non-Big 4 auditors, respectively. Carcello and Neal (2003) suggest a potential problem: that the stock ownership of AC members affects companies' auditor choice. However, they do not provide evidence concerning the case of auditor switches. The diversity of auditor switches and AC quality potentially causes different effects on accruals quality. To address this issue, I include six interactions, compensation type variables and auditor change variables in equation (M1).

3.3.2.3 Control variables. The estimation error in accruals decreases with firm size (Kaszniak, 1999). Accordingly, I control for firm size (denoted by *LnASSET*) and financial performance (denoted by *LOSS*) in the model. ICWs are generally associated with poor accruals quality (Doyle et al., 2007). Raghunandan and Rama (2006) have also reported an 86 per cent increase in mean audit fees for companies that filed Section 404 reports for the fiscal year 2004, and thus I added a variable related to internal control quality (denoted by *ICW*). In addition, following Srinidhi and Gul (2007), I control for operating cycles (denoted by *OPCYCLE*) and sales volatility (denoted by *SALESVLT*) because longer operating cycles and greater volatility in the operating environment are generally associated with higher estimation errors (Dechow and Dichev, 2002). Furthermore, high-quality auditors improve the earnings quality (Craswell et al., 1995), leading to decreased estimation errors in accruals. Accordingly, I use industry expertise (denoted by *EXPERTISE*) to proxy for audit quality.

I include the number of AC members (denoted by *ACSIZE*) and the number of yearly AC meetings (denoted by *MEETING*) in the model (Barua et al., 2010; Chen and Zhou, 2007; Cohen et al., 2014; Engel et al., 2010; Goh, 2009; Krishnan, 2005; Raghunandan and Rama, 2007). For companies with more active ACs, Abbott and Parker (2004) state evidence of higher financial reporting quality, and thus, I expect the AC size and number of meetings per year to be negatively associated with accruals estimation errors. Prior research empirically shows that accounting expertise is associated with stronger AC oversight effectiveness (Carcello et al., 2011b; Dhaliwal et al., 2010; Hoitash et al., 2009; Krishnan and Visvanathan, 2008). I include an AC expertise variable, *ACCEXPT*, in the model. In accordance with DeFond et al. (2005), I consider accounting and financial expertise to refer to member who has experience as a public accountant, auditor, chief financial officer, controller or chief accounting officer.

3.3.3 Second-stage model (III) – abnormal audit fees. I use equation (M2) to test the association between AC incentive-based compensation and abnormal audit fees.

$$\begin{aligned}
 ABAFEE_{i,t} = & \alpha_0 + \alpha_1 CASHCOM_{i,t} + \alpha_2 EQUITYCOM_{i,t} + \alpha_3 NTOB4_{i,t} + \alpha_4 BATON_{i,t} \\
 & + \alpha_5 NWINB4_{i,t} + \alpha_6 LnASSET_{i,t} + \alpha_7 EXPERTISE_{i,t} + \alpha_8 ICW_{i,t} \\
 & + \alpha_9 OVERVALUED_{i,t} + \alpha_{10} ACSIZE_{i,t} + \alpha_{11} MEETING_{i,t} \\
 & + \alpha_{12} ACCEXPT_{i,t} + \alpha_{13} Lambda_{i,t} + \varepsilon_{i,t}
 \end{aligned}
 \tag{M2}$$

The definitions of all variables are summarized in Table II.

I calculate abnormal audit fees by measuring the difference between actual and predicted (normal) audit fees. Normal audit fees are estimated by equation (AF). Because I do not predict if the anomaly is underpriced or overpriced, both positively and negatively abnormal audit fees are included in the regression model.

I include several control variables for other factors that affect the level of abnormal audit fees (Chen and Zhou, 2008, 2009). Previous studies suggest that auditor specialization is associated with fees premiums (Ittonen *et al.*, 2013), and the variable *EXPERTISE* is used to control for the effects of industry expertise. Prior research shows that audit fees are higher for clients with more risk because of increased engagement efforts for clients with significant ICW (Davis *et al.*, 1993; Johnstone and Bedard, 2001). I add the variable *ICW* to control for the effects of ICWs in the model. When companies are overvalued in the market (i.e. stock prices are higher than their underlying values), managers face strong pressure to meet increasingly unrealistic earnings targets (Houmes and Skantz, 2010; Jensen, 2005; Kothari *et al.*, 2006). I use the measure created by Kothari *et al.* (2006) to control for companies' overvalue (denoted by *OVERVALUED*). Other independent variables are the same as those in equation (M1). I expect a positive association between AC economic incentives (denoted by *EQUITYCOM*) and abnormal audit fees.

4. Empirical results

4.1 Descriptive statistics

Table III provides the descriptive statistics of the variables. The mean operating cycle (*OPCYCLE*) is 72.3654. The mean volatility in sales revenue (*SALESVLT*) is 0.0588. This distribution is consistent with previous research by Srinidhi and Gul (2007). I identify the AC members' expertise from their work experiences shown in proxy statements and collect supplementary information from *LexisNexis* database. The mean of *ACCEXPT* is 0.0940, implying that on average, 10 per cent of companies have financial "accounting" experts on

Variable ^a	Mean	Median	SD	Minimum	Maximum
<i>LnASSET</i>	17.4268	18.1023	2.4188	6.6530	20.1523
<i>LnAFEE</i>	11.2362	10.4525	1.6024	5.6762	15.8769
<i>LOSS</i>	0.2330	0.0000	0.4229	0.0000	1.0000
<i>MB</i>	6.8264	5.9567	22.4125	0.0153	7.0082
<i>DEBTA</i>	1.4796	0.3867	1.5992	0.0057	2.8736
<i>INDSHARE</i>	0.0028	0.0004	0.0095	0.0001	0.2893
<i>M & A</i>	0.0367	0.0000	0.1881	0.0000	1.0000
<i>ICW</i>	0.0351	0.0000	0.1089	0.0000	1.0000
<i>OPCYCLE</i>	72.3654	56.8459	19.4897	2.0759	725.3548
<i>SALESVLT</i>	0.0588	0.0516	1.5384	0.0112	0.3124
<i>LEADER</i>	0.3026	0.0000	0.3788	0.0000	1.0000
<i>OVERVALUED</i>	-0.0588	0.0198	1.5384	-0.0053	0.1425
<i>ACCQUAL</i>	2.5703	1.4851	2.7037	1.0837	2.7873
<i>ABAFEE</i>	0.0768	0.0713	2.6592	-0.0120	0.0958
<i>ACSIZE</i>	4.0893	4.0000	1.2085	1.0000	13.0000
<i>MEETING</i>	8.1003	8.0000	2.7199	3.0000	14.0000
<i>ACCEXPT</i>	0.0940	0.0000	0.1597	0.0000	1.0000
<i>CASHCOM</i>	5.2380	5.3344	0.5697	0.0000	5.8873
<i>EQUITYCOM</i>	4.3251	5.1250	2.9845	0.0000	5.6273

Table III.
Descriptive statistics
for main variables

Note: ^aThe definitions of the variables are shown in Table II

their AC. The mean of *ABAFEE* is 0.0768. On average, there are high abnormal audit fees in the sample companies.

