

Audit Committee-Auditor Interlocking, Auditor Turnover and Audit Quality

Yangyang Fan

Katz Graduate School of Business

University of Pittsburgh

October 2015

Abstract

This study examines whether interlocks between auditors and audit committee members (AC-auditor interlocking) affect the likelihood of auditor dismissal when there is a financial restatement and how an auditor dismissal affects the subsequent audit quality for interlocking companies. Empirical evidence shows that companies are less likely to dismiss their auditors after the restatements occur if at least one of their audit committee members works on the audit committee of another company that is audited by the same audit firm. Further evidence suggests that auditor dismissals following accounting restatements positively affect audit quality of the companies with AC-auditor interlocking, indicating that not dismissing auditors following restatement potentially damages companies' audit quality. These findings raise concerns about the audit committee's role in auditor termination when audit quality is relatively low and suggest that AC-Auditor interlocking may impair future audit quality by failing to replace the incumbent auditors.

Key words: Audit committee, interlock, auditor dismissal, audit quality

*This paper is based on my dissertation at the University of Pittsburgh, Katz Graduate School of Business. I thank my dissertation chair, Chan Li, for her guidance and mentorship. I also greatly appreciate the support of my other committee members, John Harry Evans III, Mei Feng, Josh Gunn and Kannan Raghunandan.

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1. Introduction

To minimize the dependence of external auditors on their client companies, Section 301 of the Sarbanes Oxley Act (SOX) requires the audit committee, which is composed of fully independent directors, to oversee the external audit relationship, including auditor appointment, fee approval, and monitoring of the auditor's performance. Although the benefits and drawbacks of connections between client managers and external auditors have been the focus of considerable research (e.g., Menon and Williams 2004; Lennox 2005; Geiger et al. 2008), there has been relatively little attention given to how relationships between audit committee members and external auditors could affect the auditing process. This is important given that the audit committee is now in charge of the company's relationship with the auditor. This study fills this void by examining whether interlocks between auditors and audit committee members (henceforth "AC-auditor interlocking") affect the likelihood of auditor dismissal when there is a financial restatement and how an auditor dismissal affects subsequent audit quality for the companies with interlocks. Following recent studies (e.g. Chen et al. 2014; Lennox and Yu 2015), an interlock between an audit committee and an auditor occurs when an audit committee member of a company is also a member of an audit committee in other companies and those companies are audited by the same audit firm.

Financial statement restatement is generally viewed as an audit failure because the auditor's duty is to determine whether financial reports are accurately presented in accordance with GAAP (Hennes et al. 2013, DeFond and Zhang 2012). When restatements occur, companies are likely to dismiss their auditors either because they are displeased by the auditors' failure in identifying the accounting problems or to signal the companies' intent to improve their financial

reporting quality (Hennes et al. 2013). Consistent with these arguments, previous literature provides empirical evidence that companies are more likely to dismiss auditors following financial restatements (Hennes et al. 2013, Wallace 2005, Thompson and McCoy 2008, Srinivisan 2005). However, for companies with AC-auditor interlocking, greater familiarity between the interlocking audit committee members and the auditors may lead the audit committee members to lose their objectivity and to be less critical of the auditors' performance (Chen et al. 2014). Moreover, dismissing an incumbent auditor could prompt other interlocked companies to question the AC members' competence in choosing the auditor as Fama and Jensen (1983) argue that directors are rewarded by the internal and external markets of decision agents for the reputation they develop as expert decision makers. Thus, the interlocking audit committee members have more incentives to avoid the reputational loss of not appointing a high-quality auditor. As a result, the probability of auditor dismissal after a financial restatement may be reduced for firms with interlocking audit committee members and auditors.

Using a sample of financial restatement announcements in the post-SOX period (from 2003 to 2010)¹, I investigate how AC-auditor interlocking affects the likelihood of auditor dismissals subsequent to financial restatements. Empirical evidence shows that companies are less likely to dismiss their auditors after the restatement announcements if at least one of their audit committee members works on the audit committee of another company that is audited by the same audit firm. This finding indicates that the independence of an audit committee is impaired by not dismissing the incumbent auditors even when audit quality is at stake. Further analyses show that the negative association between AC-auditor interlocking and auditor dismissals after restatements

¹ My sample of restatements starts from 2003 because the audit committee is responsible for the appointment and replacement of auditors only in the post-SOX period. The sample stops in 2010 because the test of audit quality requires three years of observations subsequent to each restatement announcement.

is exacerbated by the strength of the interlocking relationship, which is measured by the number of companies that are interlocked with the audit committee member via the incumbent auditor, and is mitigated by an increasing number of audit suppliers in the local audit market, which is measured by the number of audit offices in the local area.

I next investigate how the reduced likelihood of auditor dismissal affects the subsequent audit quality of companies with AC-auditor interlocking after the restatement announcements. Even if the independence of the audit committee is impaired by not dismissing auditors after an audit failure, it is not clear how the reduced likelihood of auditor dismissal will affect subsequent audit quality. On one hand, if companies switch auditors to search for a better quality auditor, dismissing the incumbent auditor may lead to an improvement in future audit quality (Ettredge et al. 2011). On the other hand, familiarity between audit committee members and auditors may facilitate effective communication between the two parties (Johansen and Pettersson 2013), which could increase effectiveness and efficiency in remediating the existing problems. In this sense, dismissing the incumbent auditor may not improve audit quality for companies with AC-auditor interlocking.

Using a difference in difference research design and focusing on restatement companies with AC-auditor interlocking, I find that, compared with companies that retain their auditors following restatements, companies that dismiss their auditors within 12 months following restatement announcements have higher subsequent audit quality. Specifically, after controlling for the endogeneity of auditor dismissal, auditor dismissal is associated with lower absolute abnormal accruals and a higher likelihood of going concern opinions in the three years subsequent to the restatement announcement.² These findings suggest that auditor dismissals following

² While the analysis of abnormal accruals focuses on all the AC-auditor interlock firms in my sample, the analysis of going concern is conducted using the subsample of financially distressed firms.

accounting restatements positively affect subsequent audit quality of companies with AC-auditor interlocking, and not dismissing auditors following restatements potentially decrease companies' audit quality.

This study contributes to the literature in two ways. First, existing research on audit committee and auditor independence mainly focuses on their relationships with company managers. This study examines an important but relatively neglected aspect of relationship, AC-auditor interlocking. The relationship between audit committee members and auditors is important because the audit committee is responsible for the appointment, compensation and oversight of the outside auditor. Only two papers of which I am aware examine the effect of AC-auditor interlocking. Chen et al. (2014) analyze how investors perceive reported earnings when companies have AC-auditor interlocking. They find that the extent of AC-auditor interlocking is significantly and positively associated with investor perceptions of earnings quality in terms of ERCs. Lennox and Yu (2015) find that companies tend to select audit firms with whom directors and executives are better acquainted through their service at other companies, potentially leading to AC-auditor interlocking if the directors are also the audit committee members. They also find weak evidence that audit quality is higher when companies select the acquainted auditors. While these two papers focus on the general effect of director-auditor interlocking and find a positive effect on companies' financial reporting, I examine whether the interlock between audit committee members and auditors plays a role in the auditor dismissal decision and the subsequent audit quality when a company experiences an audit failure, i.e. a material financial restatement. Previous literature shows that firms are likely to take actions to remediate the problems when they experience a material negative event such as an internal control material weakness or a financial restatement. These actions include changing corporate governance mechanisms (Johnstone et al. 2011,

Srinivasan 2005) and switching auditors (Ettredge et al. 2011, Hennes et al. 2013). This study shows auditor dismissals following financial restatements are less likely to happen in the presence of AC-auditor interlocking. This evidence raises concerns about the audit committee's role in auditor termination when audit quality is relatively low.

Second, this study finds that companies with AC-auditor interlocking actually benefit from auditor dismissals. Although AC-auditor interlocking may positively affect audit quality by facilitating effective communication between the audit committee and the auditor (Chen et al. 2014) in the general setting, this paper shows that, when audit quality is at stake, such interlocking may eventually impair future audit quality when it leads to a failure to replace the incumbent auditors.

The rest of the paper is organized as follows. Section 2 reviews related literature and develops hypotheses. Section 3 describes the construction of my sample and models. Section 4 presents and discusses results of the empirical tests. Section 5 presents some additional analyses. Section 6 concludes.

2. Literature review and hypotheses

The hypotheses draw on two streams of literature, auditor turnover following financial restatements and the effect of AC-auditor interlocking on general audit quality, which are discussed below.

