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Group audits: Are audit quality and price associated with the Lead auditor's decision to accept responsibility?

Juan Mao [a,*], Michael Ettredge [b], Mary Stone [c]

[a] University of Texas at San Antonio, One UTSA Circle, San Antonio, TX 78249-0631, United States
[b] University of Kansas, United States
[c] University of Alabama, United States

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ABSTRACT

Lead auditors frequently rely on work performed by Other auditors, especially when auditing clients with operations in multiple countries. The PCAOB has expressed concern that the quality of such group audits may differ depending on whether the Lead auditor accepts or declines responsibility for work done by Other auditors. The PCAOB also has been concerned with the venue through which Lead auditors and Other auditors disclose their participation in group audits, including disclosure of whether Lead auditors accept or decline responsibility. To investigate these issues, we employ a sample consisting entirely of group audit engagements. We identify Lead auditors taking responsibility from PCAOB Form 2, filed by Other auditors of U.S. registrants for fiscal years 2009 to 2017. We identify Lead auditors not accepting responsibility from audit report disclosures during the same period. The results suggest that Lead auditors accepting responsibility charge higher audit fees but provide audits of no higher quality, and possibly of even lower quality. These results are robust to various additional analyses. Our research contributes to the ongoing debate over how the participation of Other auditors affects audit quality.

1. Introduction

The Lead auditor of a multinational company often relies on work done by Other auditors.[1] In recent years, the Public Company Accounting Oversight Board (PCAOB) has expressed concern over Lead auditors' reliance on work performed by Other auditors (PCAOB, 2010, 2011a, 2015a, 2016a). In 2015, it issued new guidance requiring disclosure of information about other firms participating in audits (PCAOB, 2015b). A recent proposal, to strengthen group audit requirements and impose a more uniform approach to the Lead auditor's supervision, notes that: "... the impact of using Other auditors on overall audit quality is still a largely unanswered empirical question and may depend on the facts and circumstances of the audit" (PCAOB, 2016a, 29).[2]

* Corresponding author.
E-mail addresses: juan.mao@utsa.edu (J. Mao), mettredge@ku.edu (M. Ettredge), mstone@cba.ua.edu (M. Stone).

[1] We employ the "Lead" and "Other" auditor terminology used by the PCAOB in Release 2016–002 (Appendix A) (PCAOB, 2016a). PCAOB (2016a) reports that Other auditors are involved in about 55 percent of audits performed by U.S. global network firms and in about 30 percent of audits performed by non-U.S. global network firms. The extent of participation by Other auditors ranges from none to most of the audit work (PCAOB, 2013).

[2] The proposal has not yet been enacted. The PCAOB currently is deliberating comments received in response to PCAOB Release No. 2017–005 (PCAOB, 2017). https://pcaobus.org/Rulemaking/Pages/Docket042.aspx.

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0278-4254/

The goal of this paper is to investigate one such circumstance: whether Lead auditors' disclosed choices to decline or accept responsibility for work done by Other auditors are associated with differences in audit fees and quality.[3]

Studies examining the participation of Other auditors are rare and provide mixed evidence. Carson et al. (2016) document that Australian audit firms charge higher fees when Other auditors are involved. Burke et al. (2018) reach similar conclusions using U.S. group audits identified from Form AP disclosures.[4] When Dee et al. (2015) use a sample of U.S. listed companies, they do not find such a difference for group audits identified from PCAOB Form 2,[5] relative to *a control sample without Form 2 disclosure of Other auditors*. These prior studies compare audit fees of firms using the work of Other auditors to those of *firms not using Other auditors* (Carson et al., 2016; Burke et al., 2018), or they compare fees of firms with Form 2 disclosure of Other auditors to those of *firms without such disclosure* (Dee et al., 2015). Prior studies show that Lead auditors that *disclaim* responsibility for the work of an Other auditor in the audit report of a client's 10-K (Lyubimov, 2011) or Lead auditors that use the work of other auditors as disclosed in the PCAOB Form 2 (Dee et al., 2015) have lower audit or financial reporting quality relative to *those without such disclosure*, many of which were likely not group audits.[6] Two recent studies, Burke et al. (2018) and Dee et al. (2018), reach different conclusions regarding audit quality for clients using the work of other auditors, based on Form AP group audit data. While Dee et al. (2018) document that audit quality is lower if Lead auditors use the work of Other auditors, Burke et al. (2018) find little such evidence.

Our study extends these prior studies by assessing the association of the Lead auditor's decision to accept responsibility for the work of Other auditors with audit fees received by the Lead auditor, and with audit quality for the overall engagement. In contrast to prior studies, all our sample engagements are group audits. We separately identify engagements for which the Lead auditor takes (does not take) responsibility for the work of Other auditors. Auditors' decisions are obtained from PCAOB and SEC disclosures (Form 2 or the audit report).[7] Studies specifically examining audit report disclosure of shared responsibility in group audits are rare, although a few recent studies investigate other aspects of group audits (Burke et al., 2018; Carson et al., 2016; Dee et al., 2015, 2018). To the best of our knowledge the only published study of auditors' reports that encompasses disclosures related to group audits is Czerney et al. (2014), which finds that clients with unqualified audit reports containing explanatory language (including, among other types, shared responsibility disclosures) are more likely to restate subsequently than clients without such language in their reports. Our design allows us to examine the relationship between taking responsibility and audit pricing and quality.

It is unclear *ex ante* whether our "Lead auditor accepts" test engagements will exhibit the same, higher, or lower audit quality than our "Lead auditor declines" control engagements. Arguably, Lead auditors' Accept/Decline decisions should be associated with overall audit quality because the quality of the outsourced audit work is influenced by the Lead auditor's efforts. Audit standards require Lead auditors to follow procedures to ensure that Other auditors provide an acceptably high level of audit quality. However, the PCAOB (2016a, 8) acknowledges that group audits present Lead auditors with unique problems.[8] The PCAOB (2016a, 8) notes: "PCAOB inspections continue to identify significant deficiencies in audit work performed by other auditors that Lead auditors did not identify or address."[9]

Lead auditors that are *ex ante* unwilling or unable to ensure appropriate effort by Other auditors may decline to accept responsibility for work done by those auditors via language in their audit reports. However, auditing standard AU 543 (AICPA, 1972) states clearly that "Reference in the report of the principal auditor to the fact that part of the audit was made by another auditor is not to be construed as a qualification of the opinion but rather as an indication of the divided responsibility between the auditors who conducted the audits of various components of the overall financial statements." As noted in AU 543, in some situations principal auditors may decide to divide responsibility when "it may be impractical for the

[3] We caution that the nature of the available data and other methodological limitations do not allow us to infer that the associations we observe are causal. This is common among archival empirical studies. Leuz (2018), Glaeser and Guay (2017), and Gow et al. (2016) among others provide in-depth discussions of the issues.

[4] PCAOB Form AP requires registered firms to disclose the identity of the engagement partner and other auditors participating in the audit. Form AP disclosures were first required for audit reports issued on or after June 30, 2017.

[5] Form 2 requires registrants to file annual information about their audit practice.

[6] No reference to Other auditors in the audit report (i.e., no division of responsibility disclosure in the audit report) could occur when (1) Lead auditors may not use any Other auditor or (2) Lead auditors may use Other auditors but take responsibility. Similarly, no Form 2 disclosure of Other auditors could occur when (1) Lead auditors may not use any Other auditor or (2) Lead auditors may use Other auditors who have U.S. issuers and thus are not required to do so. (3) Lead auditors may use Other auditors that do not have U.S. issuers but these Other auditors only play non-substantial roles in the group audits. Therefore, it is not clear whether Lead auditors who take responsibility for the work of Other auditors have higher audit fees and quality than Lead auditors without such responsibility.

[7] Because Form AP disclosures were first required for audit reports issued on or after June 30, 2017, we rely primarily on Form 2 disclosures. Accordingly, we subsequently reference only Form 2. In additional un-tabulated analyses, we also include group audits identified from Form AP and reach similar conclusions.

[8] "... working with Other auditors can differ significantly from working with individuals in the same firm. For example, the Lead auditor and Other auditors may work in countries with different business practices, languages, cultural norms, and market conditions. Also, different firms have different quality control systems, and the professional training and experience of the Lead auditor may differ from those of the Other auditors (including training and experience in applying PCAOB standards). These factors can pose challenges in the coordination and communication between the Lead auditor and Other auditors, including misunderstandings regarding the audit effort needed to meet the objectives of the Other auditors' work. Without adequate supervision by the Lead auditor to address these challenges, deficiencies in Other auditors' work can result in deficient audits."

[9] An example is provided by the PCAOB's sanction of Clancy and Co. P.L.L.C, an Arizona-based U.S. audit firm that served as the Lead auditor for a U.S. listed company and assumed responsibility for the work of a Hong Kong firm separately engaged by the client. The PCAOB concluded that Clancy and Co. violated PCAOB standards by "failing to adopt appropriate measures to assure coordination with another accounting firm and using work of another accounting firm without following up on indications the work may have been inappropriate for use by the Firm" (PCAOB, 2009).

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principal auditor to review the other auditor's work or to use other procedures".[10] Professional standards state that: "Regardless of the principal auditor's decision, the Other auditor remains responsible for the performance of his own work and for his own report (AU 543, para. 03)." The foregoing suggests the PCAOB expects Other auditors to exert the same care and effort, and to achieve the same audit quality, irrespective of the Lead auditor's decision to accept or decline responsibility.

Other auditors are positioned to provide high quality work because they typically are located in the same geographic region as the audit client's components, and likely have a better understanding than the Lead auditor of the business environment, cultural norms, language, etc. (PCAOB, 2016a, 7). It is even possible that Other auditors provide higher quality audit services when Lead auditors decline to accept responsibility for their work and thus Other auditors' audit reports for the components of the client are typically included in the client's SEC filings. If Other auditors perceive Lead auditors are trying to shift responsibility, and in turn reputational and litigation risk, they may increase their own effort beyond what it would be if the Lead auditor accepted responsibility.[11] In summary, Other auditors may respond to the Lead auditors' decision to decline responsibility by exerting equal, less or more audit effort. Hence, the association between Lead auditors' accept or decline decisions and overall audit quality is an empirical question.