I further analyze the distributions of auditor dismissals by year in [Table IV](#). [Table IV](#) reveals numerous companies switched from Big 4 to non-Big 4 auditors (341 of 1,087 companies) and within non-Big 4 firms (437 of 1,087 companies) between 2006 and 2014, particularly between 2006 and 2010. Switches from Big 4 to non-Big 4 auditors constitute 31.37 per cent of the sample. This distribution is consistent with [Asthana et al. \(2009\)](#), which shows a substantial shift in changes from Big 4 to non-Big 4 auditors following SOX. Overall, the distribution reflects companies switching from Big 4 to non-Big 4 auditors and within non-Big 4 firms, as indicated by these flows' larger numbers during the sample period. [Ahmed \(2010\)](#) presents a summary of all auditor changes between 2000 and 2006, and [Chang et al. \(2010\)](#) analyzed market responses to auditor switches between 2002 and 2006. I extend the prior research by using a research sample after 2006.

4.2 Regression results

4.2.1 The consequences of audit committee quality: no auditor changes effects. To test the consequences of AC quality completely, I analyze the [equations \(M1\)](#) and [\(M2\)](#) using full sample to regress the main dependent variables to AC quality variables. [Table V](#) reveals the results. Without considering auditor change types nor using any interactions in the regression model, I find that the coefficient of *CASHCOM* is not significant. The coefficient of *EQUITYCOM* is significantly positive when I use abnormal audit fees as the dependent variable. This result implies that AC incentive-based compensation is positively associated with abnormal audit fees but does not affect accruals quality. The possible reason is that AC has the responsibility to oversee the process of financial reporting through its authority to hire, evaluate and provide general oversight of the work of the independent auditors. I further analyze the consequences of AC quality when companies are involved in auditor switches to test the hypotheses.

4.2.2 The consequences of audit committee quality for dismissal companies

4.2.2.1 Accruals quality as the dependent variable. The effect of AC economic incentives on accruals quality for dismissal companies is shown in [Table VI](#). The first column provides the results of the Heckman first-stage model, which is the auditor change model (DS). Consistent with the univariate results and previous findings in auditor change research ([Carcello and Neal, 2003](#); [Geiger et al., 1998](#); [Hoffman and Nagy, 2016](#); [Woo and Koh, 2001](#)),

Year	All auditor dismissals	Switch from non-Big 4 to Big 4 auditors	Switch from Big 4 to non-Big 4	Switch within Big 4	Switch within non-Big 4
<i>The distribution of auditor dismissals by years and types</i>					
2006	140	9	47	29	55
2007	146	10	44	34	58
2008	133	10	42	26	55
2009	131	11	41	20	59
2010	110	6	33	18	53
2011	106	8	32	20	46
2012	101	10	29	25	37
2013	105	10	32	26	37
2014	115	9	41	28	37
Total number of auditor dismissals	1,087	83	341	226	437

Table IV.
Analysis of auditor dismissals

Variables ^a	ACCQUAL		ABAFEE	
	Coef.	<i>t</i> statistics	Coef.	<i>t</i> statistics
<i>INTERCEPT</i>	-1.952	-3.15***	-1.265	-1.89*
<i>CASHCOM</i>	0.214	1.06	0.178	1.08
<i>EQUITYCOM</i>	0.125	1.82*	0.115	1.26
<i>LnASSET</i>	-0.118	-1.95*	0.076	1.76*
<i>EXPERTISE</i>	-0.141	-1.03	0.196	1.16
<i>ICW</i>	0.197	1.86*	0.726	1.87*
<i>OVERVALUED</i>			0.039	1.92*
<i>ACSIZE</i>	-0.086	-1.05	-0.160	-1.50
<i>MEETING</i>	-0.152	-1.43	-0.109	-1.89*
<i>ACCEXPT</i>	-0.382	-1.79*	1.113	0.79
<i>LOSS</i>	0.512	2.20***		
<i>OPCYCLE</i>	-0.002	-1.15		
<i>SALESVLT</i>	0.120	2.42***		
<i>Fixed Effect</i>	Included		Included	
<i>N</i>	21,105		21,105	
<i>Adjusted R²</i>	0.1203		0.1512	

Table V.
The consequences of
AC quality – full
sample

Notes: ^aThe definitions of the variables are summarized in Table II; *, **, and *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively

companies that are smaller (*SIZE*), possess more debt (*DEBTA*) or engage in more merger and acquisition activities (*M & A*) are more likely to dismiss auditors. These findings are consistent with Ettredge *et al.* (2007).

The remaining columns of Table VI report the results of equation (M1). Without adding the interactions to the regression model, I find that the coefficient of *CASHCOM* is not significant, but the coefficient on *EQUITYCOM* is significantly positive ($p < 0.01$). This result implies that AC incentive-based compensation is positively associated with accruals estimation errors. *H1* is thus supported. The coefficients for *NTOB4*, *B4TON* and *NWINB4* are significantly negative ($p < 0.05$), which implies that auditor switches do not decrease accruals quality, even when non-Big 4 auditors are hired as successors.

The interactions between incentive-based compensation (*EQUITYCOM*) and non-Big 4 successors (*B4TON* and *NWINB4*, respectively) are the variables of interest. The coefficients on *CASHCOM* \times *B4TON* and *CASHCOM* \times *NWINB4* are significant and negative, $p \leq 0.10$ and $p \leq 0.01$, respectively. The coefficients on *EQUITYCOM* \times *B4TON* and *EQUITYCOM* \times *NWINB4* are positive and significant, $p \leq 0.05$ and $p \leq 0.10$, respectively. Overall, switching to non-Big 4 auditors led to a decrease in accruals quality only when AC compensation contained incentive-based compensation. The major finding was that accruals quality decreases only when companies simultaneously use incentive-based compensation for their ACs and select non-Big 4 auditors as successors. Overall, the empirical results suggest that, in addition to auditor changes decreasing accruals quality, AC incentive-based compensation actually has an adverse impact on accruals quality. These findings extend the work of Keune and Johnstone (2015) concerning the influence of economic incentives on AC oversight effectiveness.