2.1 Financial restatements and auditor turnover

When a restatement occurs, the company is likely to dismiss the incumbent auditor for several reasons. If the client believes that the restatement is caused by the auditor's failure in timely identifying the accounting problem, the audit committee might consider dismissing the auditor over this performance failure as part of an effort to remediate the existing problems. Ettredge et al

(2010) find that companies receiving adverse internal control over financial reporting (ICFR) opinions are more likely to subsequently dismiss their auditors than are companies reporting effective internal controls. They further find that following dismissals, adverse opinion companies are more likely to hire better-quality auditors (i.e., Big 4 or industry specialist auditors), indicating that dismissals following adverse opinions are likely to be associated with attempts to remediate the existing problems and to improve their overall financial reporting quality. Similarly, after experiencing a financial restatement, companies have incentives to improve audit quality and avoid future restatements by replacing the incumbent auditor.

Alternatively, companies might dismiss auditors simply to *signal* an attempt to improve the financial reporting quality (Hennes et al. 2013). Previous literature has shown that restatements have a material adverse effect on the credibility of the company's financial reporting quality. For example, Palmrose et al. (2004) report a negative market reaction to restatement announcements over a two-day window. Wu (2002) finds that earnings response coefficients decline following restatements. Hribar and Jenkins (2004) show that companies' cost of capital increases following a restatement announcement. In order to restore investors' confidence toward their financial reporting quality and to signal an improvement in their financial reporting credibility to the capital market, the audit committee is likely to dismiss the incumbent auditor after a restatement.

Consistent with the two arguments above, a number of empirical studies investigating the association between restatements and auditor turnover generally find higher auditor turnover following restatement announcements. For example, Wallace (2005) and Thompson and McCoy (2008) observe high auditor turnover around restatements (but do not report statistical tests); Srinivasan (2005) provides univariate evidence that the auditor turnover rate is significantly higher for restating firms than for non-restating firms. Focusing on the misstated SEC filings between

1997 and 2010, Hennes et al. (2013) examine the conditions under which financial restatements lead to auditor dismissals and find that auditors are more likely to be dismissed after more severe restatements.

2.2 AC-auditor interlocking and audit quality

SOX significantly increases audit committees' responsibilities for selecting and monitoring external auditors. Under Section 301, each audit committee of a listed company is to be "directly responsible for the appointment, compensation, and oversight" of the outside auditor, and the auditors are to report directly to the audit committee. Because audit committees oversee audit performance and mediate the disagreements between auditors and managers, they play an essential role in ensuring high quality audits. Extensive prior studies have documented that high quality audit committees, in terms of independence from management and financial expertise, are associated with high quality audits, proxied by restatements, earnings management, auditor going concern opinions, etc.(e.g. Krishnan 2005, Carcello and Neal 2000, Abbott et al. 2000). Realizing the importance of the audit committee, the new Exchange Act Rule 10A-3 requires that audit committees of public companies are composed of fully independent directors.³

Although prior studies generally focus on the independence between audit committees and managers, audit committee members and auditors could also be affiliated through the interlocking relationship when an audit committee member of a company is also a member of an audit committee in other companies and those companies are audited by the same audit firm. The AC-auditor interlocking may adversely affect a company's audit quality by impairing the independence of the audit committee from the auditors. For example, the familiarity between the

³Under the new Exchange Act Rule 10A-3, in order to be considered to be independent, an audit committee member may not "(i) accept any consulting, advisory, or other compensatory fee from the issuer; or (ii) be an affiliated person of the issuer or any subsidiary thereof."

audit committee members and the external auditor could lead the audit committee to lose their objectivity and become less critical of the auditor's performance (Chen et al. 2014). Because the audited financial statements are also subject to the scrutiny and approval of the audit committee prior to their public release (Carcello and Neal 2000), this potential for weaker oversight might lead to greater opportunities for earnings management. Moreover, AC-auditor interlock may also compromise the independence of the auditor. Because the interlocking AC members can affect the dismissal of auditors for more than one company, auditors may have incentives to align their interests with those of AC members (Chen et al. 2014). As a result, the audit quality could be adversely affected due to the loss of auditor independence.

On the other hand, AC-auditor interlocking may have a positive impact on the audit quality. Familiarity and trust arisen from interlocking may positively affect audit quality in two ways. First, prior literature suggests that the audit committee plays a mediating role in resolving disagreements between auditors and client management (DeZoort and Salterio 2001). Greater trust may lead the audit committee to support the auditor when a dispute between the auditor and the management occurs (DeZoort et al. 2003). This would enhance external auditors' function of assuring the integrity of financial reports by reducing the scope for managers to engage in opportunistic earnings management (Chen et al. 2014) and thereby increasing audit quality. Second, greater familiarity between audit committee members and auditors could facilitate more effective communication which increases audit committee members' understanding of the auditor's policies and procedures (Johansen and Petterson 2013). This would help audit committee members focus on areas that are potentially not adequately examined by the auditors, thereby overseeing the financial reporting and audit process more effectively and more efficiently. Consistent with these arguments, Chen et al. (2014) analyze how investors perceive reported

earnings when companies have AC-auditor interlocking and find that the extent of AC-auditor interlocking is significantly and positively associated with ERCs, indicating that investors perceive that AC-auditor interlocking improves audit quality. Lennox and Yu (2015) find some weak evidence that audit quality is higher when companies select audit firms with whom directors and executives are better acquainted.

2.3 AC-auditor interlocking and auditor dismissal

As discussed earlier, the audit committee is responsible for hiring and terminating the outside auditor and approving all audit engagement terms and fees. Given the important roles played by the audit committee in the process of hiring and dismissing auditors, the relationship between interlocking audit committee members and auditors could impact the likelihood of auditor dismissal after an audit failure.

Specifically, the relationship between interlocking audit committee members and auditors could have effects in two ways. First, familiarity, either between AC members and individual auditors or between AC members and an audit firm, may help audit committees build trust with auditors. Trust between AC members and auditors has been shown to affect decisions of auditor appointment. Davison et al. (1984) and Baydoun (1999) study samples of companies in Australia and Hong Kong. Both papers find that companies have a tendency to be audited by the same auditor when they have mutual audit committee members. Using US data, Lennox and Yu (2015) find that companies tend to select audit firms with whom directors and executives are better acquainted through their service at other companies. These papers reveal a tendency for companies to appoint auditors who are familiar with their existing personnel.

Apart from selecting and hiring auditors, audit committee members are also responsible for monitoring auditor performance and terminating the auditor when necessary. By examining the

relationships between executives and boards of directors, Hwang and Kim (2009) find that the familiarity between CEOs and board members is associated with a lower sensitivity of turnover to performance for CEOs, indicating that board members are likely to lose their objectivity and to be less critical of the CEO's performance when they are acquainted with the CEO. Similarly, when there is an AC-auditor interlocking, because of the familiarity and trust between the audit committee member(s) and the auditor, the audit committee may be less likely to dismiss the auditor even if the auditor's performance is not satisfactory.

Second, auditor dismissal could hurt the reputation of the audit committee because it could signal a failure in the previous auditor selection. Fama and Jensen (1983) argue that directors are rewarded by the internal and external markets of decision agents for the reputation they develop as expert decision makers. They further posit the existence of an efficient director labor market that is likely to penalize poor performers by taking away their positions and benefits. Thus, directors have ex-ante incentives to not signal a failure in their previous decisions. This reputational concern is enhanced for the interlocking audit committee members because dismissing the incumbent auditor could prompt other interlocked companies to question their competence in choosing the auditor, thereby reducing their power in future decision making on the boards of these companies. To avoid such reputational damage, the interlocking audit committee members may be reluctant to dismiss the auditor even if the audit quality is at stake, i.e. there is a financial restatement.