We argue that Lead auditors' fees likely will differ based on the auditor's decision to accept or decline responsibility. PCAOB standards require that Lead auditors planning to accept responsibility exert additional effort to assure the quality of work performed by the Other auditors.[12] Lead auditors also may charge higher fees to compensate for perceived increased risk when accepting responsibility. These considerations argue for higher audit fees when Lead auditors accept responsibility.[13]

Using a sample of group audits of U.S. listed companies from 2009 to 2017, we find that Lead auditors accepting responsibility charge higher audit fees than those declining responsibility. Our results hold after controlling for characteristics of Other auditors including their country locations as well as for characteristics of clients that could affect audit pricing. Our findings are consistent with the argument that Lead auditors either exert greater effort or charge a premium to compensate for increased risks.

In the absence of data on engagement audit hours, we cannot directly test whether Lead auditors accepting responsibility for the work of Other auditors exert additional effort. We can, however, test for higher audit quality for the overall engagement, the socially desirable outcome that greater effort is expected to bring. Consistent with prior literature (Czerney et al., 2014; Krishnan et al., 2017), we use one proxy for clients' financial reporting quality (absolute discretionary accruals) as an indirect measure of audit quality, and one direct measure of audit quality (corrected misstatements), as dependent variables. We find no evidence of higher audit quality when Lead auditors accept responsibility, and some evidence of lower quality. Specifically, we find evidence that clients whose Lead auditors accept responsibility for the work of other auditors have larger discretionary accruals but have similar likelihood of misstatements.

To provide further evidence that the audit fee and audit quality effects we document are associated with the Lead auditor's Accept/Decline decision, rather than with underlying characteristics of the client and/or the Other auditor, we estimate a two-stage Heckman model. The first-stage model, which predicts the probability the Lead auditor will accept responsibility, includes client and Other auditor characteristics potentially related to the Accept/Decline decision. In the second stage, the inverse Mills ratio, calculated using the first-stage model, is included in our audit fee and audit quality regressions. The inverse Mills ratio coefficient is not significant in any of these models. This suggests that the higher audit fee we document for Accept engagements is the Lead auditor's compensation for *actual* acceptance of responsibility, rather than a proxy for characteristics of the Other auditor and/or the client that are associated with the Lead auditor's probable acceptance.

Our study contributes to the auditing literature in several ways. We provide initial evidence on how divided responsibility in group audits is associated with audit fees and quality. It therefore enriches our understanding of such arrangements. Specifically, we find that Lead auditors who take responsibility for Other auditors' work receive higher audit fees but do not provide higher quality audits, compared with Lead auditors that decline responsibility in the audit report. In fact, our evidence suggests that clients have lower financial reporting quality (measured as greater absolute discretionary accruals)

[10] For example, American Airlines, audited by Ernst & Young, acquired US Airway, audited by KPMG, on December 9 of 2013 and Ernst & Young made reference to KPMG in its 2013 (divided responsibility) audit report for American Airlines. Ernst & Young stated that: "We did not audit the financial statements of US Airways Group, Inc., a wholly-owned subsidiary of the Company, which statements reflect consolidated total assets constituting 39% as of December 31, 2013, and total operating revenues constituting 3% for the year ended December 31, 2013, of the related consolidated totals. Those financial statements were audited by other auditors whose report has been furnished to us, and our opinion, insofar as it relates to data included for such wholly-owned subsidiary, is based solely on the report of other auditors."

[11] In its letter dated January 9, 2012, responding to a PCAOB Request for Comment, the Center for Audit Quality stated (CAQ 2012, 8) that "Requiring the disclosure of the names of other participating firms [in the audit report] could result in those firms becoming the subject of litigation and regulatory actions whenever there is any doubt involving the issuer's financial statements" (https://pcaobus.org//Rulemaking/docket029/035b_caq.pdf). During our sample period, AU 543 para. 07 allowed a Lead auditor to mention an Other auditor's identity in its audit report only with the permission of that auditor.

[12] AU 543, para. 12, states that principal auditors will conduct additional procedures including "*a*. Visit the Other auditor and discuss the audit procedures followed and results thereof. *b*. Review the audit programs of the Other auditor. In some cases, it may be appropriate to issue instructions to the Other auditor as to the scope of his audit work. *c*. Review the working papers of the Other auditor, including the understanding of internal control and the assessment of control risk."

[13] The strength of this argument may be questioned because the Lead auditor's acceptance of responsibility must be inferred from Form 2 disclosures, which unlike audit report disclosures are not covered by the securities laws and therefore may be less subject to litigation. Although we are unaware of studies of investors' uses of information in regulatory documents other than those filed with the SEC, studies of information included in 10-K filings (e.g., Yu, 2013) suggest that the location of disclosures matters.

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when Lead auditors accept responsibility. This suggests that whether Lead auditors take responsibility is not a driving force for audit quality in the group audits we examine, but it is a driver for audit fees.

Our evidence of higher fees absent an increase in audit quality is consistent with the PCAOB's inspection findings that Lead auditors do not always perform sufficient additional procedures as required by the auditing standards when using the work of Other auditors and when assuming that responsibility (PCAOB, 2010, 2011c). It suggests that Lead auditors that charge higher audit fees when taking responsibility for work performed by Other auditors do so to compensate themselves for greater risk, rather than to cover the full costs of their additional audit effort.[14] Another possibility is that Lead auditors do supply additional effort when accepting responsibility, but that the additional effort may be ineffective.

Finally, this study adds to the scant literature examining group audit disclosures (Burke et al., 2018; Carson et al., 2016; Dee et al., 2015, 2018; Lyubimov, 2011). Prior studies (Burke et al., 2018; Carson et al., 2016; Dee et al., 2015, 2018) examine either audits for which Lead auditors accept responsibility or audits for which they do not accept responsibility but do not compare pricing and audit quality for the two samples. Our study extends these prior studies by directly comparing group audits identified from PCAOB filings and audit reports. Our findings indicate that the Lead auditor's decision to decline responsibility usually is not associated with a commonly employed measure of audit quality, client corrections of misstatements. This suggests that the Lead auditor's decision to decline responsibility might increase the Other auditor's effort due to its perception of its professional responsibilities and risk exposure, and thereby result in no overall loss in audit effort or quality. On the other hand, the Lead auditor's decision to accept responsibility is associated with larger client absolute discretionary accruals, which often is viewed as indicating lower financial reporting quality. This evidence suggests that incremental effort by the Other auditor in an un-divided responsibility audit may not occur or might be ineffective. Evidence that disclosure of divided responsibility in the audit report is not associated with lower audit quality (and therefore with financial reporting quality) would tend to support the PCAOB's decision to continue to allow disclaimer of responsibility by Lead auditors, which has been long established in the U.S. and is supported by the AICPA Auditing Standards Board (ASB) (Thomas and Wedemeyer, 2013).

The rest of the paper is organized as follows. Section 2 applies agency theory to group audits, presents our conceptual model of the Accept/Decline decision, discusses background and develops our hypotheses. Section 3 describes our sample selection process. Section 4 explains our research models and Section 5 reports our results. Section 6 concludes.

2. Hypothesis development

2.1. Agency theory applied to group audits

Agency theory provides a justification for auditing, and in our setting provides a basis for understanding the problems that arise in group audits. An agency relationship exists whenever one party (the principal) delegates work to another party (the agent) (Jensen and Meckling, 1976). Agency costs arise when the goals of the principal and the agent conflict and it is difficult or costly for the principal to verify the quality of the agent's work (Eisenhardt, 1989). Auditing and other corporate governance mechanisms are designed to reduce agency costs by limiting agents' (managers') self-serving behavior (Watts and Zimmerman, 1983).

In a group audit, the Lead auditor certifies that financial statements are in conformity with U.S. Generally Accepted Accounting Principles (GAAP) and that the audit was conducted in accordance with the standards of the PCAOB. An agency problem arises because local laws often require U.S. auditors to involve a locally licensed auditor in audits of clients' foreign subsidiaries (Carson, 2009). The local auditor is the Lead auditor's agent and, in most cases, is a separate legal entity.[15] Because national laws on ownership and practice vary across jurisdictions, the ability of the Lead auditor to control Other auditors' actions is limited (Hall, 2010, 1137–1138). Two recent papers identify conflicts of interest and costs of monitoring as characteristics of international group audits (Sunderland and Trompeter, 2017; Downey and Bedard, 2019).

Lead auditors have incentives to monitor the work of Other auditors to increase the likelihood of providing a high-quality audit and to reduce the risk of audit failure and perceived reputational and/or litigation risk. As previously noted, the number and severity of deficiencies documented in PCAOB inspection reports of group audits involving foreign subsidiaries provide evidence that Lead auditors' monitoring efforts are not always successful (PCAOB, 2016a, 8).

2.2. Institutional background

During our sample period of 2009–2017, AU Section 543 (AS 1205) provided primary guidance to Lead auditors of U.S. listed companies for engagements in which "... other independent auditors ... have audited the financial statements of one or more subsidiaries, divisions, branches, components, or investments included in the financial statements presented"

[14] DeFond and Zhang (2014) characterize increases in fees to compensate for increased reputational and/or litigation risk as a deadweight loss.

[15] This is true even when the local firm operates under the umbrella of a global firm. Firms that are part of a global network share a common brand name as well as standards and procedures (Hall, 2010, 1139). Until recently, the network structure protected members from liability for one another's alleged wrongdoing (Hall, 2010, 1140).

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(PCAOB, 2016a, 9).[16] AU 543 allows Lead auditors to accept or decline to accept responsibility for work done by Other auditors. When Lead auditors choose to decline responsibility, they state that decision in their audit reports and clearly indicate the division of responsibility between the Lead and Other auditors.[17] In all other cases, they are deemed to accept responsibility (AU 543, para. 03). Engagements in which Lead auditors accept responsibility are much more numerous than those in which divided responsibility is disclosed in the audit report.

PCAOB Release 2015–008 (PCAOB, 2015b) requires Lead auditors to disclose the identities and work performed by Other auditors involved in group audits. The information must be disclosed in Form AP for auditors' reports issued on or after June 30, 2017. The new guidance does not require Lead auditors to accept sole responsibility for all audit work performed by Other auditors. Nor does it require Lead auditors to mention Other auditors in their audit reports. However, if Lead auditors voluntarily disclose participation by Other auditors in audit reports, they must state that they accept responsibility for the work performed by those auditors (PCAOB, 2015b, 19). If the Lead auditor does not accept responsibility for the work of Other auditors, the audit report must clearly disclose the division of responsibility with Other auditors. In either case, the Lead auditor must provide disclosures about Other auditors outside of the audit report.