I find that the coefficients on *LOSS* and *SALESVLT* are significantly positive ($p < 0.01$). As suggested by Srinidhi and Gul (2007), companies with low accruals quality have more operational losses and higher sales volatility. The coefficients on *ACSIZE* and *MEETING* are both negative but not statistically significant. One possible reason for the lack of

Variables ^a	Coef.	First-stage <i>DISMISS</i>		Second-stage <i>ACCQUAL</i>		
		<i>t</i> statistics	Coef.	<i>t</i> statistics	Coef.	<i>t</i> statistics
<i>INTERCEPT</i>	-2.181	-23.62***	2.047	2.92***	1.673	1.32
<i>LnASSET</i>	-0.214	-13.80***	-0.103	-1.93*	-0.102	-1.42
<i>LOSS</i>	0.052	0.51	0.625	3.48***	0.611	3.26***
<i>MB</i>	0.004	0.47				
<i>LEVERAGE</i>	0.489	9.52***				
<i>INDSHARE</i>	-3.481	-1.25				
<i>M & A</i>	2.182	8.42***				
<i>CASHCOM</i>			-0.173	-1.34	0.178	1.04
<i>EQUITYCOM</i>			0.158	3.69***	0.123	1.47
<i>NTOB4</i>			-1.079	-2.19**	1.026	0.75
<i>B4TON</i>			-0.426	-1.87*	0.146	0.87
<i>NWINB4</i>			-0.570	-2.20**	1.095	1.52
<i>CASHCOM</i> × <i>NTOB4</i>					-0.338	-1.43
<i>CASHCOM</i> × <i>B4TON</i>					-0.347	-1.86*
<i>CASHCOM</i> × <i>NWINB4</i>					-0.873	-2.92***
<i>EQUITYCOM</i> × <i>NTOB4</i>					-0.149	-0.77
<i>EQUITYCOM</i> × <i>B4TON</i>					0.141	2.47**
<i>EQUITYCOM</i> × <i>NWINB4</i>					0.108	1.88*
<i>ICW</i>			0.256	1.96	0.215	1.65
<i>OPCYCLE</i>			-0.010	-1.32	-0.012	-1.46
<i>SALESVLT</i>			0.118	2.14*	0.110	2.56**
<i>EXPERTISE</i>			-0.179	-0.89	-0.169	-1.03
<i>ACSIZE</i>			-0.034	-1.04	0.033	0.75
<i>MEETING</i>			-0.031	-1.37	-0.029	-1.57
<i>ACCEXPT</i>			-0.442	-1.80*	-0.403	-1.80*
<i>Lambda</i>			0.119	1.72*	0.126	1.96*
<i>Fixed Effect</i>			Included		Included	
<i>N</i>	32,253		1,087		1,087	
<i>Pseudo R2/R</i>	0.2483		0.1377		0.1743	
<i>LR chi2/F</i>	2418.69		6.34***		6.16***	

Notes: ^aThe definitions of the variables are summarized in Table II; *, **, and *** indicate two-tailed significance at the 0.10, 0.05 and 0.01 levels, respectively

Table VI.
The association
between AC quality
and accruals quality
for dismissal
companies

statistical significance may be that the association between AC quality and accruals quality is not direct. Larger and more diligent ACs might improve financial reporting quality by hiring high-quality auditors or implementing sound internal controls, although no direct relationship exists [10]. In accordance with Dhaliwal *et al.* (2010), whose study found a significant positive association between accounting expertise and accruals quality, I also find a significant coefficient on *ACC_EXPERT* in the sample ($p < 0.10$).

Lennox *et al.* (2012) suggest that using the Heckman model in accounting research should satisfy the following three requirements: variable exclusion restrictions, tests for multicollinearity and significance of inverse Mill's ratios. Because only two variables (i.e. *LnASSET* and *LOSS*) in the first stage model are also used in the second stage, I roughly meet the exclusion restrictions. Table VI demonstrates that all coefficients of *Lambda* are significant. In addition, the variance inflation factor for *Lambda* is 1.024, which suggests no multicollinearity bias between *Lambda* and independent variables in the second stage model.

4.2.2.2 Abnormal audit fees as the dependent variable. The association between AC economic incentives and abnormal audit fees for dismissal companies is shown in Table VII. Before considering the interactions, the positive coefficient on *EQUITYCOM* ($p < 0.01$) suggests that AC incentive-based compensation is positively associated with abnormal audit fees. It implies that companies with higher AC incentive-based compensation have higher overpayment of audit fees. The coefficients on *NTOB4* and *B4TON* are both insignificantly negative, implying that company auditor switches do not directly affect abnormal audit fees. Furthermore, the significantly positive coefficients on *EQUITYCOM* \times *B4TON* and *EQUITYCOM* \times *NWINB4* indicate that there is an overpayment of audit fees when ACs obtain higher economic incentives, particularly for companies selecting non-Big 4 auditors as successors. Another explanation is that companies dismissing their Big 4 auditors have to pay non-Big 4 auditors higher fees when their AC has incentive-based compensation. Overall, the findings related to abnormal audit fees appear to be consistent with the hypothesis.

Abnormal audit fees were associated with decreasing shares (*SHAREDECR*) and overvaluation in the market (*OVERVALUED*). Having a larger AC (*ACSIZE*) and more frequent meetings (*MEETING*) were shown to mitigate the incidence of overpayment of audit fees. This result extends the research of Chen and Zhou (2007), showing that more frequent AC meetings are associated with more extensive monitoring of auditor choice. Overall, the results support the prediction that incentive-based compensation affects

Variables ^a	ABAFEE			
	Coef.	<i>t</i> statistics	Coef.	<i>t</i> statistics
<i>INTERCEPT</i>	-2.186	-2.12**	-1.480	-1.45
<i>CASHCOM</i>	0.175	1.64	0.179	1.72*
<i>EQUITYCOM</i>	0.275	7.76***	0.121	1.76*
<i>NTOB4</i>	-2.112	-1.51	-2.157	-1.34
<i>B4TON</i>	-0.160	-0.86	-1.110	-1.15
<i>NWINB4</i>	0.580	0.90	-0.885	-1.08
<i>CASHCOM</i> \times <i>NTOB4</i>			0.086	0.96
<i>CASHCOM</i> \times <i>B4TON</i>			-0.134	-0.78
<i>CASHCOM</i> \times <i>NWINB4</i>			-0.110	-1.15
<i>EQUITYCOM</i> \times <i>NTOB4</i>			0.217	1.21
<i>EQUITYCOM</i> \times <i>B4TON</i>			0.186	1.81*
<i>EQUITYCOM</i> \times <i>NWINB4</i>			0.491	4.06***
<i>LnASSET</i>	-0.070	-1.90*	-0.088	-0.86
<i>EXPERTISE</i>	0.203	1.46	0.215	1.14
<i>ICW</i>	0.515	1.88*	0.823	1.87*
<i>OVERVALUED</i>	0.020	0.81	0.026	1.92*
<i>ACSIZE</i>	-0.182	-1.51	-0.170	-1.61
<i>MEETING</i>	-0.089	-1.52	-0.089	-1.89*
<i>ACCEXPT</i>	1.084	1.53	1.078	0.79
<i>Lambda</i>	-0.050	-0.86	-0.068	-1.74*
<i>Fixed Effect</i>	Included		Included	
<i>N</i>	1,087		1,087	
<i>Adjusted R</i> ²	0.4003		0.4109	
<i>F Statistics</i>	25.25***		21.64***	

Notes: ^aThe definitions of the variables are summarized in Table II; *, **, and *** indicate two-tailed significance at the 0.10, 0.05, and 0.01 levels, respectively

Table VII.
The association
between AC
compensation and
abnormal audit fees
for dismissal
companies

accruals quality and audit fee anomalies, especially when companies select non-Big 4 auditors as successors.