In summary, companies are likely to dismiss incumbent auditors following financial restatements as part of an effort to improve or to signal an improvement of the company's financial reporting quality. However, familiarity between audit committee members and auditors, together with incentives to avoid a reputational loss on auditor selection failure, might impair the

independence of the audit committee from the auditor for companies with AC-auditor interlocking, thereby reducing the likelihood of auditor dismissal after a restatement. My first hypothesis is stated in the alternative format as follows:

H1: *The likelihood of dismissing an incumbent auditor after a financial restatement announcement is reduced for companies with audit committee-auditor interlocking.*

2.4 Audit quality following auditor dismissals for companies with AC-auditor interlocking

Audit quality is likely to be positively associated with auditor dismissals after financial restatements. First, dismissing a low-quality auditor reflects the firm's effort to improve the audit quality. Johnson and Lys (1990) argue that an auditor dismissal conveys positive news about a firm because it is a signal that the board is acting in the shareholders' best interest. Second, a replacement auditor brings a fresh perspective to the audit and is therefore more likely to detect financial reporting problems. This fresh eye benefit is likely to increase the audit quality. Consistent with these arguments, Ettredge et al. (2011) provide evidence that companies receiving adverse opinions and subsequently hiring better-quality auditors are more likely to experience a remediation of the internal control material weakness, suggesting that auditor dismissals are helpful in remediating the existing problems in the financial reporting process. Hennes et al. (2013) document a positive market reaction to auditor dismissal following a financial restatement. They also find that market reaction to a dismissal is positively associated with the severity of the restatement. This positive market reaction provides evidence that replacing the auditor is effective in restoring financial reporting credibility, indicating that auditor dismissals following restatements help improve firms' overall financial reporting quality from the investors' point of view.

As discussed earlier, one of the advantages of audit committee-auditor interlocking is the trust and familiarity between the audit committee members and the auditor. This familiarity could facilitate effective communication between the two parties (Johansen and Pettersson 2013). For restatement companies, remediating the weaknesses and improving the audit quality is an especially complicated process that may need more collaboration between the audit committee and the auditor. Effective communication could facilitate better collaboration. For example, it could help audit committee members and the audit team to quickly identify the problems and reach an agreement on the solutions. By focusing on the risky areas rather than spreading the resources broadly, the audit committee and the auditor would be more efficient and more effective at improving the financial reporting quality. In this sense, dismissing the incumbent auditor may not help improve audit quality for companies with AC-auditor interlocking.

To sum up, following a financial restatement, compared with companies that retain the incumbent auditors, companies that dismiss auditors are more likely to improve their financial reporting quality in the general setting. When there is an AC-auditor interlocking, however, dismissing the incumbent auditor may not result in an improvement in the audit quality due to elimination of the potential benefits associated with interlocking. As such, it is unclear how auditor dismissals following restatements affect subsequent audit quality for firms with audit committee member-auditor interlocking. My second hypothesis is stated in an alternative form as follows:

H2: *For companies with audit committee-auditor interlocking, those dismissing the incumbent auditors after restatement announcements are likely to have better subsequent audit quality than those retaining the incumbent auditors.*

3 Sample, Models, and Variable Definitions

3.1. Sample and Data

I obtain data from Audit Analytics, Compustat and BoardEx. The sample begins with 9,005 restatements that were announced between January 2003 and December 2010. I drop 4,617 observations with insufficient Compustat data. I further excluded 547 restatements that are a result of a change in GAAP.⁴ Following Hennes et al. (2013), to avoid firm-level effects across observations, I delete the multiple restatements of the same company in the sample period. This process results in the elimination of 796 restatement announcements.⁵ After merging the remaining restatements with BoardEx and excluding companies that are not covered by BoardEx, my final restatement sample consists of 1,593 observations.

My auditor dismissal window for each company begins with the announcement of the restatement and continues until 12 months after the restatement announcement date. To identify auditor changes for the restatement sample, I begin with all auditor turnovers listed for the sample companies in the Audit Analytics audit change dataset. I delete auditor turnovers that are caused by auditor resignations. I use the “Depart Date” to identify companies that dismiss auditors during my dismissal window and obtain 232 auditor dismissals in the restatement sample.

To analyze the effect of auditor turnover on the subsequent audit quality of the restated companies with AC-auditor interlocking, I start with 446 companies with AC-auditor interlocking in my restatement sample. To employ a difference-in-difference design, I obtain the audit quality and the financial data of these companies for the three years before the restatement announcement and three years after the restatement announcement from Audit Analytics and Compustat. After eliminating the observations missing the necessary variables to construct the model, there are 2,370 firm-year observations in the sample for the abnormal accrual analysis. To examine the likelihood

⁴ I delete restatements due to change in standards regarding materiality (SAB No.108), leases (the SEC’s 2005 letter to the AICPA) and the reclassification of some tax accounts (FIN 48).

⁵ The results remain qualitatively the same if I retain the multiple restatements.

of receiving a going concern opinion for companies with AC-auditor interlocking, I further restrict the sample to observations with negative net incomes and/or negative net operating cash flows (DeFond et al. 2002; Li 2009), and obtain a subsample of 1,183 firm-year observations.

3.2. The model for auditor dismissal

The model to test the association between auditor dismissal and AC-auditor interlocking draws on Ettredge et al. (2011) and Hennes et al. (2013) to identify variables that influence auditor dismissal. I specify my logistic auditor dismissal model as follows:

$$\begin{aligned} DISMISS = & \alpha_0 + \alpha_1 INTERLOCK + \beta_1 LOSS + \beta_2 GC + \beta_3 LEVERAGE + \beta_4 SIZE + \beta_5 MB \\ & + \beta_6 EMPLOYMENT + \beta_7 BOARDSIZE + \beta_8 ACSIZE + \beta_9 MGRCHG \\ & + \beta_{10} BIG4 + \beta_{11} AUDTENURE + \beta_{12} AUDFEE + \varepsilon \quad (1) \end{aligned}$$

For H1, *DISMISS* equals one if a company dismisses its auditor within 12 months after the restatement is announced, and zero otherwise. The variable of interest, *INTERLOCK*, equals one if a company has AC-Auditor interlocking when the restatement is announced, and zero otherwise.

There are three sets of control variables in the model. Based on prior literature, there is an increased likelihood of auditor turnover for companies in financial distress (e.g. Schwartz and Menon 1985, Hennes et al. 2013), so I construct controls for companies' financial conditions including if the company has a negative net income (*LOSS*), debt to total assets (*LEVERAGE*), and if the company receives a going concern opinion (*GC*). I also control for companies' size proxied by the natural logarithm of total assets (*SIZE*) and growth opportunities in terms of market to book ratio (*MB*).

Prior literature (e.g. Carcello and Neal 2003) also shows that the characteristics of a company's governance affect the likelihood of auditor turnover. Thus, I also include corporate governance variables in the model. *EMPLOYMENT* is an indicator variable if at least one of the

audit committee members is a former employee of the auditor firm. *BOARDSIZE* is the number of directors on the board of directors and *ACSIZE* is the number of audit committee members. Apart from dismissing the incumbent auditor, a material negative event such as a restatement also provides an impetus for a company to change its executives responsible for financial reporting (Johnstone et al. 2011). Hennes et al. (2013) find some evidence that CEO/CFO turnover is significantly associated with auditor dismissals because the board may terminate both auditor and CEO if they are weighing both termination decisions together. Thus, I include *MGRCHG* which is equal to 1 if the CEO and (or) CFO turned over in the two-year window around the restatement announcement, and 0 otherwise.

The third set of control variables involve the auditor and engagement factors including number of years for which the auditor has been engaged with the company (*AUDTENURE*) and the audit fees charged by the auditor (*AUDFEE*). Companies audited by Big 4 auditors are less likely to switch auditors because of their demand for high-quality auditing services (Palmrose 1986, Healy and Lys 1986) and the limited availability of an equivalent replacement auditor (Hennes et al. 2013). Thus, I include *BIG4* which is equal to 1 if a company has a Big 4 auditor, and 0 otherwise. Following Hennes et al (2013), I include year fixed effects to control for the potential impact of time on the consequence of restatements.