The majority of our sample period years precede the effective date for disclosure about the identity and involvement of Other auditors required by PCAOB Release 2015–008, a standard enacted to increase transparency (PCAOB, 2015b). Thus, it provides a unique opportunity to investigate the effects of Lead auditors' decisions to accept versus decline responsibility for work done by Other auditors in a reporting environment characterized as opaque by the PCAOB.

2.3. Conceptual model of the Lead auditor's acceptance decision

By their nature, group audits involve heightened uncertainty and risk of failure to identify material misstatements. This could cause the Lead auditor to perceive an increased risk of litigation. Simunic (1980) decomposes audit fees into a resource component that increases with the level of auditor effort and an expected liability component. The auditor uses judgment to assess liability risk and charges an audit fee that covers a commensurate level of effort plus a risk premium based on possible future litigation losses (Pratt and Stice, 1994). The risk of litigation can affect audit pricing and audit quality (Venkataraman et al., 2008; Seetharaman et al., 2002), with a high-quality audit being the assumed outcome of auditors' concern for potential litigation and reputational risk (Hope and Langli, 2010; Lyubimov et al., 2013). Bronson et al. (2017) provide evidence that audit fees are higher for cross-listed firms, with the incremental fee attributed primarily to added litigation costs.[18]

As noted previously, nothing in the professional audit literature suggests that a Lead auditor's disclaimer of responsibility for the work of an Other auditor should be interpreted as indicating that either the quality of the financial statements is lower or the Lead auditor's reputational/litigation risk is lower. Nonetheless, financial statement users' and auditors' perceptions as well as the empirical reality may be different. The only relevant research of which we are aware (Czerney et al., 2014) shows that only 1.12% of the approximately 31,000 audit reports issued by U.S. auditors from 2000 to 2009 included explanatory language disclosing division of responsibility. However, these audit reports accounted for a disproportionate 1.69% of restatements during the period, suggesting that a disclaimer of responsibility may be an indicator of lower audit quality.[19]

We provide in Fig. 1 a conceptual overview of the Lead auditor's acceptance decision. We discuss the model, then state our hypotheses on the association between the Lead auditor's decision to accept responsibility for the work of Other auditors, and audit pricing and audit quality. As shown in Fig. 1, at the audit planning stage, the Lead auditor makes a decision whether or not to *plan* the audit in a manner that allows the Lead auditor to accept responsibility for the work of an Other auditor at the reporting stage. The Lead auditor makes this decision before gathering evidence, based on what it knows about the reputation and independence of the Other auditor, and based on the Lead auditor's expected ability to influence the work of the Other auditor. When the Lead auditor plans to accept full responsibility and not to divide it (path "1″ in Fig. 1), then AU 543 (para. 12) requires that the Lead auditor "should also consider whether to perform one or more of the following procedures . . ." AU 543 then specifies the procedures stated in the path "1" text box for the auditing stage, and previously mentioned in footnote 12. We believe that a Lead auditor deciding to accept full responsibility usually will perform the additional procedures specified in paragraph 12 of AU 543 in order to protect its reputation and to reduce liability risk.

If the available information suggests the Lead auditor will *not* be able to accept responsibility, the Lead auditor will make an initial decision not to do so. For example, the component is an investee of the Lead auditor's client and the investee is audited by the Other auditor, of which the Lead auditor has little control. This decision is a "one-way street". If the Lead auditor *plans not to accept* responsibility, then the Lead auditor will not undertake additional procedures and additional oversight

[16] During our sample period, group audits not covered by AS 1205 were governed by Auditing Standard No. 10 (incorporated into AS 1201 in 2010). PCAOB (2016a, footnote 15) provides the following example of a situation in which AS 1201 would apply instead of AS 1205: "... AS 1205 does not apply when the participation of another accounting firm in an audit consists solely of observing a physical inventory at a company's warehouse."

[17] This provision for declining responsibility is, perhaps, one of the most significant differences between U.S. standards for group audits and their international counterpart, ISA 600 (AICPA, 2011; Thomas and Wedemeyer, 2013).

[18] Habib et al. (2014) review the literature on litigation risk, financial reporting and auditing.

[19] The 1.69% is based on Table 4 of Czerney et al. (2014). Of 30,825 audit reports with explanatory language (EL), 345 (1.12%) of them disclose division of responsibility (decline responsibility). Out of 345 reports with division of responsibility, 61 (17.68%) are restated. Out of 30,825 audit reports with EL, 3,605 are restated. So, overall, restatements by the sample with division of responsibility accounts for 61/3,605=1.69% of restatements during the period.

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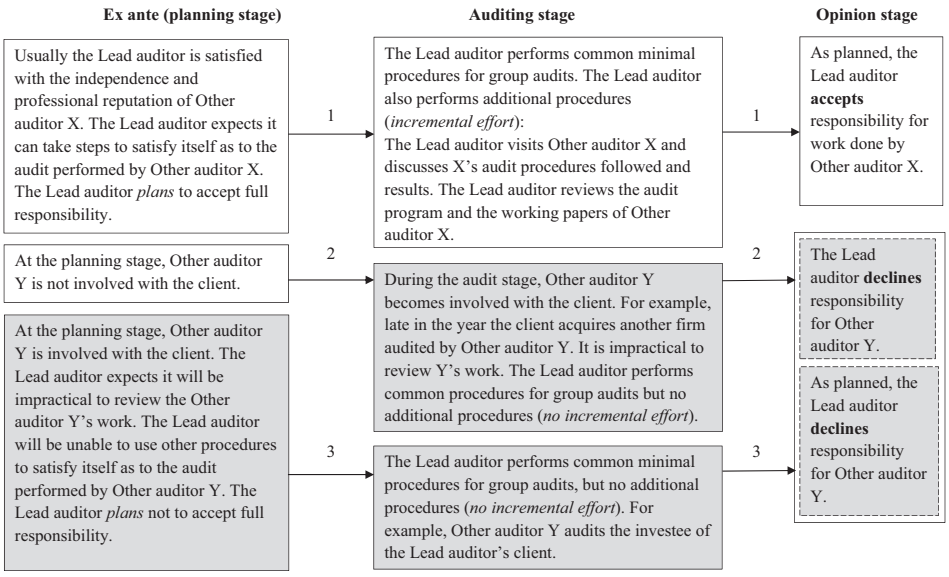

Fig. 1. The Lead auditor's decision to accept or decline responsibility for work done by Other auditors.

of the Other auditor that would be required when accepting responsibility. The Lead auditor therefore will be very likely to decline to accept full responsibility. See path "3" in Fig. 1.

After gathering evidence, the Lead auditor obtains an ex post view of its relations with the client and the Other auditor. Information obtained during the audit might alter the Lead auditor's initial plan to accept full responsibility. For example, various circumstances might have interfered with its ability to guide and control the work of the Other auditor. This situation should be uncommon, especially on engagements for which the Lead auditor has worked with the Other auditor previously. In some cases, an Other auditor becomes involved with the group audit during the client's fiscal year, subsequent to the Lead auditor's planning process. For instance, a client audited by an Other auditor is acquired by the Lead auditor's client in the latter part of the client's fiscal year, and it is impractical for the Lead auditor to perform additional audit procedures to accept such responsibility (PCAOB, 2016b). Therefore, the Lead auditor divides the responsibility with the Other auditor in the audit report. An example of such a situation is presented in path "2″ of Fig. 1 and footnote 10.

2.4. Implications of the conceptual model for audit fees and audit quality

The implications of the conceptual model for the Lead auditor's effort (and fee), and for the client's audit quality (AQ) and its financial reporting quality (FRQ), are as follows. Lead auditors that follow paths "2″ or "3" in Fig. 1 (i.e., that decline responsibility) spend less additional effort in supervising or supplementing the work done by Other auditors. Thus, the Lead auditor's decision not to accept responsibility (via paths "2" or "3") is attended by lower incremental fees to the Lead auditor. The implications for AQ are less clear, as discussed in Section 1.

Because Lead auditors are not required to perform additional audit procedures when they decline responsibility for the work of other auditors, the audit work performed by the Other auditor is not monitored by the Lead auditor. In this setting, the Lead auditor may not know the quality of the Other auditor's work. If the Other auditor's work is of low quality, the overall quality of the shared responsibility audit could be lower.[20]

The argument in AU 543 that a divided responsibility disclosure in the audit report should not be viewed as a qualification of the report suggests that standard-setters did not expect the overall quality of the audit to be lower when responsibility is divided. As noted earlier, the Lead auditor may decide to divide responsibility because it is impractical to perform the procedures necessary to accept responsibility rather than because of reservations about the quality of the Other auditor's work.

Fig. 1 focuses on the Lead auditor's decisions, in relation to generally accepted auditing standards, and does not reflect the Other auditor's likely responses. Arguably, the Other auditor could provide higher quality audit services when the Lead auditor declines to accept responsibility for their work. The report of the Other auditor is included in the client's SEC filings, which exposes it to litigation risk. If the Other auditor perceives the Lead auditor is trying to shift responsibility, and in turn reputational and litigation risk, the Other auditor may increase its effort beyond what it would be if the Lead auditor accepted responsibility.

As the foregoing arguments suggest, the total audit effort, expended by both the Lead and the Other auditor, and, in turn, overall audit quality could be more, less, or the same when the Lead auditor divides responsibility with the Other auditor.

[20] We thank an anonymous reviewer for prompting us to think more carefully about why a divided responsibility audit could be a lower quality audit.

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These considerations suggest ambiguous signs of association between the Lead auditor's decision to accept, and the AQ and FRQ of the combined entity.