4.3 Additional tests

4.3.1 Propensity score matching technique. In the main analysis, to ensure that the expected correlation between AC compensation and auditor activities is not driven by the determinants of the voluntary auditor changes feature, I use Heckman's two-stage model to control this endogenous (self-selection) problem. In addition, I use an alternative methodology, propensity score matching, developed by Rosenbaum and Rubin (1983), to address the matched pair problem and assess hidden bias within a broader sample.

Based on Armstrong *et al.* (2010) and Lawrence *et al.* (2011), I use propensity score matching to control endogenous bias. First, I estimate a logistical propensity score model, which determines the probability that companies will dismiss auditors (i.e. the treatment), conditional on observable features of the contracting environment. The propensity score is estimated by including determinants for dismissing auditors, including the variables in model (CH). Second, the developed propensity score model is then used to calculate companies' probabilities of auditor changes. Specifically, I find matched companies by identifying the pairings that result from observations with the smallest propensity score differences (i.e. the most similar observed operational environments). I match each dismissal company to a non-change control company using propensity score matching. The coefficient on $EQUITYCOM \times BATON$ is significantly positive ($p < 0.01$, not tabulated) when re-running the models in Table VI. The findings on the consequence of AC quality were robust after controlling endogenous bias.

4.3.2 Test of audit committee tenure effect. Longer-tenured AC members demonstrate an enhanced ability to oversee the financial reporting process because effective monitoring is an internally acquired skill (Dhaliwal *et al.*, 2010). I re-estimate equation (M1) and add the variable *TENURE*, measured by the average number of years served by AC members as directors of companies. The only notable result of this analysis is that the variable *TENURE* is positively related to accruals quality ($p < 0.01$, not tabulated), which is consistent with the findings of Dhaliwal *et al.* (2010). The main findings do not change. The coefficients on *EQUITYCOM* are significantly positive ($p < 0.05$, not tabulated) when re-running equation (M1) in Table VI, and the coefficients on $EQUITYCOM \times BATON$ and $EQUITYCOM \times NWINB$ are still significantly positive ($p < 0.05$, not tabulated) when re-running equation (M1) in Table VI. The findings were robust after controlling for the AC members' tenure effects.

4.3.3 Alternative measures of audit committee quality. DeZoort *et al.* (2002) consider the fundamental determinants of AC effectiveness and indicate two important components of AC: independence and expertise. From the audit literature, there are other important measures of AC quality in addition to compensation (DeFond *et al.*, 2005). I further use "accounting expertise" to proxy for AC quality. When the ratio of accounting experts to the number of AC members is higher than the median, companies have an AC with more accounting knowledge and expertise. I re-ran the regression model to add the interactions between AC accounting expertise (*ACC_EXPERT*) and auditor changes variables (*NTOB4*, *BATON* and *NWINB4*) in the regression model. The coefficients of three interactions are insignificantly positive. This implies that different expertise in AC does not affect financial quality and abnormal audit fees after companies change auditors.

In addition to the various specifications tested above, I use additional sensitivity tests [11]. For reasons of brevity, the results of these tests are not tabulated. In conclusion, the different robustness tests provide the same conclusion as the tabulated results.

5. Conclusion

This study determined whether incentive-based compensation for ACs affects accruals quality and abnormal audit fees when companies employ a new auditor. The empirical results suggest that the negative effect of incentive-based compensation on accruals quality exists only for companies switching from Big 4 to non-Big 4 auditors or switching within non-Big 4 auditors. Incentive-based compensation for ACs is positively associated with abnormal audit fees only when companies switch from Big 4 to non-Big 4 auditors or switch within non-Big 4 auditors. Generally, based on client-initiated dismissals between 2006 and 2014, I find evidence that a negative relationship exists between incentive-based compensation and AC oversight effectiveness, primarily when companies switch to non-Big 4 auditors. The results are robust across a battery of sensitivity checks.

Many recent articles and the financial press have suggested that SOX has resulted in a structural change in the US audit industry (Ahmed, 2010), in particular regarding the switch from Big 4 to Non-Big 4 firms that occurred after SOX. I offer evidence concerning the influence of AC quality for companies changing auditors. The economic incentives of AC members may serve as a basis for future research on auditor changes. This study provides practical implications, and investors will be interested in the results of this paper when assessing AC quality. SOX and its associated regulations significantly expanded the oversight role of ACs [Bochner and Blake, 2008; Securities and Exchange Commission (SEC), 2003]. However, regulators did not establish restrictions on AC economic incentives. One of the important implications of this study is that AC compensation may affect members' independence when it is in the form of equity compensation.

I acknowledge several limitations in the analyses. First, although I use economic incentives as a proxy for AC quality, the question of whether economic incentives influence AC diligence is not answered. I focus on the amount of AC economic incentives but do not specifically classify the short- or long-term effects of incentive-based compensation. The quality of an internal audit is also not considered in the models. Second, Doogar *et al.* (2015) observe fee residual persistence across new and continuing engagements, and their findings indicate that fee residuals "largely consist of researcher-unobserved audit production costs." The study views fee residuals as audit fee anomalies but does not further extend Doogar *et al.*'s (2015) suggestion to justify the association between abnormal audit fees and audit quality. Third, I assume the audit market has only two components: Big 4 and non-Big 4 auditors. Recent research suggests classifications such as the second tier (e.g. BDO, RSM McGladrey and Grant Thornton), or other smaller accounting firms (Boone *et al.*, 2010) are not included in this study. The classification of auditor specialization at the local, regional or national level is also not considered in this study. Finally, the results are based only on auditor dismissal companies. I am restricted to examining the impact of AC economic incentives on accruals quality and abnormal audit fees in a sample of companies making auditor switches. Future studies should examine a larger and more representative sample of companies.