3.3. The models for audit quality subsequent to restatement announcement

I use two measures to proxy for subsequent audit quality: (1) absolute abnormal accruals and (2) issuance of going concern opinions⁶. I employ a difference-in-difference research design and estimate the following OLS regression model to test the hypothesis that there is a greater

⁶ I do not use restatements as a measure of subsequent audit quality because a company is unlikely to have multiple restatements in a three year window. Only 38 companies (2.39%) in my sample have restatements within three years after the first restatement occurs.

reduction in abnormal accruals for interlocking companies that dismiss auditors compared to companies that retain auditors subsequent to the restatement announcements:

$$\begin{aligned}
 ABACCRUAL = & \alpha_0 + \alpha_1 DISMISS + \alpha_2 POSTRES + \alpha_3 DISMISS * POSTRES \\
 & + \beta_1 SIZE + \beta_2 LOSS + \beta_3 CFO + \beta_4 LEVERAGE + \beta_5 MB + \beta_6 RESTRUCT \\
 & + \beta_7 MA + \beta_8 SI + \beta_9 SEGNUM + \beta_{10} BIG4 + \beta_{11} FINANCING + \varepsilon
 \end{aligned}
 \tag{2}$$

where the dependent variable, *ABACCRUAL*, is the absolute abnormal accruals calculated based on the Modified Jones model (Dechow et al, 1995). Specifically, following the Modified Jones model of Dechow et al. (1995), I define total discretionary accruals (*ACC*) to be the residuals of the following regression:

$$\frac{ACC_{i,t}}{AvgAT_{i,t,t-1}} = \beta_0 \left(\frac{1}{AvgAT_{i,t,t-1}} \right) + \beta_1 \left(\frac{\Delta REV_{i,t,t-1} - \Delta REC_{i,t,t-1}}{AvgAT_{i,t,t-1}} \right) + \beta_2 \left(\frac{PPE_{i,t}}{AvgAT_{i,t,t-1}} \right) + \beta_3 \left(\frac{ROA_{i,t}}{AvgAT_{i,t,t-1}} \right) + e_{i,t}$$

where *AvgAT* , *ΔREV* , *ΔREC* , *PPE* , and *ROA* represent average total assets, change in revenue, change in receivables, property, plant and equipment, and return on assets, respectively. The absolute value of abnormal accruals (*ABACCRUAL*) is obtained by taking the absolute value of the fitted residuals,

DISMISS is an indicator variable that equals 1 if a company dismisses the incumbent auditor after the restatement is announced, and 0 otherwise. *POSTRES* is an indicator variable that is equal to 1 if the firm-year observation belongs to the post-restatement period which is the first three years after the restatement announcement, and 0 otherwise. My test variable is the interaction between *DISMISS* and *POSTRES*. If the coefficient on *DISMISS*POSTRES* is significantly negative, it suggests that the reduction in abnormal accruals is significantly greater for companies that dismissed their auditors than for companies that retained their auditors from the pre-restatement period to the post-restatement period.

Following standard practice, I include the natural logarithm of total assets (*SIZE*) as a control variable. Because larger firms have economies of scale and have superior resources to dedicate to financial reporting, they are less likely to have low audit quality (Ashbaugh-Skaife et al. 2007; Dechow et al. 2011). Prior research generally finds that financial reporting errors are negatively associated with financial performance and positively associated with growth (DeFond and Jiambalvo 1991). I proxy for a firm's financial health using *LOSS* (whether a company has negative net income in the fiscal year), *CFO* (the net operating cash flows scaled by total assets) and *LEVERAGE* (long-term debt scaled by total assets). I use *MB* (market to book ratio) to proxy for growth.

I expect firms undergoing restructuring to have more abnormal accruals because restructuring involves many difficult accrual estimations and adjustments such as impairment and goodwill (Dechow and Ge 2006), and firms undergoing restructuring are more likely to have internal control weaknesses (Doyle et al. 2007). I use indicator variables for restructuring charges (*RESTRUCT*) and mergers and acquisitions (*MA*).

I expect abnormal accruals to be positively associated with the complexity of a company since reporting errors are more likely to occur when the company engages in complex transactions and has diverse operations. As in prior research (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007), I use two variables to proxy for complexity: presence of special items (*SI*) and the natural logarithm of the number of segments (*SEGNUM*). Prior research shows that companies with a large auditor have higher quality financial reporting (Ashbaugh-Skaife et al. 2007; Doyle et al. 2007). I use Big 4 auditors (*BIG4*) to proxy for the audit firm size. I include *FINANCING* as an indicator variable to control for whether the company issues new equity or debt of at least \$5 million in the following year.

Following prior literature (e.g. DeFond et al. 2002), I estimate the following logistic regression model to test the hypothesis that there is a greater increase in the likelihood of receiving going concern opinions for interlocking companies that dismiss auditors compared to companies that retain auditors subsequent to the restatement announcements:

$$\begin{aligned}
 GC = & \alpha_0 + \alpha_1 DISMISS + \alpha_2 POSTRES + \alpha_3 DISMISS * POSTRES \\
 & + \beta_1 SIZE + \beta_2 AGE + \beta_3 ROA + \beta_4 CFO + \beta_5 MB + \beta_6 SALEGROWTH \\
 & + \beta_7 FINANCING + \beta_8 LEVERAGE + \beta_9 REPLAG + \beta_{10} BIG4 + \varepsilon
 \end{aligned}
 \tag{3}$$

where the dependent variable, *GC*, is an indicator variable that is equal to 1 if a company receives a going concern opinion in the fiscal year, and 0 otherwise. The variable of interest is the interaction between *DISMISS* and *POSTRES*. If the coefficient on *DISMISS*POSTRES* is significantly positive, it suggests that the increase in the likelihood of receiving a going concern opinion is significantly greater for companies that dismissed their auditors than for companies that retained their auditors from the pre-restatement period to the post-restatement period.

Prior literature finds that larger and older companies have more negotiating power in the event of financial difficulties and hence are more likely to avoid bankruptcy (Reynolds and Francis 2000, Dopuch et al. 1987), so I include *SIZE* (natural logarithm of total assets) and *AGE* (the natural logarithm of years a company has been publicly traded) in the model and expect them to be negatively associated with the dependent variable. Companies with high profitability (*ROA*), high operating cash flows (*CFO*), more growth opportunities (*MB* and *SALEGROWTH*) and new financing (*FINANCING*) are less likely to declare bankruptcy and thus are less likely to receive a going concern opinion. Companies with high leverage (*LEVERAGE*) maybe close to debt covenant violations (Beneish and Press 1993) which have been found to be positively associated with the probability of issuing a going concern opinion (DeFond et al. 2002). In addition, I include *REPLAG* (number of days between the fiscal year-end and the audit report date) because prior research finds

that going concern opinions are associated with longer reporting delays (Raghunandan and Rama 1995, Carcello et al.1995). *BIG4* is included because prior research argues that big auditors are more likely to issue going concern audit opinions (DeFond et al. 2002). Table 2 provides the summary of variable definitions.

4. Empirical Results

4.1 The effect of AC-auditor interlocking on auditor dismissals

Table 3 provides univariate statistics of the comparison of mean and median values of the variables used in model (1) for companies with AC-Auditor interlocking and companies without AC-Auditor interlocking. The results show that, for companies with AC-Auditor interlocking, the auditor dismissal rate is 10.8%, which is significantly lower than the dismissal rate for companies without AC-Auditor interlocking (16%) in the 12 months following the restatement announcement ($t=2.67$, $p<0.01$). This univariate evidence is consistent with my first hypothesis. Comparing with companies without AC-Auditor interlocking, companies with AC-Auditor interlocking are larger, more profitable, and are less likely to receive going concern opinions. They also have larger boards of directors and larger audit committees. With regard to the auditor-client relationships, companies with AC-Auditor interlocking are more likely to have a Big 4 auditor, and their auditors have longer tenure. These univariate analyses indicate that companies with AC-Auditor interlocking are systematically different from their counterparts, which is similar to the results in Chen et al. (2014).

----- Table 3 -----

Table 4 presents the regression result for the auditor dismissal model. Consistent with the univariate result, *INTERLOCK* is negative and significant (Coefficient=-0.344, $p = 0.032$),

indicating that companies with AC-Auditor interlocking are less likely to dismiss their auditors than companies without AC-Auditor interlocking after the restatements occur. This result provides support for the first hypothesis.

The results for the control variables are consistent with prior studies (Ettredge et al. 2011, Hennes et al. 2013). As expected, I find that companies that receive going concern (*GC*) opinions are more likely to dismiss auditors. *MGRCHG* is positive and significant (coefficient=0.402, P=0.011), indicating that CEO/CFO turnover is significantly associated with auditor dismissals. This is consistent with Hennes et al. (2013) which suggests that boards view executive termination and auditor dismissals as complementary (rather than substitute) responses to restatements. I also find that Big 4 audit firms (*BIG4*) and auditors with longer tenures (*TENURE*) are less likely to be dismissed. Moreover, companies that are charged higher audit fees (*AUDFEE*) are more likely to dismiss their auditors.