Lead auditors that follow path "1″ in the Figure usually do expend additional effort in supervising or supplementing the work done by Other auditors, as recommended by PCAOB standards. Thus, the Lead auditor's decision to accept responsibility (via path "1") should be attended by incremental audit fees to the Lead auditor. Another possibility is that the Lead auditor charges a risk premium without supplying additional effort. Therefore, an important empirical question is whether there is a measurable improvement in AQ and in FRQ for the client component audited by the Other auditor, as captured by the AQ and FRQ of the combined entity. As stated above, Fig. 1 focuses on the Lead auditor's incentives and decisions and does not capture the Other auditor's likely response. If Other auditors perceive Lead auditors' decisions to accept responsibility for the Other auditors' work, they might reduce their own effort below what it would be if the Lead auditor declined responsibility. Thus, total audit effort, expended by both the Lead and the Other auditor, could be more, less, or the same whether or not the Lead auditor accepts responsibility for the Other auditor's work. These considerations again suggest ambiguous signs of association between the Lead auditor's decision to accept, and the AQ and FRQ of the combined entity.

In light of the prior discussion, we present the following hypotheses. The first hypothesis is directional because the theory presented above clearly suggests that auditors accepting responsibility for work done by Other auditors generally will comply with PCAOB standards by performing incremental procedures. This should be associated with higher fees to the Lead auditor. The second hypothesis is non-directional because the theory presented above does not clearly suggest that overall client AQ and FRQ are higher if the Lead auditor accepts responsibility.

Hypothesis 1: The audit fees charged by Lead auditors accepting responsibility for the work of Other auditors in group audits exceed those of Lead auditors declining responsibility for the work of Other auditors.

Hypothesis 2: The overall quality of group audits does not differ for those performed by Lead auditors that accept responsibility for the work of Other auditors, versus those of Lead auditors declining responsibility.

3. Sample

In this section, we describe our sample selection process and draw on hand-collected data to provide an overview of the headquarters of Lead auditors, Other auditors, and SEC registrants. We provide descriptive evidence about the nationalities and firm affiliations of Lead and Other auditors to provide a better understanding of the structure of group audits.

We identify group audits from PCAOB Form 2 and audit reports.[21] Disclosures in Item 4.2 of Form 2 provide the test sample for our study: group audits in which the Lead auditor accepts responsibility. Audit report disclosures provide the control sample for our study: group audits in which the Lead auditor declines responsibility. We discard from both samples those group engagements disclosed both in Form 2 and in audit reports.[22] Both the test and control engagements are group audits and thus involve Other auditors. However, the Form 2 disclosures used to identify Lead auditors accepting responsibility are mandatory only for Other auditors that are not the Lead auditor for any U.S. issuer, but that play a substantial role in auditing the registrant identified in the filing. In contrast, Other auditors identified from audit reports may be the Lead auditors for other U.S. issuers. This suggests that the nature of Other auditors could differ between test and control engagements. We perform separate tests for voluntary and mandatory Form 2 filers in additional analyses as well as for the two samples combined in main analyses.

3.1. Group audits identified through Form 2 disclosure: the Lead auditor accepts responsibility

This subsection profiles the "Accept" sample. The "Decline" sample is profiled in the next subsection. Audit firms began filing PCAOB Form 2 reports in May 2010, so most of these reports refer to fiscal year 2009 and later years. Our sample period therefore begins in 2009. We use Form 2 to identify Lead auditors accepting responsibility. As of July 2018, we identify 2,226 group audits (client-years) where Other auditors play a substantial role in auditing U.S. listed public companies, from 1,055 Form 2 files filed by those auditors.[23] We manually collect the names of the Lead and Other auditors, the roles and headquarters of Other auditors, and other information from Form 2, especially Item 4.2. Appendix A provides an example.[24]

The top half of Table 1 documents the sample selection process for the Accept sample. Initial data cleaning results in a client-year sample of 1,732 client-years obtained from Form 2 reports. Removal of 37 client-years identified from both Form 2 and audit reports, and 645 client-years with missing data, or data for clients in financial industries, results in the 1,050 client-years used in the audit fee analyses. Elimination of client-years with missing data needed for the audit quality regressions results in a sample of 865 client-years for the misstatement analyses and 913 client-years for the discretionary accrual analyses.

[21] An explanation of Form 2 is available at https://pcaobus.org/Rules/pages/for_2.aspx. A generic version of the form is available at https://pcaobus.org/Registration/Documents/Form2Sample.pdf. We provide an example Form 2 in Appendix A.

[22] There are only 37 such cases in our sample before sample attrition. Including these cases in the Accept sample does not alter our conclusions.

[23] https://rasr.pcaobus.org/Search/Search.aspx

[24] The example Form 2 was filed by Tom Chan & Co., a participating (Other) auditor located in Hong Kong. The Lead auditor is Child, Van Wagoner & Bradshaw PLLC. The issuer client is China Bilingual Technology and Education Group. The example Form 2 indicates that the audit of China Bilingual Technology and Education Group is a group audit, and that Lead auditor Child, Van Wagoner & Bradshaw PLLC accepts responsibility for work performed by Tom Chan & Co.

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Table 1
Sample selection procedures.

Accept sample			Client-years
Total client-years identified in Form 2 reports as of July of 2018*			2,226
Less: client-years without CIKs			−173
Less: duplicate client-years			−321
Unique client-years in Accept sample			**1,732**
Less: client-years identified in both audit reports and Form 2			−37
	Audit fee model	Misstatement model	Accrual model
Less: missing control variables or clients in financial industries	−645	−830	−782
Final Accept sample	**1,050**	**865**	**913**
Decline sample			**Client-years**
Total audit reports (fiscal years 2009–2017) with key words "We did not audit" or "Other auditor" or "Other auditors" in the audit report			5,445
Less: client or client-years not identified as using the work of Other auditors in the current year's audit			−4,731
Less: duplicate client-years			−61
Unique client-years in Decline sample			**653**
Less: client-years identified in both audit reports and Form 2			−37
	Audit fee model	Misstatement model	Accrual model
Less: missing control variables or clients in financial industries	−268	−316	−349
Final Decline sample	**348**	**300**	**267**

Note: the client fiscal years covered by Form 2 filed as of July of 2018 mainly refer to 2009–2017.

Table 2 provides information about the Lead Auditors of the Accept and Decline samples. In panel A, the left-hand column reveals the distribution of the Lead auditors of the 1,732 client-year observations initially in the Accept sample. The Lead auditors of U.S. listed companies that rely on the work of Other auditors are mainly located in the USA (1,125, 64.95%), Canada (123, 7.1%), and Hong Kong (80, 4.62%).

Panel B lists the 20 Lead auditors that participate in group audits most frequently. The left-hand column portrays the auditor Accepts sample. Among the top 20 Lead auditors that frequently accept responsibility, 14 are U.S. or foreign affiliates of Big 6 firms, possibly because many Big 6 clients are multinational companies with foreign operations, which usually require auditors located in the same areas as those foreign operations. Interestingly the information demonstrates that Grant Thornton in the U.S. has the largest number of audits relying on the work of Other auditors. Several of the top 20 Lead auditors (i.e., Goldman Kurland & Mohidin (GKM) LLP, Friedman LLP, Child Van Wagoner & Bradshaw PLLC) audit a number of Chinese reverse merger companies.[25] In summary, the information in panel B suggests that Big 6 auditors, and auditors of reverse merger companies, are more likely to rely on the work of Other auditors, possibly because their clients have foreign operations.

Table 3 presents information about Other auditors in the sample. Panel A shows the distribution of their headquarters across regions. The left-hand three columns of panel A show that Other auditors for which Lead auditors accept responsibility are most commonly headquartered in Mainland China, Germany, Hong Kong, and the United Kingdom. These four regions comprise about 35% of Other auditors in the Accept sample. The left-most three columns in panel B of Table 3 present the top 20 Other auditors for which Lead auditors accept responsibility, by regions of Other auditors' headquarters location. Half of the top 20 Other auditors for which Lead auditors accept responsibility are headquartered in Mainland China, Hong Kong, Germany, and the United Kingdom.

Table 4 provides information about the SEC registrants audited by the Lead auditors in our sample. Panels A and B present the headquarters and industry distributions of such issuers. The left-hand columns disclose information about clients in the Accept sample. Approximately 58% of those issuers are headquartered in the U.S. while about 10% are located in Mainland China. Approximately 44% of the audit clients in the Accept sample are in manufacturing industries, possibly because many U.S. manufacturing companies have subsidiaries overseas in order to reduce costs. The next three most prevalent industries are services (215, 12.41%), mining (171, 9.87%), and finance, insurance, and real estate (113, 6.52%).

3.2. Group audits identified through audit report disclosures: the Lead auditor declines responsibility

To identify the companies audited by Lead auditors that decline to take responsibility, we conduct a text search of the Audit Analytics Audit Opinion dataset using the keywords "We did not audit" or "Other auditor" or "Other auditors".[26]

[25] Chinese reverse merger companies are Chinese companies that go public in the U.S. by merging with inactive U.S. shell companies that mainly trade on OTCBB (Mao and Yin, 2017). Controversy exists over the financial reporting quality and audit quality of such firms. The PCAOB (2011b, 7) states that: "In some situations it appeared that U.S. firms provided audit services by having most or all of the audit performed by another firm or by assistants engaged from outside the firm without complying with PCAOB standards applicable to using the work and reports of an Other auditor or supervising assistants."

[26] A typical audit report making reference to Other auditors, as provided in AU Section 543, usually includes the phrase "We did not audit", "Other auditor", or "Other auditors" in its report. These keywords are also used by similar studies (Czerney et al., 2014). Therefore, we use them for our text search.

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Table 2
Descriptive statistics: Lead auditors.