Notes

1. Previous studies used diverse terms for stock-option compensation. I use incentive-based compensation primarily according to Archambeault *et al.* (2008). "Economic incentives" in Keune and Johnstone (2015) refers to the same concept.
2. Prior studies traditionally called this type of auditor change "downward" or "downgrading". Recent and concurrent studies suggest the classification includes Big 4, second tier (medium size) and smaller audit firms (Boone *et al.*, 2010). Therefore, this study does not use downward-related terms but states the types of predecessor and successor auditors.

3. Using all auditor switches in the sample ignores the possibility that subsequent changes in financial reporting may differ between dismissals and resignations (Carver *et al.*, 2011).
4. For example, the Charter of the Audit Committee of the Coca-Cola Company in 2016 says the audit committee shall have the sole authority and responsibility to hire, evaluate and, where appropriate, replace independent auditors and shall be directly responsible for the appointment, retention, compensation and general oversight of the work of the independent auditors.
5. Previous academic research has been inclusive concerning the association between abnormal audit fees and audit quality (efforts). I do not establish whether audit fees reflect audit efforts or quality. Instead, I focus on whether AC quality has an impact on audit fee anomalies following auditor changes.
6. This study extends the research of Ettredge *et al.* (2007), which uses only a one-year sample in 2004.
7. The measure of accruals quality consists of unintentional errors and can control for the reversal effects of discretionary accruals. This measure is widely used in the related research (Doyle *et al.*, 2007; Dhaliwal *et al.*, 2010; Srinidhi and Gul, 2007).
8. A detailed review of the literature on audit fees can be seen in Hay *et al.* (2006).
9. I consider the annual compensation that firms paid, not the average compensation for AC members, because all variables in the model are based on the firm level.
10. Similarly, with respect to the number of meetings, other researchers found similar evidence with no association between the number of meetings, management conservatism (Krishnan and Visvanathan 2008) and earnings management (Bedard *et al.*, 2004).
11. I employ the following additional sensitivity tests: (1) further run the analysis to test signed abnormal audit fees (underpriced or overpriced); (2) begin the sample period in 2009 to exclude the confounding effect of an economic crisis in 2008; (3) use the ratio of abnormal fees to total audit fees to replace the amount of abnormal audit fees; (4) add company-level governance variables (i.e., board size, CEO and ownership) as controls; and (5) analyze companies with positive abnormal fees only.

References

- Abbott, L.J. and Parker, S. (2000), "Auditor selection and audit committee characteristics", *Auditing: A Journal of Practice & Theory*, Vol. 19 No. 2, pp. 47-68.
- Abbott, L.J. and Parker, S. (2004), "Audit committee characteristics and restatements", *Auditing: A Journal of Practice & Theory*, Vol. 23 No. 1, pp. 69-87.
- Ahmed, E. (2010), "Audit fee premium and auditor change: the effect of Sarbanes-Oxley act", *Managerial Auditing Journal*, Vol. 25 No. 2, pp. 102-121.
- Archambeault, D.S., Dezoort, F.T. and Hermanson, D.R. (2008), "Audit committee incentive compensation and accounting restatements", *Contemporary Accounting Research*, Vol. 25 No. 4, pp. 965-992.
- Armstrong, C.S., Jagolinzer, A.D. and Larcker, D.F. (2010), "Chief executive officer equity incentives and accounting irregularities", *Journal of Accounting Research*, Vol. 48 No. 2, pp. 225-271.
- Ashbaugh-Skaife, H., Collins, D.W., Kinney, W.R. and LaFond, R. (2008), "The effect of SOX internal control deficiencies and their remediation on accrual quality", *The Accounting Review*, Vol. 83 No. 1, pp. 217-250.
- Asthana, S., Balsam, S. and Kim, S. (2009), "The effect of Enron, Andersen, and Sarbanes-Oxley on the US market for audit service", *Accounting Research Journal*, Vol. 22 No. 1, pp. 4-26.

- Audoussset-Coulier, S. (2015), "Audit fees in a joint audit setting", *European Accounting Review*, Vol. 24 No. 2, pp. 347-377.
- Barrier, M. (2002), "The compensation balance", *Internal Auditor*, Vol. 59 No. 3, pp. 42-47.
- Barua, A., Rama, D.V. and Sharma, V. (2010), "Audit committee characteristics and investment in internal auditing", *Journal of Accounting and Public Policy*, Vol. 29 No. 5, pp. 503-513.
- Bédard, J., Chtourou, S.M. and Courteau, L. (2004), "The effect of audit committee expertise, independence, and activity on aggressive earnings management", *Auditing: A Journal of Practice & Theory*, Vol. 23 No. 2, pp. 13-35.
- Bierstaker, J.L., Cohen, J.R., DeZoort, F.T. and Hermanson, D.R. (2012), "Audit committee compensation, fairness, and the resolution of accounting disagreements", *Auditing: A Journal of Practice & Theory*, Vol. 31 No. 2, pp. 131-150.
- Blankley, A.I., Hurtt, D.N. and MacGregor, J.E. (2012), "Abnormal audit fees and restatements", *Auditing: A Journal of Practice & Theory*, Vol. 31 No. 1, pp. 79-96.
- Blankley, A.I., Hurtt, D.N. and MacGregor, J.E. (2013), "Evaluating the effect of abnormal audit fees on future restatements", *Current Issues in Auditing*, Vol. 7 No. 1, pp. 15-21.
- Bliss, M.A. (2011), "Does CEO duality constrain board independence? Some evidence from audit pricing", *Accounting & Finance*, Vol. 51 No. 2, pp. 361-380.
- Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees (1999), *Report and Recommendations of the Blue Ribbon Committee on Improving the Effectiveness of Corporate Audit Committees*, New York Stock Exchange and The National Association of Securities Dealers, New York, NY.
- Bochner, S.E. and Blake, R.C. (2008), "The earnings release: legal requirements and best practices", *Insights*, Vol. 22 No. 3, pp. 1-16.
- Boone, J.P., Khurana, I.K. and Raman, K.K. (2010), "Do the Big 4 and the second-tier firms provide audits of similar quality?", *Journal of Accounting and Public Policy*, Vol. 29 No. 4, pp. 330-352.
- Bruynseels, L. and Cardinaels, E. (2014), "The audit committee: management watchdog or personal friend of the CEO?", *The Accounting Review*, Vol. 89 No. 1, pp. 113-145.
- Cahan, S.F. and Zhang, W. (2006), "After enron: auditor conservatism and ex-Andersen clients", *The Accounting Review*, Vol. 81 No. 1, pp. 49-82.
- Calderon, T. and Ofobike, E. (2007), "Determinants of client-initiated and auditor-initiated auditor changes", *Managerial Auditing Journal*, Vol. 23 No. 1, pp. 4-25.
- Campbell, J.L., Hansen, J., Simon, C.A. and Smith, J.L. (2015), "Audit committee stock options and financial reporting quality after the Sarbanes-Oxley act of 2002", *Auditing: a Journal of Practice & Theory*, Vol. 34 No. 2, pp. 91-120.
- Carcello, J.V. and Neal, T.L. (2003), "Audit committee characteristics and auditor dismissals following 'new' going-concern reports", *The Accounting Review*, Vol. 78 No. 1, pp. 95-117.
- Carcello, J.V., Hermanson, D.R. and Neal, T.L. (2002), "Disclosures in audit committee charters and reports", *Accounting Horizons*, Vol. 16 No. 4, pp. 291-304.
- Carcello, J.V., Hermanson, D.R. and Ye, Z. (2011a), "Corporate governance research in accounting and auditing: insights, practice implications, and future research directions", *Auditing: a Journal of Practice & Theory*, Vol. 30 No. 3, pp. 1-31.
- Carcello, J.V., Neal, T.L., Palmrose, Z. and Scholz, S. (2011b), "CEO involvement in selecting board members, audit committee effectiveness, and restatements", *Contemporary Accounting Research*, Vol. 28 No. 2, pp. 396-430.
- Carver, B.T., Hollingsworth, C.W. and Stanley, J.D. (2011), "Recent auditor downgrade activity and changes in clients' discretionary accruals", *Auditing: a Journal of Practice and Theory*, Vol. 30 No. 3, pp. 33-58.