----- Table 4 -----

4.2 Cross-sectional analyses

My primary analysis suggests that companies with AC-auditor interlocking are less likely to dismiss their auditors than companies without AC-auditor interlocking after the restatements are announced. To further evaluate the effect of AC-auditor interlocking, I consider whether the strength of the interlocking affects the likelihood of auditor dismissal. Specifically, I identify the number of other companies that are interlocked with the AC member(s) via the incumbent auditor (*NUM_INTERLOCK*) for each company with AC-auditor interlocking. Focusing on the subsample of companies with AC-auditor interlocking and replacing the indicator variable, *INTERLOCK*, with *NUM_INTERLOCK*, I replicate the regression in Table 4. Table 5 presents the results. *NUM_INTERLOCK* is negative and significant (coefficient=-0.481, p-

value=0.042), indicating that the likelihood of dismissing the incumbent auditor is negatively associated with the number of other companies that are interlocked with the company through AC-auditor interlocking. This is consistent with my expectation that the likelihood of auditor dismissal decreases as the strength of AC-auditor interlocking increases.

Although companies with AC-auditor interlocking are less likely to dismiss their auditors than companies without AC-auditor interlocking after the restatements occur, previous studies have documented that the ability of clients to respond to auditor reputation impairments will be limited when the number of audit suppliers is low (Swanquist and White 2015). As the number of auditors decreases, the likelihood that clients can find an acceptable alternative will decrease accordingly. Using the logarithm of the number of different auditor offices in the local area (*LOCAL_SUPPLY*) to proxy for auditor supply, I examine whether the auditor supply of the local market affects the association between AC-auditor interlocking and the likelihood of auditor dismissal. As shown in Table 5, the interaction between *INTERLOCK* and *LOCAL_SUPPLY* is positive and significant (coefficient=0.380, P=0.035), indicating that the effect of AC-auditor interlocking on auditor dismissal decreases as the number of audit suppliers in the local area increases⁷. Following Ai and Norton (2003) and Evans et al. (2010), I plot z-statistics of the interaction effect, i.e., *DISMISS*POSTRES*, in the model. The distributions show that the z-statistics are reliably negative across all sample observations, mitigating the concerns regarding the marginal interaction effect of nonlinear regression models (Ai and Norton 2003).

----- Table 5 -----

⁷ The results in Table 3 suggest that the majority of the companies with AC-auditor interlocking are audited by Big 4 audit firms. Hennes et al. (2013) argue that Big 4 clients are constrained in their dismissal decisions by the availability of a comparable replacement auditor. Thus, I replicate the analysis in Table 5 Panel B by replacing *LOCAL_SUPPLY* with the logarithm of the number of Big 4 auditor offices in the local area and find a qualitatively similar result.

4.3 Subsequent audit quality --- abnormal accruals

Table 6 provides data about the mean and median values of variables used in model (2) for companies with AC-Auditor interlocking. The results show that compared with companies that retain their auditors, companies that dismiss their incumbent auditors after restatements have higher abnormal accruals (t-stat. =3.15, p=0.002). They are also smaller in size (*SIZE*) and have poorer financial health (*LOSS* and *LEVERAGE*). Moreover, companies with auditor dismissals are less likely to have future financing activities (*FINANCING*) and are more complicated (*SI* and *SEGNUM*).

----- Table 6 -----

Table 7 Panel A presents the regression results for abnormal accruals. The interaction term, *DISMISS*POSTRES* is negative and significant (coefficient=-0.017, p=0.036), indicating that for AC-auditor interlocking companies, those that dismiss auditors have a larger reduction in abnormal accruals from pre-restatement period to post-restatement period compared to those that retain auditors. For control variables, consistent with prior research (e.g. Dechow et al. 2011, Butler et al. 2004), larger companies and companies with Big 4 auditors have lower abnormal accruals. I also find that abnormal accruals are higher for companies with higher leverage (*LEVERAGE*), companies with future financing activities (*FINANCING*) and companies with more special items (*SI*).

4.4 Subsequent audit quality --- going concern opinions

Table 7 Panel B presents the logistic results of the likelihood of issuing going concern opinions for AC-auditor interlocking companies that have restatement announcements. The interaction term, *DISMISS*POSTRES* is positive and significant (coefficient=0.547, p=0.075), indicating that compared to companies that retain auditors, companies that dismiss auditors have

a bigger increase in the likelihood of receiving going concern opinions in the post-restatement period. This result suggests for AC-auditor interlocking companies, the new auditors are more likely to issue going concern opinions than the old auditors after the restatement. Following Ai and Norton (2003) and Evans et al. (2010), I plot z-statistics of the interaction effect, i.e., *DISMISS*POSTRES*, in the model. The distributions show that the z-statistics are reliably negative across all sample observations, mitigating the concerns regarding the marginal interaction effect of nonlinear regression models (Ai and Norton 2003).

The results for the control variables are consistent with prior studies (e.g. Reynolds and Francis 2000, DeFond et al. 2002). Larger (*SIZE*) companies, more profitable (*ROA*) companies and companies with higher operating cash flows (*CFO*) are less likely to receive a going concern opinion, while companies with higher leverage (*LEVERAGE*) and companies with longer financial reporting lags (*REPLAG*) are more likely to receive a going concern opinion.

----- Table 7 -----

5. Additional Analyses

5.1 Endogeneity of auditor dismissals

My second hypothesis is that for companies with AC-Auditor interlocking, companies that dismiss the incumbent auditors are likely to have a larger improvement in subsequent audit quality than companies that retain the incumbent auditors. An endogeneity issue could arise because the auditor dismissal is not randomly determined. Thus, I use a Heckman (1979) two-stage model to control for the endogeneity of auditor dismissal. In the first stage, I estimate the following probit regression of the choice to dismiss the incumbent auditor:

$$DISMISS = \alpha_0 + \beta_1 LOSS + \beta_2 LEVERAGE + \beta_3 GC + \beta_4 SIZE + \beta_5 MB + \beta_6 EMPLOYMENT + \beta_7 BOARD SIZE + \beta_8 ACSIZE + \beta_9 MGRCHG + \beta_{10} BIG4 + \beta_{11} AUDTENURE$$

$$+\beta_{12}AUDFEE + \beta_{13}LOCAL_SUPPLY + \varepsilon \quad (4)$$

In the second stage, I estimate Model 2 including as an additional control variable the inverse Mills ratio computed from the parameters of the first stage.

Prior literature (e.g. Larcker and Rusticus 2008, Lennox et al. 2012) emphasize that to successfully control for endogeneity, at least one independent variable needs to be identified that is correlated with the dependent variable in the first-stage model but is not associated with the dependent variable in the second-stage model. In Model 4, this variable is auditor supply in the local audit market, which is proxied by the natural logarithm of the number of auditor offices in the local area (LOCAL_SUPPLY). Previous studies have documented that the extent to which clients respond to auditor reputation impairments depends on the supply of the local audit market (e.g. Swanquist and White 2015). As the number of auditors increases, the likelihood that clients can find an acceptable alternative will increase accordingly, and therefore the likelihood of auditor dismissals will increase.⁸ Table 8 shows that as expected, LOCAL_SUPPLY is positive and significant (coefficient=0.241, p<0.01) in the first stage model (auditor dismissal model), but not significant in the second stage models (audit quality models), suggesting that LOCAL_SUPPLY is a reasonable exogenous variable (Larcker and Rusticus 2008).

----- Table 8 -----

As shown in Table 9 Panel A and Panel B, the inverse Mills ratios of both regressions are significant. The interaction term, *DISMISS*POSTRES*, is continuing to be negative and significant in Panel A (coefficient= -0.021, p=0.010), indicating that companies that dismiss auditors have a bigger reduction in abnormal accruals from pre-restatement period to post-

⁸ The U.S. Chamber of Commerce and GAO have expressed concern that the consolidated audit market has a negative impact on audit quality (U.S. Chamber of Commerce 2006) but did not find significant evidence. The GAO (2008) report argues that the limited number of available auditors may not necessarily result in adverse effects. I include LOCAL_SUPPLY in the analyses in Table 9 and find it insignificant in both regressions.

restatement period compared to companies that retain auditors. In Panel B, the interaction term is positive and significant (coefficient =0.667, p=0.047)⁹, indicating that companies that dismiss auditors have a bigger increase in the likelihood of receiving a going concern opinion in the post-restatement period compared to companies that retain auditors. Thus, the inferences drawn from Table 9 are consistent with those drawn from Table 7, suggesting my main findings are unlikely to be driven by the endogeneity concern.

----- Table 9 -----

5.2 The effect of Big 4 auditors

Healy and Lys (1986) find that companies that select Big 4 auditors are more likely to have more complex operations which require more audit services. As a result of the operating complexity and the demand for more audit services, Big 4 clients are likely to have higher switching costs than non-Big 4 clients, and thus are less likely to switch auditors. Moreover, the availability of a comparable replacement auditor is limited for Big 4 clients because they only have a few audit firms to choose from (Hennes et al. 2013). This limitation further constrains the auditor dismissal decisions for Big 4 clients.