Panel A: Distribution of Lead auditors by headquarters

Accept sample			Decline sample		
Lead auditor headquarters	**N**	**Percent**	**Lead auditor headquarters**	**N**	**Percent**
USA	1,125	64.95	USA	443	67.84
Canada	123	7.10	Israel	90	13.78
Hong Kong	80	4.62	Mexico	18	2.76
UK	31	1.79	Chile	17	2.60
Israel	28	1.62	Brazil	11	1.68
Bermuda	19	1.10	India	11	1.68
Mainland China	13	0.75	South Korea	11	1.68
Australia	12	0.69	Taiwan	11	1.68
Mexico	11	0.64	South Africa	7	1.07
France	9	0.52	Peru	6	0.92
Others[a]	281	16.22	Others[b]	28	4.29
Total	1,732	100.00	Total	653	100.00

Panel B: Top 20 Lead auditors

Accept sample			Decline sample		
Lead auditor name	**Headquarters**	**N**	**Lead auditor name**	**Headquarters**	**N**
Grant Thornton	USA	177	Ernst & Young	USA	88
Deloitte & Touche	USA	162	Deloitte & Touche	USA	67
PricewaterhouseCoopers	USA	149	PricewaterhouseCoopers	USA	54
Ernst & Young	USA	97	Ernst & Young	Israel	53
KPMG	USA	93	Reznick Group	USA	41
BDO USA	USA	74	KPMG	USA	38
KPMG	Hong Kong	67	Grant Thornton	USA	31
Deloitte & Touche	Canada	52	CohnReznick	USA	24
PricewaterhouseCoopers	Canada	32	Deloitte & Touche	Israel	10
Goldman Kurland & Mohidin (GKM)	USA	35	KPMG	Chile	10
Crowe Horwath LLP (Inactive)	USA	22	PricewaterhouseCoopers	Israel	10
Friedman	USA	22	Raich Ende Malter & Co	USA	10
Child Van Wagoner & Bradshaw	USA	20	Ernst & Young	Mexico	9
KPMG	Canada	18	Grant Thornton	Israel	9
Deloitte & Touche	Bermuda	17	Trien Rosenberg Weinberg Ciullo & Fazzari	USA	8
Weinberg & Company	USA	14	Ernst & Young	South Africa	7
Deloitte & Touche	UK	17	Jones Simkins	USA	7
Deloitte & Touche	Israel	15	Ernst & Young	Peru	6
BDO Seidman	USA	13	Deloitte & Touche	Taiwan	6
KMJ Corbin & Company	USA	13	KPMG	Israel	6
Others[a]		623	Others[b]		159
Total		1,732	Total		653

Note [a]: This includes 211 records with missing Lead auditor information from Audit Analytics.
Note [b]: This includes 1 missing Lead auditor country information from Audit Analytics.

The bottom half of Table 1 shows sample disposition for clients receiving group audits identified via audit report disclosures (i.e., the Lead auditor declines responsibility). There are 5,445 client-years initially identified in the Decline sample. We delete 4,731 client-years for which we cannot be sure that the Lead auditor used the work of one or more Other auditors in the current year's audit.[27] We remove an additional 61 client-years with duplicate filings. We then read each of the remaining 653 audit reports to verify their suitability for inclusion in the decline responsibility sample. Client-years available for our analyses (i.e., 348, 300, and 267) are less than the maximum of 653, due to additional data requirements imposed by the various models and exclusion of 37 client-years that are also identified in Form 2.

Tables 2–4 which we introduced in the last subsection also present information about the Lead auditors, Other auditors, and clients, in the Decline sample. Table 2 presents information about the Lead auditors of the Decline sample. The right-most three columns of panel A report the regions in which Lead auditors are headquartered that use the work of Other auditors but do *not* assume responsibility. Similar to the Accept sample, a majority are headquartered in the U.S. (67.84% of the Decline sample compared to 64.95% of the Accept sample). The locations of remaining Lead auditors in the Decline sample differ substantially from those of the Accept Lead auditors in the left-most columns. In particular, Hong Kong and Canada are notable for their absence or low representation in the Decline sample.

The three right-most columns of Table 2, panel B list the top 20 Lead auditors. All four of the Big 4 firms headquartered in the U.S. are in the top six of the Decline sample, and also are in the top six of the Accept sample. Big 6 offices headquartered

[27] Many of the audit reports including the keywords are deleted because they refer to Other auditors that provided audits in prior years, not Other auditors that assisted in the current year's audit.

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Table 3
Descriptive statistics: Other auditors.

Panel A: Distribution of Other auditors by headquarters

Accept sample			Decline sample		
Other auditor Headquarters	N	**Percent**	**Other auditor Headquarters**	**N**	**Percent**
Mainland China	201	11.09	USA	271	41.50
Germany	145	9.06	Israel	21	3.22
Hong Kong	144	7.72	Mexico	21	3.22
UK	114	6.81	UK	18	2.76
Cayman Islands	90	5.79	Argentina	16	2.45
India	70	4.18	Brazil	13	1.99
USA	67	4.07	Canada	9	1.38
Australia	64	4.07	Japan	9	1.38
Singapore	60	3.86	Australia	8	1.23
Peru	47	2.89	Italy	8	1.23
Others[a]	730	40.46	Others[b]	259	39.66
Total	1,732	100.00	Total	653	100.00

Panel B: Top 20 Other auditors

Accept sample			Decline sample		
Other auditor name	**Headquarters**	**N**	**Other auditor name**	**Headquarters**	**N**
KPMG Huazhen	Mainland China	94	Deloitte & Touche	USA	53
PricewaterhouseCoopers AG Wirtschaftsprüfungsgesellschaft	Germany	81	Ernst & Young	USA	45
Deloitte & Touche	Cayman Islands	51	Pailet Meunier & LeBlanc	USA	32
Deloitte Touche Tohmatsu	Australia	47	PricewaterhouseCoopers	USA	27
Beijing AnShun International CPAs Co., Ltd.	Mainland China	44	KPMG	USA	26
Deloitte	Ireland	36	Grant Thornton	USA	12
Tom Chan & Co.	Hong Kong	34	Kokusai Daiichi Audit Corporation	Japan	9
Clement C.W. Chan & Co.	Hong Kong	31	Estudio Urien & Asociados (Mazars)	Argentina	9
Gris y Asociados Sociedad Civil de Responsabilidad Limitada	Peru	31	Virchow Krause & Company	USA	8
PricewaterhouseCoopers	Malaysia	30	BDO Seidman	USA	7
KPMG	UK	29	Deloitte & Touche	Israel	7
KPMG	Hong Kong	23	BDO Stoy Hayward	UK	7
AMA CPA	Netherlands	23	Grant Thornton	Australia	7
Grant Thornton Accountants en Adviseurs B.V.	Cayman Islands	20	McGladrey & Pullen	USA	6
Grant Thornton UK	UK	18	KPMG	Israel	6
BDO AG Wirtschaftsprüfungsgesellschaft	Germany	17	Deloitte & Touche	Argentina	6
Ernst & Young	Cayman Islands	17	PricewaterhouseCoopers	Brazil	6
Foo Kon Tan	Finland	17	Ernst & Young	Italy	6
Grant Thornton Losoon	Taiwan	16	Marcelo de los Santos y Cía SC	Mexico	6
Beijing Ever Trust CPAs Co.	Mainland China	16	Dixon Odom	USA	5
Others[a]		1,057	Others[b]		363
Total		1,732	Total		653

Note [a]: This includes 37 group audits with both Accept and Decline and 89 group audits with multiple Other auditors.
Note [b]: This includes 37 group audits with both Accept and Decline and 74 group audits with multiple Other auditors.

outside the U.S. appear in both samples, but the regions in which they are headquartered differ across samples. The Reznick Group PC (41 audits) and CohnReznick LLP (24 audits), which were merged into one firm in 2012, participate frequently as Lead auditors in decline responsibility audits but not in accept responsibility audits.[28]

The right-most columns of Table 3, panel A, present information about the locations of Other auditors for which Lead auditors decline responsibility. The country having the largest proportion is the U.S. (41.50%). The composition of the most common regions in the Decline sample differs substantially from that of the Accept sample. In particular, Mainland China and Hong Kong are among the most common regions in the Accept sample but are not in the Decline responsibility sample. Panel B of Table 3 discloses the top 20 Other auditors for which Lead auditors decline to accept responsibility. Six out of the top seven Other auditors are headquartered in the U.S., and the seventh is in Japan.

Table 4 provides information about clients for which Other auditors play substantial roles. Panels A and B present the headquarters and industry distributions of such issuers. The right-hand columns disclose information about clients in the Decline sample. Approximately 70% of the clients are headquartered in the U.S. while about 11% are located in Israel. The large proportion of clients located in the U.S. is consistent with the locations of the Decline sample auditors in panel B of Table 3. Large proportions of the audited companies for which the Lead auditor declines responsibility are in manufacturing

[28] https://www.bloomberg.com/research/stocks/private/snapshot.asp?privcapId=99690.

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Table 4
Descriptive statistics: clients.

Panel A: Distribution of clients by headquarters

Accept sample			Decline sample		
Client headquarters	**N**	**Percent**	**Client headquarters**	**N**	**Percent**
USA	1,002	57.85	USA	457	69.98
Mainland China	167	9.64	Israel	74	11.33
Canada	110	6.35	Mexico	18	2.76
Bermuda	37	2.14	Chile	17	2.60
Taiwan	27	1.56	Brazil	11	1.68
UK	22	1.27	India	9	1.38
Hong Kong	15	0.87	South Korea	9	1.38
Singapore	13	0.75	Taiwan	8	1.23
Israel	12	0.69	South Africa	7	1.07
Australia	11	0.64	Peru	6	0.92
Others	316	18.24	Others	37	5.67
Total	1,732	100.00	Total	653	100.00

Panel B: Industry distribution of clients

	Accept sample			Decline sample		
Industry	**SIC_Code**	**N**	**Percent**	**SIC_Code**	**N**	**Percent**
A. Agriculture, Forestry, & Fishing	1–9	7	0.40	1–9	3	0.46
B. Mining	10–14	171	9.87	10–14	43	6.58
C. Construction	15–17	9	0.52	15–17	1	0.15
D. Manufacturing	20–39	768	44.34	20–39	162	24.81
E. Transportation & Public Utilities	40–49	108	6.24	40–49	145	22.21
F. Wholesale Trade	50–51	28	1.62	50–51	35	5.36
G. Retail Trade	52–59	23	1.33	52–59	27	4.13
H. Finance, Insurance, & Real Estate	60–67	113	6.52	60–67	158	24.20
I. Services	70–89	215	12.41	70–89	64	9.80
Missing SIC codes		290	16.74		15	2.30
Total		1,732	100.00		653	100.00

Note: based on the headquarters information.
Note: The industry groupings are based on https://mckimmoncenter.ncsu.edu/2digitsiccodes/.

industries (162, 24.81%), in finance, insurance, and real estate (158, 24.20%), in transportation and public utilities (145, 22.21%), and in services (64, 9.80%).