- Center, W. and Nagy, A. (2008), "Auditor resignations and auditor industry specialization", *Accounting Horizons*, Vol. 22 No. 3, pp. 279-295.
- Chang, H., Cheng, C.S.A. and Reichelt, K.J. (2010), "Market reaction to auditor switching from big 4 to third-tier small accounting firms", *Auditing: a Journal of Practice and Theory*, Vol. 29 No. 2, pp. 83-114.
- Chen, K. and Zhou, J. (2007), "Audit committee, board characteristics, and auditor switch decisions by Andersen's clients", *Contemporary Accounting Research*, Vol. 24 No. 4, pp. 1085-1117.
- Chen, K. and Zhou, J. (2008), "Audit pricing, legal liability regimes, and big 4 premiums: theory and cross-country evidence", *Contemporary Accounting Research*, Vol. 25 No. 2, pp. 55-100.
- Chen, K. and Zhou, J. (2009), "Cross-listing audit fee premiums: theory and evidence", *The Accounting Review*, Vol. 84 No. 5, pp. 1429-1463.
- Choi, J.H., Kim, J.B., Liu, X. and Simunic, D.A. (2008), "Audit pricing, legal liability regimes, and big 4 premiums: theory and cross-country evidence", *Contemporary Accounting Research*, Vol. 25 No. 1, pp. 55-99.
- Choi, J.H., Kim, J.B., Liu, X. and Simunic, D.A. (2009), "Cross-listing audit fee premiums: theory and evidence", *The Accounting Review*, Vol. 84 No. 5, pp. 1429-1463.
- Chow, C. and Rice, S. (1982), "Qualified audit opinions and auditor switching", *The Accounting Review*, Vol. 57 No. 2, pp. 326-335.
- Cohen, J.R., Hoitash, U., Krishnamoorthy, G. and Wright, A.M. (2014), "The effect of audit committee industry expertise on monitoring the financial reporting process", *Accounting Review*, Vol. 89 No. 1, pp. 243-273.
- Craswell, A.T. and Francis, J.R. (1999), "Pricing initial audit engagements: a test of competing theories", *The Accounting Review*, Vol. 74 No. 2, pp. 201-216.
- Craswell, A.T., Francis, J.R. and Taylor, S.L. (1995), "Auditor brand name reputations and industry specializations", *Journal of Accounting and Economics*, Vol. 20 No. 3, pp. 297-322.
- Cullinan, C.P., Du, H. and Jiang, W. (2010), "Is compensating audit committee members with stock options associated with the likelihood of internal control weaknesses?", *International Journal of Auditing*, Vol. 14 No. 3, pp. 256-273.
- Dao, M., Raghunandan, K. and Rama, D.V. (2012), "Shareholder voting on auditor selection, audit fees, and audit quality", *The Accounting Review*, Vol. 87 No. 1, pp. 149-171.
- Datar, S., Feltham, G. and Hughes, J. (1991), "The role of audits and audit quality in valuing new issues", *Journal of Accounting and Economics*, Vol. 14 No. 1, pp. 3-49.
- Davis, L., Ricchuitte, D. and Trompeter, G. (1993), "Audit effort, audit fees, and the provision of non audit services to audit clients", *The Accounting Review*, Vol. 68, pp. 135-150.
- Dechow, P.M. and Dichev, I.D. (2002), "The quality of accruals and earnings: the role of accrual estimation errors", *The Accounting Review*, Vol. 77 No. 1, pp. 35-59.
- DeFond, M.L., Hann, R.N. and Hu, X. (2005), "Does the market value financial expertise on audit committees of boards of directors?", *Journal of Accounting Research*, Vol. 43 No. 2, pp. 153-193.
- DeZoort, F.T., Hermanson, D.R., Archambeault, D. and Reed, S. (2002), "Audit committee effectiveness: a synthesis of the empirical audit committee literature", *Journal of Accounting Literature*, Vol. 21, pp. 38-75.
- Dhaliwal, D., Naiker, V. and Navissi, F. (2010), "The association between accruals quality and the characteristics of accounting experts and mix of expertise on audit committees", *Contemporary Accounting Research*, Vol. 27 No. 3, pp. 787-827.
- Doogar, R., Sivadasan, P. and Solomon, I. (2015), "Audit fee residuals: costs or rents?", *Review of Accounting Studies*, Vol. 20 No. 4, pp. 1247-1286.
- Doyle, J.T., Ge, W. and McVay, S. (2007), "Accruals quality and internal control over financial reporting", *The Accounting Review*, Vol. 82 No. 5, pp. 1141-1170.