As Table 3 shows that the majority of the companies with AC-auditor interlocking are audited by Big 4 auditors, there is a concern that the effect of AC-auditor interlocking on auditor dismissals is driven by the difference between Big 4 clients and non-Big 4 clients. To mitigate this concern, I delete all the companies with non-Big 4 auditors from the restatement sample and result in a sample of 1,161 observations. The untabulate results are qualitatively consistent with those in

⁹ Again, following Ai and Norton (2003) and Evans et al. (2010), I plot z-statistics of the interaction effect, i.e., *DISMISS*POSTRES*, in the model. The distributions show that the z-statistics are reliably negative across all sample observations, mitigating concerns regarding the marginal interaction effect of nonlinear regression models (Ai and Norton 2003).

Table 4 (coefficient on INTERLOCK= -0.280, p=0.052), suggesting that the main results are not driven by Big 4 clients.

6. Conclusions

This study examines an important but relatively neglected aspect of the auditor-client relationship, audit committee members and auditor interlocking. It examines whether interlocks between auditors and audit committee members affect the likelihood of auditor dismissal when there is a financial restatement and how an auditor dismissal affects the subsequent audit quality for interlocking companies. Empirical evidence shows that companies are less likely to dismiss their auditors after the restatements occur if at least one of their audit committee members works on the audit committee of another company that is audited by the same audit firm. Further evidence suggests that auditor dismissals following accounting restatements positively affect audit quality of the companies with AC-auditor interlocking, indicating that not dismissing auditors following restatement potentially damages companies' audit quality. These findings raise concerns about the audit committee's role in auditor termination when audit quality is relatively low and suggest that such interlocking may eventually impair future audit quality by failing to replace the incumbent auditors.

References

- Abbott, L. J., Park, Y., & Parker, S. (2000). The effects of audit committee activity and independence on corporate fraud. *Managerial Finance*, 26(11), 55-68.
- Ai, C., and E. Norton. 2003. Interaction terms in logit and probit models. *Economics Letters* 80: 123–129.
- Ashbaugh-Skaife, H., D. Collins, and W. Kinney. 2007. The discovery and reporting of internal control deficiencies prior to SOX-Mandated audits. *Journal of Accounting and Economics* 44: 166–92.
- Beneish, M. D., & Press, E. (1995). The resolution of technical default. *Accounting Review*, 337-353.
- Baydoun, N. 1999. Research note: The impact of personal connection on auditor concentration. *The International Journal of Accounting* 34 (2): 283–289.
- Butler, M., Leone, A. J., & Willenborg, M. (2004). An empirical analysis of auditor reporting and its association with abnormal accruals. *Journal of Accounting and Economics*, 37(2), 139-165.
- Carcello, J. V., Hermanson, D. R., & Huss, H. F. (1995). Temporal changes in bankruptcy-related reporting. *Auditing*, 14(2), 133.
- Carcello, J., and T. Neal. 2000. Audit committee composition and auditor reporting. *The Accounting Review* 75 (4): 453–467.
- Chen, J. F., Chou, Y. Y., Duh, R. R., & Lin, Y. C. (2014). Audit Committee Director-Auditor Interlocking and Perceptions of Earnings Quality. *AUDITING: A Journal of Practice & Theory*, 33(4), 41-70.
- Davison, A. G., B. W. Stening, and W. T. Wai. 1984. Auditor concentration and impact of interlocking directorates. *Journal of Accounting Research* 22 (1): 313–317
- Dechow, P. M., and W. Ge. 2006. The persistence of earnings and cash flows and the role of special items: Implications for the accrual anomaly. *Review of Accounting Studies* 11:253–296
- Dechow, P. M., Sloan, R. G., & Sweeney, A. P. (1995). Detecting earnings management. *Accounting review*, 193-225.
- Dechow, P. M., W. Ge, C. R. Larson, and R. G. Sloan. 2011. Predicting material accounting misstatements. *Contemporary Accounting Research* 28: 17–82

- DeFond, M., and J. Jiambalvo. 1991. Incidence and circumstances of accounting errors. *The Accounting Review* 66: 643–55.
- DeFond, M. L., Raghunandan, K., & Subramanyam, K. R. (2002). Do non-audit service fees impair auditor independence? Evidence from going concern audit opinions. *Journal of accounting research*, 1247-1274.
- DeZoort, F. T., and S. E. Salterio. 2001. The effects of corporate governance experience and financial reporting and audit knowledge on audit committee members' judgments. *Auditing: A Journal of Practice & Theory* 20 (2): 31–47.
- DeZoort, F. T., D. R. Hermanson, and R. W. Houston. 2003. Audit committee support for auditors: The effects of materiality justification and accounting precision. *Journal of Accounting and Public Policy* 22 (2): 175–199.
- Dopuch, N., Holthausen, R. W., & Leftwich, R. W. (1987). Predicting audit qualifications with financial and market variables. *Accounting Review*, 431-454.
- Doyle, J., W. Ge, and S. McVay. 2007. Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics* 44: 193–223.
- Ettredge, M., Heintz, J., Li, C., & Scholz, S. (2011). Auditor realignments accompanying implementation of SOX 404 ICFR reporting requirements. *Accounting Horizons*, 25(1), 17-39.
- Evans, J. H., N. Nagarajan, and J. Schloetzer. 2010. CEO turnover and retention light: Retaining former CEOs on the board. *Journal of Accounting Research*, 48(5), 1015-1047.
- Fama, E., and M. Jensen. 1983. Separation of ownership and control. *Journal of Law and Economics* 26 (2): 301–325.
- Geiger, M. A., C. S. Lennox, and D. S. North. 2008. The hiring of accounting and finance officers from audit firms: How did the market react? *Review of Accounting Studies* 13: 55–86.
- Hribar, P., and N. Jenkins. 2004. The effect of accounting restatements on earnings revisions and the estimated cost of capital. *Review of Accounting Studies* 9 (2–3): 337–356.
- Healy, P., and T. Lys. 1986. Auditor changes following Big Eight mergers with non-Big Eight audit firms. *Journal of Accounting and Public Policy* 5 (4): 251–265.
- Heckman, J., 1979. Sample selection bias as a specification error. *Econometrica* 47, 153–161.
- Hennes, K. M., Leone, A. J., & Miller, B. P. (2013). Determinants and market consequences of auditor dismissals after accounting restatements. *The Accounting Review*, 89(3), 1051-1082.

- Hwang, B. H., & Kim, S. (2009). It pays to have friends. *Journal of Financial Economics*, 93(1), 138-158.
- Johansen, T. R., and K. Pettersson. 2013. The impact of board interlocks on auditor choice and audit fees. *Corporate Governance: An International Review* 21 (3): 287–310.
- Johnson, W., and T. Lys. 1990. The market for audit services: Evidence from voluntary auditor changes. *Journal of Accounting and Economics* 12 (1-3): 281–308.
- Johnstone, K., Li, C., & Rupley, K. H. (2011). Changes in Corporate Governance Associated with the Revelation of Internal Control Material Weaknesses and Their Subsequent Remediation. *Contemporary Accounting Research*, 28(1), 331-383.
- Krishnan, J. (2005). Audit committee quality and internal control: An empirical analysis. *The Accounting Review*, 80(2), 649-675.
- Larcker, D., Rusticus, T., 2008. On the use of instrumental variables in accounting research. Working paper, Stanford University.
- Lennox, C. S. 2005. Audit quality and executive officers' affiliations with CPA firms. *Journal of Accounting & Economics* 39 (2): 201–231.
- Lennox, C. S., Francis, J. R., & Wang, Z. (2011). Selection models in accounting research. *The Accounting Review*, 87(2), 589-616.
- Lennox, C. S., & Yu, Y. J. (2015). The Role of Director and Executive Interlocks in Mitigating Uncertainty in Auditor Hiring Decisions. *Available at SSRN 2585842*.
- Palmrose, Z.-V. 1986. Audit fees and auditor size: Further evidence. *Journal of Accounting Research* 24(1): 97–110.
- Palmrose, Z.-V., V. Richardson, and S. Scholz. 2004. Determinants of market reactions to restatement announcements. *Journal of Accounting and Economics* 37 (1): 59–89.
- Raghunandan, K., & Rama, D. V. (1995). Audit reports for companies in financial distress: Before and after SAS No. 59. *Auditing*, 14(1), 50.
- Reynolds, J. K., & Francis, J. R. (2000). Does size matter? The influence of large clients on office-level auditor reporting decisions. *Journal of Accounting and Economics*, 30(3), 375-400.
- Schwartz, K., and B. Soo. 1995. An analysis of form 8-K disclosures of auditor changes by firms approaching bankruptcy. *Auditing: A Journal of Practice & Theory* 14 (1): 125–136.