4. Models

4.1. Audit fee model

To investigate whether the audit fees of Lead auditors accepting responsibility for the work of Other auditors differ from those charged by Lead auditors not accepting responsibility (the alternate to the null of Hypothesis 1), we estimate the following OLS model. It is similar to models used in prior audit fee studies (Ferguson et al., 2003; Choi et al., 2010). Observations consist of our pooled samples of accept and decline responsibility client-years. We cluster residuals by client and by year.

$$LNAUDITFEE = \beta_0 + \beta_1 \boldsymbol{ACCEPT} + \text{controls} + \text{error term} \quad (1)$$

The dependent variable in Model (1) is *LNAUDITFEE* (the natural log of total audit fees paid to the Lead auditor by the client in year t).[29] Model (1) is estimated using a sample of 1,398 client-years in which all Lead auditors use the work of Other auditors (see Table 1: 1,398 = 1,050 + 348). The variable of interest in this model is ***ACCEPT***. It is coded as one if a Lead auditor accepts responsibility for the work of Other auditors in a year, as disclosed in the PCAOB Form 2, and is coded as zero if a Lead auditor declines to accept responsibility for the work of Other auditors in a year, as disclosed in the audit report. Model (1) enables a direct comparison of group audits in which Lead auditors accept versus decline responsibility, thus testing Hypothesis 1.

Definitions of variables are provided in Appendix B. We include control variables to proxy for company performance and audit risk (*LOSS*, *LEVERAGE*, *ISSUE*, *SPECIAL_ITEM*, *QUICKRATIO*, *BTM*, |*DA*|, *ICMW*, and *LOC_USA*). Audit complexity is represented by *LNASSET*, *LNBUSSEGNUM*, *LNGEOSEGNUM*, *MA*, *INVREC_AT*, and *FRGN*. Additional variables capture whether the clients' fiscal year ends in December (*BUSY*), Lead auditor type (*INDUSTRYSPECIALIST*, *BIG6*, and *FIRSTAUDIT*), and whether the auditor opinion is unqualified (*AO_UQ*). The model includes year and industry fixed effects.

[29] Results are the same if we use the total audit fees paid by the clients to all auditors in year t.

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4.2. Audit quality models

To investigate whether clients receive higher or lower quality audits if their Lead auditor accepts responsibility for the work of Other auditors (Hypothesis 2), we use two dependent variables (likelihood of corrected misstatements and discretionary accruals). We estimate the following misstatement model:

$$MISSTATE = \beta_0 + \beta_1 \textbf{\textit{ACCEPT}} + \text{controls} + \text{error term} \quad (2)$$

The dependent variable is *MISSTATE*, coded as one if the client's annual financial statement in year t is subsequently restated, and coded as zero otherwise. We estimate Model (2) using a sample of 1,165 non-financial client-years in which all Lead auditors use the work of Other auditors (see Table 1: 1,165 = 865 + 300). The variable of interest in this model again is ***ACCEPT***.

Following Lennox and Li (2014), we control for several factors likely affecting the probability that the client will have a misstatement. We include *PRIORMISSTATE* (coded as one if the year t-1 financial statement of the client is subsequently restated, and as zero otherwise) to control for the persistence in financial misreporting (Palmrose et al., 2004). We control for the client's size and financial position (*LNASSET*, *LOSS*, *ROA*, *LEVERAGE*, and *BTM*), its financial reporting complexity (*MA*, *RESTRUCT*, *FRGN*, *LNBUSSEGNUM*, *LNGEOSEGNUM*, and *SPECIAL_ITEM*). We also include whether the client is traded on a national stock exchange (*SE_NYSE*, *SE_AMEX*, and *SE_NASDAQ*), whether the client has material weaknesses in internal controls over financial reporting (*ICMW*), whether the client issues new stock or debt in the next year (*ISSUE*), whether it employs a Big 6 auditor (*BIG6*), the natural log of the firm's age (*LNFIRMAGE*), and whether it is a company headquartered in the U.S. (*LOC_USA*). The model includes year and industry fixed effects. Detailed definitions of these variables are listed in the Appendix B.

Discretionary accruals are frequently used proxies for financial reporting quality, and sometimes used to represent audit quality (Francis, 2011). We estimate the following discretionary accruals model:

$$|DA| = \beta_0 + \beta_1 \textbf{\textit{ACCEPT}} + \text{controls} + \text{error term} \quad (3)$$

The dependent variable |*DA*| is calculated as the absolute value of performance-matched discretionary accruals. Discretionary accruals are the residuals from the modified Jones et al. (2008) model:

$$Accrual/TA_{jt\text{-}1} = K_0 + K_1/TA_{jt\text{-}1} + K_2[\Delta REV\text{-}\Delta AR]/TA_{jt\text{-}1} + K_3 PPE_{jt}/TA_{jt\text{-}1} + \text{error term}$$

Accrual is total accruals, calculated as net income before extraordinary items less cash flow from operations, *TA* is total assets, *ΔREV* is the change in revenue, *ΔAR* is the change in accounts receivable, and *PPE* is gross property, plant, and equipment. We estimate the regression model by year and industry after removing year-industry pairs where there are fewer than 10 observations. We match each client-year observation with another observation from the same industry and year that has the closest *ROA* (net income divided by total assets). We measure performance-matched *DA* for firm *j* in year *t* as the modified Jones model discretionary accruals in year *t* minus the matched firm's modified Jones model discretionary accruals in year *t* (Kothari et al., 2005). Audit quality is measured as the absolute value of performance-matched discretionary accruals (|*DA*|).

We estimate Model (3) using a sample of 1,180 non-financial client-years in which Lead auditors all use the work of Other auditors (see Table 1: 1,180 = 913 + 267). The variable of interest in this model again is ***ACCEPT***. Following Francis and Yu (2009), we include the following control variables. We control for several client characteristics including client size and complexity (*LNBUSSEGNUM*, *LNGEOSEGNUM*, and *LNASSET*), client sales growth (*SALESGROWTH* and *SALESVOLATILITY*), client cash flow characteristics (*CFO_LAGAT* and *CFOVOLATILITY*), client financial performance and profitability (*LEVERAGE*, *LOSS2*, *ALTMANZ*, *BTM*, and *RETVOL*), whether the client has a material weakness in internal controls over financial reporting (*ICMW*), whether the client is headquartered in the U.S. (*LOC_USA*). We also control for characteristics of the audit firm or office including *BIG6*, *OFFICESIZE*, *INFLUENCE*, *FIRSTAUDIT*, and *INDUSTRYSPECIALIST*. The model includes year and industry fixed effects. Detailed definitions of these variables are listed in the Appendix B.

5. Results

5.1. Audit fee model descriptive statistics and results

Panel A of Table 5 reports descriptive statistics for our audit fee model. As shown in the table, Lead auditors accept responsibility in 75% of group audit engagements (i.e., ***ACCEPT*** = 1) and decline responsibility in 25% (i.e., ***ACCEPT*** = 0). Eighty-two percent are audited by Big 6 auditors. The last column of the table reports differences in the means for clients in the Accept and Decline samples. On a univariate basis, the difference in audit fees (*LNAUDITFEE*) is not significant. Differences in several proxies for audit risk (e.g., *LNASSET*, *LEVERAGE*, *BIG6*, and *FRGN*) indicate the need for multivariate regression models. We also use a Heckman two-stage selection model to check the robustness of our results.

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Table 5
Audit fee results.

Panel A: Descriptive statistics—Audit fee model

	Full sample (N = 1,398)		Accept Sample (N = 1,050)		Decline Sample (N = 348)		
Variable	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Diff.**
LNAUDITFEE	14.049	1.262	14.055	1.260	14.031	1.271	ns
ACCEPT	0.751	0.433	1.000	0.000	0.000	0.000	***
INDUSTRYSPECIALIST	0.044	0.206	0.036	0.187	0.069	0.254	**
LNASSET	6.829	2.219	6.681	2.209	7.274	2.191	***
LOSS	0.335	0.472	0.345	0.476	0.307	0.462	ns
LEVERAGE	0.240	0.254	0.220	0.255	0.300	0.243	***
BIG6	0.816	0.387	0.795	0.404	0.879	0.326	***
LNBUSSEGNUM	1.010	0.553	0.964	0.556	1.146	0.521	***
LNGEOSEGNUM	1.409	0.662	1.508	0.641	1.112	0.635	***
ISSUE	0.865	0.342	0.871	0.335	0.845	0.363	ns
SPECIAL_ITEM	0.732	0.443	0.735	0.441	0.724	0.448	ns
AO_UQ	0.778	0.416	0.820	0.384	0.649	0.478	***
QUICKRATIO	2.019	2.123	2.200	2.349	1.472	1.033	***
BTM	0.808	1.118	0.809	1.211	0.804	0.773	ns
MA	0.103	0.304	0.097	0.296	0.121	0.326	ns
INVREC_AT	0.253	0.178	0.265	0.169	0.214	0.196	***
BUSY	0.785	0.411	0.745	0.436	0.905	0.293	***
FRGN	0.630	0.483	0.689	0.463	0.454	0.499	***
FIRSTAUDIT	0.085	0.279	0.092	0.290	0.063	0.244	*
|DA|	0.146	0.232	0.158	0.255	0.109	0.137	***
ICMW	0.154	0.361	0.159	0.366	0.138	0.345	ns
LOC_USA	0.670	0.471	0.673	0.469	0.658	0.475	ns