- Engel, E., Hayes, R.M. and Wang, X. (2010), "Audit committee compensation and the demand for monitoring of the financial reporting process", *Journal of Accounting & Economics*, Vol. 49 Nos 1/2, pp. 136-154.
- Ettredge, M.L., Scholz, S. and Li, C. (2007), "Audit fees and auditor dismissals in the Sarbanes-Oxley era", *Accounting Horizons*, Vol. 21 No. 4, pp. 371-386.
- Financial Reporting Council (FRC) (2003), *Combined Code on Corporate Governance*, Financial Reporting Council, London.
- Francis, J., LaFond, R., Olsson, P. and Schipper, K. (2005), "The market pricing of accruals quality", *Journal of Accounting and Economics*, Vol. 39 No. 2, pp. 295-327.
- Geiger, M., Raghunandan, K. and Rama, D.V. (1998), "Costs associated with going-concern modified audit opinions: an analysis of auditor changes, subsequent opinions, and client failures", *Advances in Accounting*, Vol. 16, pp. 117-139.
- Gendron, Y., Be'dard, J. and Gosselin, M. (2004), "Getting inside the black box: a field study of practices in 'effective' audit committees", *Auditing: A Journal of Practice & Theory: March*, Vol. 23 No. 1, pp. 153-171.
- Glass, Lewis & Co. (2005), *Yellow Card Trend Alert: Auditor Turnover Trend Gains Momentum in 2004*, Glass, Lewis & Co., New York, NY.
- Goh, B.W. (2009), "Audit committees, boards of directors, and remediation of material weaknesses in internal control", *Contemporary Accounting Research*, Vol. 26 No. 2, pp. 549-579.
- Gonthier-Besacrier, N. and Schatt, A. (2007), "Determinants of audit fees for French quoted firms", *Managerial Auditing Journal*, Vol. 22 No. 2, pp. 139-160.
- Goodwin-Stewart, J. and Kent, P. (2006), "Relation between external audit fees, audit committee characteristics and internal audit", *Accounting and Finance*, Vol. 46 No. 3, pp. 387-404.
- Griffin, P.A., Lont, D.H. and Sun, Y. (2008), "Corporate governance and audit fees: evidence of countervailing relations", *Journal of Contemporary Accounting and Economics*, Vol. 4 No. 1, pp. 18-49.
- Grothe, M. and Weirich, T.R. (2007), "Analyzing auditor changes", *CPA Journal*, Vol. 77 No. 12, pp. 14-23.
- Hackenbrack, K.E. and Hogan, C.E. (2005), "Client retention and engagement-level pricing", *Auditing: a Journal of Practice & Theory*, Vol. 24 No. 1, pp. 7-20.
- Harjoto, M.A., Laksmana, I. and Lee, R. (2015), "The impact of demographic characteristics of CEOs and directors on audit fees and audit delay", *Managerial Auditing Journal*, Vol. 30 Nos 8/9, pp. 963-997.
- Hay, D.C., Knechel, W.R. and Wong, N. (2006), "Audit fees: a meta-analysis of the effect of supply and demand attributes", *Contemporary Accounting Research*, Vol. 23 No. 1, pp. 141-191.
- Heckman, J.J., Ichimura, H. and Todd, P.E. (1997), "Matching as an econometric evaluation estimator: evidence from evaluating a job training programme", *The Review of Economic Studies*, Vol. 64 No. 4, pp. 605-654.
- Higgs, J.L. and Skantz, T.R. (2006), "Audit and nonaudit fees and the market's reaction to earnings announcements", *Auditing: A Journal of Practice & Theory*, Vol. 25 No. 1, pp. 1-26.
- Hoffman, B.W. and Nagy, A.L. (2016), "SOX 404(b) exemption effects on auditor changes", *Managerial Auditing Journal*, Vol. 31 Nos 4/5, pp. 387-402.
- Hogan, C.E. and Jeter, D.C. (1999), "Industry specialization by auditors", *Auditing: A Journal of Practice & Theory*, Vol. 18 No. 1, pp. 1-17.
- Hoitash, U., Hoitash, R. and Bedard, J.C. (2009), "Corporate governance and internal control over financial reporting: a comparison of regulatory regimes", *The Accounting Review*, Vol. 84 No. 3, pp. 839-867.
- Houmes, R.E. and Skantz, T.R. (2010), "Highly valued equity and discretionary accruals", *Journal of Business Finance & Accounting*, Vol. 37 Nos 1/2, pp. 60-92.

- Hribar, P., Kravet, T. and Wilson, R. (2014), "A new measure of accounting quality", *Review of Accounting Studies*, Vol. 19 No. 1, pp. 506-538.
- Huang, T., Huang, H. and Lee, C. (2014), "Corporate executive's gender and audit fees", *Managerial Auditing Journal*, Vol. 29 No. 6, pp. 527-547.
- Ittonen, K., Vahamaa, E. and Vahamaa, S. (2013), "Female auditors and accruals quality", *Accounting Horizons*, Vol. 27 No. 2, pp. 205-228.
- Ittonen, K., Johnstone, K. and Myllymäki, E.R. (2015), "Audit partner public-client specialization and client abnormal accruals", *European Accounting Review*, Vol. 24 No. 3, pp. 607-633.
- Jensen, M.C. (2005), "Agency costs of overvalued equity", *Financial Management*, Vol. 34 No. 1, pp. 5-19.
- Johnstone, K. and Bedard, J. (2001), "Engagement planning, bid pricing, and client response in the market for initial attest engagements", *The Accounting Review*, Vol. 76 No. 2, pp. 199-220.
- Kaszniak, R. (1999), "On the association between voluntary disclosure and earnings management", *Journal of Accounting Research*, Vol. 37 No. 1, pp. 57-81.
- Keune, M.B. and Johnstone, K.M. (2015), "Audit committee incentives and the resolution of detected misstatements", *Auditing: a Journal of Practice & Theory*, Vol. 34 No. 4, pp. 109-137.
- Kim, J., Chung, R. and Firth, M. (2003), "Auditor conservatism, asymmetric monitoring, and earnings management", *Contemporary Accounting Research*, Vol. 20 No. 2, pp. 323-359.
- Klein, A. (2002a), "Audit committee, board of director characteristics, and earnings management", *Journal of Accounting and Economics*, Vol. 33 No. 3, pp. 375-400.
- Kothari, S.P., Loutskina, E. and Nikolaev, V. (2006), "Agency theory of overvalued equity as an explanation for the accrual anomaly", Working paper, Tilburg University.
- Krishnan, G.V. and Visvanathan, G. (2008), "Does the sox definition of an accounting expert matter? The association between audit committee directors' accounting expertise and accounting conservatism", *Contemporary Accounting Research*, Vol. 25 No. 3, pp. 827-858.
- Krishnan, J. (2005), "Audit committee quality and internal control: an empirical analysis", *The Accounting Review*, Vol. 80 No. 2, pp. 649-675.
- Krishnan, J. and Krishnan, J. (1997), "Litigation risk and auditor resignations", *The Accounting Review*, Vol. 72 No. 4, pp. 539-560.
- Krishnan, J., Krishnan, J. and Stephens, R. (1996), "The simultaneous relation between auditor switching and audit opinion: an empirical analysis", *Accounting and Business Research*, Vol. 26 No. 3, pp. 223-236.
- Lander, G.P. (2004), *What Is Sarbanes-Oxley?*, McGraw-Hill, Boston, MA.
- Landsman, W.R., Nelson, K.K. and Rountree, B.R. (2009), "An empirical analysis of big N auditor switches: evidence from the pre- and post-Enron eras", *The Accounting Review*, Vol. 84 No. 2, pp. 531-558.
- Lawrence, A., Minutti-Meza, M. and Zhang, P. (2011), "Can big 4 versus non-big 4 differences in audit-quality proxies be attributed to client characteristics?", *The Accounting Review*, Vol. 86 No. 1, pp. 259-286.
- Lennox, C. and Park, C. (2007), "Audit firm appointments, audit firm alumni, and audit committee independence", *Contemporary Accounting Research*, Vol. 24 No. 1, pp. 235-258.
- Lennox, C.S., Francis, J.R. and Wang, Z. (2012), "Selection models in accounting research", *The Accounting Review*, Vol. 87 No. 2, pp. 589-616.
- McMeeking, K., Peasnell, K. and Pope, P.F. (2006), "The determinants of the UK big firms premium", *Accounting and Business Research*, Vol. 36 No. 3, pp. 207-231.
- Magilke, M.J., Mayhew, B.W. and Pike, J.E. (2009), "Are independent audit committee members objective? Experimental evidence", *Accounting Review*, Vol. 84 No. 6, pp. 1959-1981.
- Numana, W. and Willekens, M. (2012), "An empirical test of spatial competition in the audit market", *Journal of Accounting and Economics*, Vol. 53 Nos 1/2, pp. 450-465.