- Srinivasan, S. 2005. Consequences of financial reporting failure for outside directors: Evidence from accounting restatements and audit committee members. *Journal of Accounting Research* 43 (2): 291–334.
- Swanquist, Q., & Whited, R. L. 2015. Do Clients Avoid Contaminated Offices? The Economic Consequences of Low Quality Audits. *The Accounting Review*. *Forthcoming*
- Thompson, J., and T. McCoy. 2008. An analysis of restatements due to errors and auditor changes by Fortune 500 companies. *Journal of Legal, Ethical and Regulatory Issues* 11 (2): 45–57.
- U.S. Chamber of Commerce. 2006 *Auditing: A profession at Risk*. Washington, DC: U.S. Chamber of Commerce.
- U.S. Government Accountability Office (GAO). 2008. Audits of Public Companies: Continued Concentration in Audit Market for Large Public Companies Does Not Call for Immediate Action. GAO-08-163. Washing, DC: GAO.
- Wallace, W. 2005. Auditor changes and restatements: An analysis of recent history. *The CPA Journal* 75(3): 30–33.
- Wu, M. (2002). Earnings restatements: A capital market perspective. *Available at SSRN 1844265*.

Table 1: Sample Selection

Restatements from Audit Analytics:	9005
Less: Observations missing necessary variables from Compustat	4617
Restatements due to the change of GAAP	547
Multiple restatements for the same company	796
Observations not covered by BoardEx	1452
Restatements in the auditor dismissal sample	1593

Table 2: Definition of Variables

DISMISS	1 if a company dismisses the incumbent auditor within 12 months after the restatement announcement, 0 otherwise.
INTERLOCK	1 if at least one AC member is on the AC of another company which is audited by the same auditor, and 0 otherwise
SIZE	The natural logarithm of total assets at the end of year t.
LOSS	1 if a company has a negative net income in year t, 0 otherwise
GC	1 if a company receives a going concern opinion in year t, 0 otherwise
LEVERAGE	Total long-term debt / total assets at the end of year t.
EMPLOYMENT	1 if the CEO and(or) CFO have the experience of working for the incumbent auditor, 0 otherwise
BOARDSIZE	Number of members on the board of directors
ACSIZE	Number of members on the audit committee
MGRCHG	1 if the firm changes either CEO or CFO in the two-year window, 0 otherwise
BIG4	1 if a firm has a Big 4 auditor in year t, 0 otherwise.
TENURE	The natural logarithm of audit tenure at the end of year t.
AUDFEE	The natural logarithm of audit fees in year t.
ACCRUAL	The absolute value of abnormal accruals based on Modified Jones model.
POSTRES	1 if a firm-year observation belongs to the post-restatement period, and 0 otherwise.
CFO	Net operating cash flows in year t, scaled by total asset.
MB	Market to book ratio.
MA	1 if a firm undertook a merger or acquisition in year t, 0 otherwise.
RESTRUCT	1 if a firm recognized restructuring charges in year t, 0 otherwise
FINANCING	1 if a firm issues new equity or new debt of at least \$5 million in the following year, and 0 otherwise.
SI	1 if a firm has special items in year t, 0 otherwise.
SEGNUM	The natural logarithm of the total number of geographic and operating segments at the end of year t.
AGE	The natural logarithm of the number of years the company has been covered by CRSP (Compustat if the company is not covered by CRSP).
SALEGROWTH	The annual growth of sales.
REPLAG	The log number of days between the auditor report date and the year-end date

Table 3 Descriptive Statistics of Variables in Model 1

Variable	INTERLOCK=1 N=446		INTERLOCK=0 N=1147		t	Pr > t	Z	Pr > z
	MEAN	MEDIAN	MEAN	MEDIAN				
DISMISS	0.108	0.000	0.160	0.000	-2.67	0.008	-2.65	0.008
SIZE	6.961	6.812	5.787	5.850	11.29	0.001	10.60	0.001
LOSS	0.329	0.000	0.449	0.000	-4.45	0.001	-4.37	0.001
GC	0.017	0.000	0.068	0.000	-4.11	0.001	-4.01	0.001
LEVERAGE	0.247	0.182	0.234	0.153	0.92	0.355	0.92	0.358
MB	2.004	2.272	1.927	2.132	0.27	0.786	0.80	0.800
EMPLOYMENT	0.067	0.000	0.037	0.000	2.69	0.007	2.85	0.004
BOARDSIZE	8.868	8.000	7.914	7.000	7.44	0.001	7.70	0.001
ACSIZE	3.656	3.000	3.364	3.000	6.6	0.001	6.54	0.001
MGRCHG	0.320	0.000	0.330	0.000	-0.36	0.718	-0.30	0.768
BIG4	0.963	1.000	0.608	1.000	15.18	0.001	14.27	0.001
TENURE	1.671	1.946	1.292	1.609	8.22	0.001	6.34	0.001
AUDFEE	7.397	7.447	7.680	7.795	3.75	0.001	-4.04	0.001

This table reports the descriptive statistics of variables in Model 1. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers.

Table 4 Logistic Regression Results of Auditor Dismissal

Variable	Sign	Coefficient	Chisq	P
INTERCEPT		-2.807	7.162	0.007
INTERLOCK	?	-0.344	4.586	0.032
SIZE	-	-0.058	0.634	0.213
LOSS	+	-0.066	0.188	0.664
GC	+	0.503	3.177	0.037
LEVERAGE	+	0.101	0.159	0.345
MB	?	0.001	1.749	0.186
EMPLOYMENT	?	-0.364	0.998	0.318
BOARDSIZE	?	-0.035	0.711	0.399
ACSIZE	?	0.062	0.418	0.518
MGRCHG	+	0.402	6.455	0.011
BIG4	-	-0.382	4.365	0.018
AUDTENURE	-	-0.108	2.541	0.055
AUDFEE	+	0.198	4.879	0.014
Year Dummy		Included		
R ²		0.133		
N		1593		

This table reports the regression results on the relation between AC-Auditor Interlocking and auditor dismissal after the restatements occur. The dependent variable is DISMISS which is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. INTERLOCK is equal to 1 if there is an AC-Auditor Interlocking, and 0 otherwise. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.

Table 5 Cross-Sectional Analyses for Auditor Dismissal

Variable	Sign	Coefficient	Chisq	P	Coefficient	Chisq	P
INTERCEPT		-3.548	1.708	0.191	-2.547	5.719	0.017
NUM_INTERLOCK	?	-0.481	4.131	0.042			
INTERLOCK	?				-1.255	7.333	0.007
INTERLOCK*LOCAL_SUPPLY	?				0.380	4.472	0.035
LOCAL_SUPPLY	+				-0.147	0.386	0.666
SIZE	-	0.171	0.802	0.185	-0.057	0.596	0.220
LOSS	+	0.529	2.334	0.127	-0.050	0.108	0.743
GC	+	1.604	3.768	0.026	0.503	3.118	0.039
LEVERAGE	+	0.955	3.053	0.040	0.100	0.157	0.346
MB	?	0.018	0.958	0.328	0.001	1.592	0.207
EMPLOYMENT	?	-1.556	1.653	0.199	-0.368	1.010	0.315
BOARDSIZE	?	-0.261	5.975	0.015	-0.040	0.928	0.336
ACSIZE	?	0.169	0.598	0.439	0.068	0.493	0.482
MGRCHG	+	0.330	0.668	0.414	0.406	6.573	0.010
BIG4	-	-0.614	0.587	0.222	-0.362	3.866	0.025
AUDTENURE	-	-0.035	0.034	0.427	-0.112	2.740	0.049
AUDFEE	+	0.279	1.266	0.130	0.204	5.096	0.012
Year Dummy		Included			Included		
R ²		0.170			0.139		
N		446			1593		

This table reports the cross-sectional analyses results on the relation between AC-Auditor Interlocking and auditor dismissal after the restatements occur. The dependent variable is DISMISS which is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. INTERLOCK is equal to 1 if there is an AC-Auditor Interlocking, and 0 otherwise. NUM_INTERLOCK is the log number of companies that are interlocked with the incumbent auditor. LOCAL-SUPPLY is the log number of auditor offices in the local area. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.