Panel B: Audit fee regression

	Full sample			BIG6=1			BIG6=0		
Variable	**Coef.**	**t Stat.**	**p value**	**Coef.**	**t Stat.**	**p value**	**Coef.**	**t Stat.**	**p value**
Intercept	9.677	59.150	<0.0001	9.856	55.890	<0.0001	10.099	24.320	<0.0001
ACCEPT	0.282	6.630	<0.0001	0.262	5.860	<0.0001	0.249	1.430	0.153
INDUSTRYSPECIALIST	0.283	4.600	<0.0001	0.283	4.430	<0.0001	0.000	.	.
LNASSET	0.512	49.560	<0.0001	0.532	51.230	<0.0001	0.420	10.910	<0.0001
LOSS	0.170	5.270	<0.0001	0.130	3.870	0.000	0.322	3.920	0.000
LEVERAGE	0.049	0.540	0.586	0.109	1.250	0.210	0.066	0.360	0.723
BIG6	0.411	8.710	<0.0001	0.000	.	.	0.000	.	.
LNBUSSEGNUM	−0.016	−0.600	0.546	−0.002	−0.070	0.947	−0.137	−1.550	0.122
LNGEOSEGNUM	0.013	0.490	0.626	0.030	1.070	0.284	−0.022	−0.330	0.744
ISSUE	0.069	1.590	0.113	0.133	2.570	0.010	−0.015	−0.170	0.868
SPECIAL_ITEM	0.145	4.440	<0.0001	0.123	3.400	0.001	0.184	2.170	0.031
AO_UQ	−0.045	−1.270	0.203	−0.039	−0.980	0.326	−0.055	−0.500	0.616
QUICKRATIO	−0.010	−1.310	0.192	−0.011	−1.090	0.277	0.005	0.390	0.696
BTM	−0.078	−4.660	<0.0001	−0.059	−2.860	0.004	−0.091	−2.680	0.008
MA	−0.024	−0.560	0.577	−0.033	−0.730	0.465	−0.003	−0.020	0.981
INVREC_AT	0.587	5.200	<0.0001	0.722	5.410	<0.0001	0.304	1.020	0.308
BUSY	−0.061	−1.620	0.105	−0.088	−2.330	0.020	0.269	2.510	0.013
FRGN	0.112	2.650	0.008	0.111	2.380	0.017	0.195	2.090	0.038
FIRSTAUDIT	−0.074	−1.410	0.159	−0.138	−2.150	0.032	0.042	0.470	0.638
|DA|	0.163	2.840	0.005	0.123	1.650	0.098	0.087	0.960	0.340
ICMW	0.253	6.090	<0.0001	0.257	5.410	<0.0001	0.136	1.410	0.160
LOC_USA	0.277	6.910	<0.0001	0.268	6.430	<0.0001	0.169	1.500	0.136
Year Dummies	Yes			Yes			Yes		
Industry Dummies	Yes			Yes			Yes		
N	1,398			1,141			257		
R-Square	0.865			0.828			0.736		

*, **, *** significant at 0.10, 0.05, and 0.01, respectively and ns refers to "not significant" See Appendix B for variable definitions.

Panel B of Table 5 reports regression results for the audit fee models.[30] We report results for the full sample, and because panel A indicates there is a significant difference in the percentage of Big 6 (non-Big 6) auditors accepting responsibility, we also report results for separate regressions of companies with Big 6 (non-Big 6) auditors. The coefficients of the variable of interest, ***ACCEPT***, are positive and significant for the full sample and for the subsample of companies audited by Big 6 auditors, but not

[30] To reduce the influence of outliers, we winsorize all continuous variables in our models at 1% and 99% of the observations. We check for multicollinearity by calculating variance inflation factors (VIFs) for each regression. None of the VIFs are above 10.0; most are below 3.0.

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for the subsample of non-Big 6 auditors. The difference in results for the subsamples may arise because the phenomenon of interest is restricted to the Big 6, or due to lack of variability in the relatively small sample of 257 companies audited by non-Big 6 auditors.

The explanatory power of the models and the coefficients for the control variables generally are consistent with the results of earlier audit fee studies (e.g., Ferguson et al., 2003; Choi et al., 2010). Results indicate auditors charge higher fees for riskier clients (*LOSS*, *SPECIAL_ITEM*, and *ICMW*), for larger and more complex clients (*LNASSET* and *INVREC_AT*), and for U.S. clients (*LOC_USA*). We also find that Big 6 auditors (*BIG6*) charge higher fees.

Our results support directional Hypothesis 1 for the full sample and the Big 6 subsample, and indicate that Lead auditors *accepting responsibility* for the work of Other auditors charge higher fees. This finding extends the Australian evidence presented in Carson et al. (2016) who find that Lead auditors charge higher audit fees when using Other auditors, compared to single-audit engagements in which there is no Other auditor.[31]

5.2. Audit quality model descriptive statistics and results

If a Lead auditor accepts responsibility, it should charge a higher fee to compensate for exerting extra effort. If the Lead auditor's efforts are effective, audit quality should be positively affected. However, Other auditors might expend less effort if the Lead auditor accepts responsibility, potentially offsetting the Lead auditor's positive influence. We test Hypothesis 2 to determine whether audit quality differs when the Lead auditor accepts responsibility. Panel A of Table 6 reports descriptive statistics for the misstatement model. As the full sample column indicates, restatements of prior misstatements (*MISSTATE*) occurred in about 4.9% of client-years. The difference in occurrences between the Accept and Decline samples is insignificant (5.2% vs. 4.0%, respectively). There also is no significant difference in occurrences of misstatements in *prior* periods (*PRIORMISSTATE*). The remaining variables in panel A of Table 6 overlap substantially with those in panel A of Table 5. The directions and significance of differences in variable means for the Accept versus Decline samples in panels A of Tables 5 and 6 are similar.

Logistic regression results reported in panel B of Table 6 indicate that clients in the Accept sample are more likely to subsequently correct misstatements but the difference is not significant statistically. Those companies that have misstatements in prior years (*PRIORMISSTATE*), have internal control material weaknesses (*ICMW*), issue securities (*ISSUE*), and are headquartered in the U.S. (*LOC_USA*), are also more likely to have misstatements in the current year.[32]

Panel C of Table 6 reports descriptive statistics for the discretionary accrual model. The average absolute value of discretionary accruals for the full samples is 0.132. The mean for the Accept sample is higher than for the Decline sample. The number of significant differences for the remaining control variables reinforces our decision to test robustness using Heckman two-stage models.

Results reported in panel D of Table 6 show that the absolute value of discretionary accruals is significantly greater when the Lead auditor accepts responsibility. The absolute value of discretionary accruals also is significantly positively associated with stock return volatility (*RETVOL*). In our view, the evidence that audit quality is poorer given Lead auditors decline responsibility rests primarily on the unsigned accrual results. We do not recommend placing full reliance on the accrual results. Large unsigned accruals are not necessarily violations of GAAP. Nor do they necessarily indicate audit failures, whereas corrected misstatements of audited data do reveal audit failures. We emphasize the results based on corrected misstatements, because that metric captures audit quality problems more clearly compared to unsigned discretionary accruals.

5.3. Additional analyses

5.3.1. Internal control material weakness, modified audit opinions, and audit report lags

We have documented that Lead auditors accepting the work of Other auditors do not provide higher quality audits, measured by clients' performance-matched discretionary accruals and the likelihood of misstatements. To assess the sensitivity of our results, we examine the association between internal control material weaknesses (ICMW) and the auditor's decision to accept responsibility for the work of Other auditors. We follow Naiker and Sharma (2009) to build our research model. Our dependent variable is *ICMW*, equal to one if the clients have material weaknesses in SOX302 reports or SOX404a or SOX404b reports, and equal to zero otherwise. Our variable of interest is ***ACCEPT***, defined the same as in previous models. We find that clients in the Accept group have similar likelihood of reporting internal control material weaknesses as those in the Decline group, consistent with our audit quality analyses.

Additionally, we also use auditors' likelihood of issuing non-standard unqualified audit opinions (which we refer to as modified audit opinions, or *MAO* for brevity) as an alternative measure of audit quality. We follow Lennox and Li (2012) to build our research model and test whether auditors are more likely to issue such opinions to loss firms. We find that the propensity of Lead auditors accepting responsibility to issue such opinions is similar to the propensity of Lead auditors declining such responsibility. We report these results in Table 7.

[31] Australia has a different policy than the U.S. regarding the work of Other auditors. No division of responsibility or reference to Other auditors is allowed in the audit report.

[32] The lack of significance for the remaining control variables may be because previous research used samples that included single as well as group audits and ours includes only group audits.

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Table 6
Audit quality results.

Panel A: Descriptive statistics—Misstatement model

	Full sample (N = 1,165)		Accept Sample (N = 865)		Decline Sample (N = 300)		
Variable	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Diff.**
MISSTATE	0.049	0.216	0.052	0.222	0.040	0.196	ns
ACCEPT	0.742	0.437	1.000	0.000	0.000	0.000	***
PRIORMISSTATE	0.049	0.216	0.051	0.220	0.043	0.204	ns
BIG6	0.815	0.389	0.793	0.405	0.877	0.329	***
SE_NYSE	0.416	0.493	0.385	0.487	0.507	0.501	***
SE_AMEX	0.035	0.184	0.034	0.180	0.040	0.196	ns
SE_NASDAQ	0.431	0.495	0.452	0.498	0.370	0.484	**
LNASSET	6.911	2.217	6.735	2.204	7.420	2.179	***
LOSS	0.324	0.468	0.335	0.472	0.290	0.455	ns
MA	0.106	0.309	0.101	0.301	0.123	0.329	ns
ICMW	0.157	0.364	0.163	0.370	0.140	0.348	ns
BTM	0.820	1.144	0.833	1.251	0.785	0.757	ns
ROA	−0.063	1.322	−0.091	1.532	0.017	0.103	**
LEVERAGE	0.240	0.246	0.224	0.255	0.285	0.212	***
RESTRUCT	0.336	0.472	0.377	0.485	0.217	0.413	***
FRGN	0.622	0.485	0.686	0.465	0.440	0.497	***
LNBUSSEGNUM	0.998	0.556	0.954	0.559	1.125	0.527	***
LNGEOSEGNUM	1.408	0.659	1.495	0.652	1.155	0.614	***
SPECIAL_ITEM	0.730	0.444	0.738	0.440	0.710	0.455	ns
ISSUE	0.870	0.337	0.875	0.331	0.853	0.354	ns
LNFIRMAGE	2.779	0.746	2.754	0.762	2.851	0.693	**
LOC_USA	0.646	0.478	0.654	0.476	0.623	0.485	ns