- Persellin, J.S. (2013), "The influence of PCAOB inspections on audit committee members' judgments", *Behavioral Research in Accounting*, Vol. 25 No. 2, pp. 97-114.
- Picconi, M. and Reynolds, J.K. (2013), "Audit fee theory and estimation: a consideration of the logarithmic audit fee model", Working Paper, College of William and Mary and Florida State University.
- Raghunandan, K. and Rama, D. (2006), "SOX section 404 material weakness disclosures and audit fees", *Auditing: A Journal of Practice & Theory*, Vol. 25 No. 1, pp. 99-114.
- Raghunandan, K. and Rama, D. (2007), "Determinants of audit committee diligence", *Accounting Horizons*, Vol. 21 No. 3, pp. 265-297.
- Rosenbaum, P.R. and Rubin, D.B. (1983), "The Central role of the propensity score in observational studies for causal effects", *Biometrika*, Vol. 70 No. 1, pp. 41-55.
- Schwartz, K.B. and Menon, K. (1985), "Auditor switches by failing firms", *The Accounting Review*, Vol. 60 No. 2, pp. 248-261.
- Securities and Exchange Commission (SEC) (2003), *17 CFR Parts 228, 299, 240, 249, and 274. Standards Relating to Listed Company Audit Committees*, SEC, Washington, DC.
- Shu, S.Z. (2000), "Auditor resignations: clientele effects and legal liability", *Journal of Accounting and Economics*, Vol. 29 No. 2, pp. 173-205.
- Simunic, D.A. (1980), "The pricing of audit services: theory and evidence", *Journal of Accounting Research*, Vol. 18 No. 1, pp. 161-190.
- Soltani, B. (2007), *Auditing: An International Approach*, Pearson Education, Essex.
- Srinidhi, B. and Gul, F. (2007), "The differential effects of auditors' nonaudit and audit fees on accrual quality", *Contemporary Accounting Research*, Vol. 24 No. 2, pp. 595-629.
- Taub, S. (2004), "Big Four seen shedding small clients", available at: CFO.com (accessed 21 September).
- Vafeas, N. and Waeglein, J.F. (2007), "The association between audit committees, compensation incentives, and corporate audit fees", *Review of Quantitative Finance and Accounting*, Vol. 28 No. 3, pp. 241-255.
- Woo, E. and Koh, H.C. (2001), "Factors associated with auditor changes: a Singapore study", *Accounting and Business Research*, Vol. 31 No. 2, pp. 133-144.

Appendix. Examples of auditor changes disclosure in firms' 8-K form statement example: AK steel corporation (Oct 3, 2012)

Item 4.01 changes in registrant's certifying accountant

(a), (b) The Audit Committee of AK Steel Holding Corporation (the "Company") recently completed a competitive process to determine what audit firm would serve as the Company's independent registered public accounting firm for the year ended December 31, 2012. On October 3, 2012 the Audit Committee determined to dismiss Deloitte & Touche LLP (D&T) as the Company's independent registered public accounting firm effective immediately following the Company's filing of its Quarterly Report on Form 10-Q for the quarter ending September 30, 2012 ("Third Quarter 10-Q"). D&T was chosen, however, to continue to provide services to the Company with respect to tax-planning and compliance services.

The reports of D&T on the Company's consolidated financial statements as of and for the years ended December 31, 2011 and 2010, did not contain an adverse opinion or a disclaimer of opinion, and were not qualified or modified as to uncertainty, audit scope or accounting principles.

During the years ended December 31, 2011 and 2010, and through October 3, 2012, there were no (a) disagreements with D&T on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements, if not resolved to D&T's

satisfaction, would have caused D&T to make reference to the subject matter thereof in connection with its reports for such years; or (b) reportable events, as described under Item 304(a)(1)(v) of Regulation S-K.

The Company provided D&T with a copy of the disclosures it is making in this Current Report on Form 8-K and requested from D&T a letter addressed to the Securities and Exchange Commission indicating whether it agrees with such disclosures. A copy of D&T's letter dated October 5, 2012 is attached as Exhibit 16.1.

Contemporaneous with the determination to dismiss D&T, the Audit Committee engaged Ernst & Young LLP as the Company's independent registered public accounting firm for the year ended December 31, 2012, also to be effective immediately following the filing of the Company's Third Quarter 10-Q.

During the years ended December 31, 2011 and 2010, and the subsequent interim period through October 3, 2012, the Company did not consult with Ernst & Young LLP regarding any of the matters or events set forth in Item 304(a)(2) of Regulation S-K.

About the author

Yu-Chun Lin is an Associate Professor of Department of Finance, Shih Hsin University. She completed her PhD at Institute of Accounting, National Chengchi University. Her research areas include CEO compensation, auditor changes, audit fees and audit committees. Her research papers have been published in *Corporate Governance: An International Review*, *Investment Management and Financial Innovation*, *International Research Journal of Finance and Economics* and international conferences. Yu-Chun Lin can be contacted at: tifny@cc.shu.edu.tw

For instructions on how to order reprints of this article, please visit our website:

www.emeraldgrouppublishing.com/licensing/reprints.htm

Or contact us for further details: permissions@emeraldinsight.com