Table 6 Descriptive Statistics of Variables in Model 2

Variable	DISMISS=1 N=320		DISMISS=0 N=2050		t	Pr > t	Z	Pr > z
	MEAN	MEDIAN	MEAN	MEDIAN				
ABACCRUAL	0.052	0.034	0.041	0.026	3.15	0.002	3.65	0.001
LOSS	0.424	0.000	0.337	0.000	2.95	0.003	3.04	0.002
SIZE	6.455	6.261	6.886	6.783	-3.2	0.001	-5.15	0.001
LEVERAGE	0.278	0.231	0.236	0.180	2.03	0.042	3.37	0.001
MB	2.516	2.022	2.562	1.984	0.26	0.794	-0.60	0.546
CFO	0.046	0.066	0.064	0.072	-0.52	0.605	-2.90	0.004
BIG4	0.452	0.000	0.484	0.000	-1.06	0.288	-1.09	0.276
MA	0.069	0.000	0.124	0.000	-2.52	0.012	-2.88	0.004
RESTRUCT	0.037	0.000	0.030	0.000	1.16	0.246	0.68	0.494
FINANCING	0.262	0.000	0.331	0.000	-2.88	0.004	-2.48	0.013
SI	0.844	1.000	0.796	1.000	2.53	0.011	2.01	0.044
SEGNUM	1.552	1.386	1.390	1.386	4.49	0.001	2.86	0.004

This table reports the descriptive statistics of variables in Model 2. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers.

Table 7 Panel A: Regression Results for Abnormal Accruals

Variable	Sign	Coefficient	t	P
INTERCEPT		0.074	3.90	0.001
DISMISS	?	0.014	2.14	0.032
POSTRES	?	-0.004	-1.95	0.051
DISMISS*POSTRES	?	-0.017	-2.10	0.036
SIZE	-	-0.008	-7.02	0.001
LOSS	+	0.001	0.24	0.404
CFO	-	0.001	0.12	0.499
LEVERAGE	+	0.010	1.31	0.095
MB	+	0.001	0.32	0.374
RESTRUCT	+	-0.001	-0.21	0.837
MA	+	-0.003	-0.86	0.392
SI	+	0.005	1.70	0.045
SEGNUM	+	0.002	0.73	0.232
BIG4	-	-0.003	-1.23	0.109
FINANCING	+	0.009	3.46	0.001
Year Dummy		Included		
Industry Dummy		Included		
R ²		0.116		
N		2370		

This table reports the regression results for the effect of auditor dismissal on the subsequent abnormal accruals for companies with AC-Auditor Interlocking. The dependent variable is ABACCRUAL which is the absolute value of abnormal accruals using modified Jones Model. DISMISS is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. POSTRES is equal to 1 if a firm-year observation belongs to the post-restatement period which is the first three years after the restatement occurs. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.

Table 7 Panel B Regression Results for Going Concerns

Variables	Sign	Coefficient	Chisq	P
Intercept		-6.278	49.16	0.001
DISMISS	?	-0.395	2.55	0.110
POSTRES	?	0.422	5.38	0.020
DISMISS*POSTRES	?	0.547	3.17	0.075
SIZE	-	-0.521	61.28	0.001
AGE	-	0.019	0.02	0.442
ROA	-	-0.398	6.29	0.006
CFO	-	-0.583	2.30	0.065
MB	-	0.000	0.60	0.219
SALEGROWTH	-	-0.023	1.21	0.136
FINANCING	-	-0.057	0.12	0.365
LEVERAGE	+	1.344	12.59	0.000
REPLAG	+	1.054	34.90	0.001
BIG4	+	0.171	0.92	0.169
Year Dummy		Included		
Industry Dummy		Included		
R ²		0.373		
N		1183		

This table reports the regression results for the effect of auditor dismissal on the subsequent going concern opinions for companies with AC-Auditor Interlocking. The dependent variable is GC which is equal to 1 if a company receives a going concern opinion in the fiscal year, and 0 otherwise. DISMISS is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. POSTRES is equal to 1 if a firm-year observation belongs to the post-restatement period which is the first three years after the restatement occurs. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.

Table 8 First Stage Model for Audit Quality Analyses (Inverse Mills Ratio)

Variable	Coefficient	t	P
INTERCEPT	-1.136	-1.66	0.096
LOSS	0.338	3.69	0.000
LEVERAGE	0.011	0.07	0.946
GC	-0.428	-1.31	0.191
SIZE	-0.084	-1.83	0.067
MB	0.000	-0.11	0.910
EMP	-0.555	-0.94	0.252
BOARDSIZE	-0.085	-3.15	0.002
ACSIZE	0.047	0.75	0.454
MGRCHG	0.275	3.06	0.002
BIG4	-0.050	-0.57	0.566
AUDTENURE	-0.654	-10.90	0.001
AUDFEE	0.095	1.61	0.108
LOCAL_SUPPLY	0.241	4.37	0.001
Year Dummy	Included		
R ²	0.133		
N	2370		

This table reports the probit regression results on the choice of dismissing the incumbent auditor (Heckman first stage model). The dependent variable is DISMISS which is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. LOCAL-SUPPLY is the log number of auditor offices in the local area. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers.

Table 9 Table A Second Stage Model for Abnormal Accruals

Variable	Sign	Coefficient	t	P
INTERCEPT		0.098	9.86	0.001
DISMISS	?	0.016	2.27	0.024
POSTRES	?	-0.004	-1.64	0.101
DISMISS*POSTRES	?	-0.021	-2.56	0.010
SIZE	-	-0.007	-7.43	0.001
LOSS	+	0.000	-0.07	0.945
CFO	-	-0.001	-0.12	0.450
LEVERAGE	+	0.005	0.81	0.209
MB	+	0.000	2.05	0.020
RESTRUCT	+	-0.002	-0.39	0.696
MA	+	-0.002	-0.58	0.561
SI	+	0.004	1.52	0.064
SEGNUM	+	0.002	1.06	0.145
BIG4	-	-0.002	-0.81	0.208
FINANCING	+	0.008	3.25	0.001
INVERSE_MILLS_RATIO	?	-0.008	-2.25	0.025
Year Dummy		Included		
Industry Dummy		Included		
R ²		0.118		
N		2370		

This table reports the regression results for second stage model (with Inverse Mills Ratio) of the audit quality analyses for companies with AC-Auditor Interlocking. The dependent variable is ABACCRUAL which is the absolute value of abnormal accruals using modified Jones Model. INVERSE_MILLS_RATIO is the inverse Mills ratio calculated from the first stage model. DISMISS is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. POSTRES is equal to 1 if a firm-year observation belongs to the post-restatement period which is the first three years after the restatement occurs. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.

Table 9 Table B Second Stage Model for Going Concerns

Variables	Sign	Coefficient	Chisq	P
Intercept		-8.286	60.88	0.001
DISMISS	?	-0.313	1.47	0.226
POSTRES	?	0.540	7.02	0.008
DISMISS*POSTRES	?	0.667	3.95	0.047
SIZE	-	-0.495	36.03	0.001
AGE	-	-0.167	1.42	0.117
ROA	-	-0.370	5.28	0.011
CFO	-	-0.735	3.76	0.026
MB	-	-0.001	3.64	0.028
SALEGROWTH	-	-0.020	1.31	0.126
FINANCING	-	-0.269	1.94	0.082
LEVERAGE	+	1.614	16.72	0.001
REPLAG	+	1.095	36.74	0.001
BIG4	+	0.037	0.03	0.431
INVERSE_MILLS_RATIO	?	1.653	10.31	0.001
Year Dummy		Included		
Industry Dummy		Included		
R ²		0.335		
N		1183		

This table reports the regression results for second stage model (with Inverse Mills Ratio) of the audit quality analyses for companies with AC-Auditor Interlocking. The dependent variable is GC which is equal to 1 if a company receives a going concern opinion in the fiscal year, and 0 otherwise. INVERSE_MILLS_RATIO is the inverse Mills ratio calculated from the first stage model. DISMISS is equal to 1 if the incumbent auditor is dismissed within 12 months after the restatement announcement, and 0 otherwise. POSTRES is equal to 1 if a firm-year observation belongs to the post-restatement period which is the first three years after the restatement occurs. Variables are defined in Table 2. P-values are one tailed for variables with predicted signs, and two tailed for variables without predicted signs. I winsorize the top and bottom 1% of each of the continuous variables to mitigate the influence of outliers. Standard errors are clustered by firm and year.