Panel B: Audit quality regression—Misstatement

Variable	**Coef.**	**t Stat.**	**p value**
Intercept	−7.089	12.241	0.001
ACCEPT	0.524	0.718	0.397
PRIORMISSTATE	3.257	37.802	<0.0001
BIG6	−1.309	4.093	0.043
SE_NYSE	−1.043	1.091	0.296
SE_AMEX	0.838	0.811	0.368
SE_NASDAQ	−0.727	0.729	0.393
LNASSET	0.063	0.188	0.664
LOSS	0.213	0.161	0.688
MA	0.016	0.001	0.975
ICMW	1.599	12.188	0.001
BTM	−0.031	0.033	0.855
ROA	0.301	0.496	0.481
LEVERAGE	−0.261	0.066	0.797
RESTRUCT	0.484	0.935	0.334
FRGN	0.207	0.145	0.703
LNBUSSEGNUM	0.180	0.244	0.621
LNGEOSEGNUM	0.222	0.445	0.505
SPECIAL_ITEM	0.625	1.398	0.237
ISSUE	2.852	5.836	0.016
LNFIRMAGE	−0.176	0.472	0.492
LOC_USA	1.727	8.982	0.003
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,165		
Pseudo R-square	0.167		
C(ROC)	0.942		

Panel C: Descriptive statistics—Discretionary accrual model

	Full sample (N=1,180)		Accept sample (N=913)		Decline sample (N=267)		
Variable	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Diff.**
|DA|	0.132	0.186	0.141	0.198	0.101	0.135	***
ACCEPT	0.774	0.419	1.000	0.000	0.000	0.000	***
OFFICESIZE	16.703	1.763	16.730	1.694	16.611	1.980	ns
INFLUENCE	0.211	0.278	0.195	0.253	0.267	0.348	***
FIRSTAUDIT	0.069	0.253	0.076	0.264	0.045	0.208	*

(*continued on next page*)

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Table 6 (*continued*)

Panel C: Descriptive statistics—Discretionary accrual model

	Full sample (N=1,180)		Accept sample (N=913)		Decline sample (N=267)		
Variable	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Diff.**
INDUSTRYSPECIALIST	0.040	0.196	0.038	0.192	0.045	0.208	ns
LNBUSSEGNUM	1.010	0.553	0.971	0.566	1.143	0.484	***
LNGEOSEGNUM	1.476	0.633	1.564	0.605	1.178	0.635	***
LNASSET	6.945	2.081	6.899	2.094	7.102	2.031	ns
SALESGROWTH	0.067	0.290	0.072	0.296	0.049	0.266	ns
SALESVOLATILITY	9.341	1.948	9.413	1.825	9.092	2.307	ns
CFO_LAGAT	0.079	0.113	0.077	0.120	0.087	0.085	ns
CFOVOLATILITY	8.366	2.892	8.433	2.843	8.136	3.047	ns
ICMW	0.125	0.331	0.130	0.337	0.109	0.312	ns
LEVERAGE	0.224	0.222	0.209	0.221	0.275	0.216	***
LOSS2	0.216	0.412	0.231	0.422	0.165	0.372	**
BIG6	0.845	0.362	0.837	0.370	0.873	0.334	ns
ALTMANZ	3.084	3.699	3.175	3.806	2.774	3.291	ns
BTM	0.821	0.953	0.829	1.005	0.793	0.749	ns
RETVOL	0.122	0.077	0.124	0.078	0.114	0.075	**
LOC_USA	0.683	0.465	0.694	0.461	0.644	0.480	ns

Panel D: Audit quality regression—Discretionary accruals

Variable	**Coef.**	**t Stat.**	**p value**
Intercept	0.297	2.130	0.034
ACCEPT	0.030	2.340	0.020
OFFICESIZE	−0.011	−1.520	0.128
INFLUENCE	0.000	0.010	0.995
FIRSTAUDIT	−0.008	−0.470	0.640
INDUSTRYSPECIALIST	0.050	0.790	0.429
LNBUSSEGNUM	−0.012	−1.020	0.309
LNGEOSEGNUM	−0.002	−0.220	0.825
LNASSET	−0.004	−0.640	0.525
SALESGROWTH	0.006	0.200	0.838
SALESVOLATILITY	0.001	0.340	0.733
CFO_LAGAT	−0.075	−0.830	0.406
CFOVOLATILITY	0.002	0.600	0.550
ICMW	0.028	1.230	0.220
LEVERAGE	0.016	0.500	0.619
LOSS2	0.010	0.500	0.617
BIG6	0.016	0.670	0.502
ALTMANZ	−0.001	−0.510	0.608
BTM	−0.002	−0.290	0.775
RETVOL	0.369	3.080	0.002
LOC_USA	0.008	0.540	0.591
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,180		
R-Square	0.117		

Note: *, **, *** significant at 0.10, 0.05, and 0.01, respectively. See Appendix B for variable definitions.

In un-tabulated analyses, we also examine whether audit reporting lags differ between Lead auditors accepting responsibility versus those declining such responsibility. We document that audit reporting lags are shorter for Lead auditors in the Accept group, despite the additional audit procedures required by the auditing standards. The shorter lags for undivided responsibility audits also are consistent with the PCAOB findings that Lead auditors do not always perform sufficient additional procedures, as required by auditing standards, when using the work of Other auditors (PCAOB, 2010, 2011c). In conjunction with higher fees for Lead auditors, the shorter audit report lags suggest the possibility that Lead auditors accepting full responsibility charge fee premiums to compensate for risk, but do not exert additional effort. We caution, however, that audit completion lags are a very indirect measure of audit quality. We place greater reliance on results obtained using corrected misstatements.

5.3.2. Inclusion of controls for Other auditor characteristics that may affect the Lead auditor's Accept/Decline decision

The results for the audit fee and quality models reported in Tables 5–7 include variables used to explain audit fees and audit quality in prior research. To increase confidence that the results we report for ***ACCEPT*** are not driven by factors that affect the Lead auditors' Accept/Decline decision but for which we did not control, we re-estimate each of our models includ-

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Table 7
Sensitivity analyses.

Panel A: Explaining internal control material weakness

Variable	Coef.	t Stat.	p value
Intercept	−0.654	1.779	0.182
ACCEPT	−0.096	0.194	0.660
RES_DIS	1.916	72.002	<0.0001
LNASSET	−0.181	10.773	0.001
SALESGROWTH	0.415	3.499	0.061
LOSS	0.559	9.012	0.003
FIRSTAUDIT	1.012	18.192	<0.0001
LNBUSSEGNUM	−0.206	1.494	0.222
LNGEOSEGNUM	−0.233	3.103	0.078
FOROP	0.122	0.443	0.506
LEVERAGE	0.228	0.510	0.475
INVREC_AT	0.773	2.420	0.120
SPECIAL_ITEM	−0.130	0.460	0.498
BIG6	−0.383	2.566	0.109
LOC_USA	−0.181	0.943	0.332
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,444		
Pseudo R-square	0.134		
C(ROC)	0.783		

Panel B: Explaining the likelihood of Lead auditors' issuing modified audit opinions to loss firms

Variable	Coef.	t Stat.	p value
Intercept	−3.331	1.054	0.305
ACCEPT	−0.316	0.729	0.393
LAG_MAO	1.587	21.610	<0.0001
LNASSET	−0.051	0.088	0.767
ROA	−0.568	1.293	0.256
LEVERAGE	0.207	0.161	0.689
CURRENT	−0.031	0.083	0.773
CATA	−1.299	2.395	0.122
LNNONAUDITFEE	0.015	0.017	0.895
LNAUDITFEE	0.069	0.048	0.827
FIRSTAUDIT	−0.678	1.382	0.240
INDUSTRYSPECIALIST	−0.308	0.140	0.709
OFFICESIZE	0.110	0.345	0.557
INFLUENCE	1.507	2.780	0.095
BIG6	−0.018	0.001	0.974
LOC_USA	0.294	0.659	0.417
Year Dummies	Yes		
Industry Dummies	Yes		
N	489		
Pseudo R-square	0.268		
C(ROC)	0.830		

Notes: The dependent variable in panel A is *ICMW*, 1 if the client has material weaknesses in SOX302 reports or SOX404a or SOX404b reports, 0 otherwise. *FOROP* is 1 for the client with non-missing foreign exchange income or loss (FCA), 0 otherwise. Appendix B *RES_DIS* is 1 if the client announces a restatement, 0 otherwise. All other variables are defined in Appendix B.
The dependent variable in panel B is *MAO*, 1 if the auditor issues a non-standard unqualified audit opinion in year t, 0 if it issues a standard unqualified audit opinion in year t. *LAG_MAO* is the lagged value of *MAO* in year t-1. *CURRENT* is the ratio of currents assets to current liabilities in year t. *CATA* is the ratio of current assets to total assets in year t. *LNNONAUDITFEE* is the natural log of non-audit fees paid to the Lead auditor in year t. All other variables are defined in Appendix B.

ing controls for characteristics of the Other auditor that may have affected the Lead auditor's decision to accept responsibility.[33] We present descriptive statistics for Other auditor characteristics in panel A of Table 8. About 57% of Other auditors in our sample of group audits are in the same network as Lead auditors, and the proportion is much higher for the Accept sample than for the Decline sample (75% vs. 2%). This suggests that Lead auditors are more likely to accept responsibility for the work of Other auditors that belong to their own networks. On average, Other auditors work with Lead auditors on 15 group audits during our sample periods (*NUM_COLLAB*), 17 for the Accept sample and 9 for the Decline sample. About 17% of Other auditors in our sample are U.S. auditors: 3% of the Accept sample and 58% of the Decline sample, indicating that Lead auditors tend to use

[33] We thank an anonymous reviewer for suggesting we perform this additional analysis.

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Table 8
Controlling for other auditor characteristics.

Panel A: Descriptive statistics of other auditor characteristics

	Full sample (N = 1,866)		Accept sample (N = 1,401)		Decline sample (N = 465)		
Variable	**Mean**	**Std**	**Mean**	**Std**	**Mean**	**Std**	**Diff.**
SAMENETWORK	0.571	0.495	0.754	0.431	0.022	0.145	***
NUM_COLLAB	14.814	16.605	16.675	18.065	9.206	9.038	***
LN_NUM_COLLAB	2.090	1.162	2.227	1.149	1.679	1.105	***
US_OTHERAUDITOR	0.170	0.375	0.033	0.178	0.583	0.494	***
BIG6_OTHERAUDITOR	0.652	0.476	0.648	0.478	0.665	0.473	ns

Panel B: Regression analyses

	Dependent variable: *LNAUDITFEE*				Dependent variable: *MISSTATE*				Dependent variable: *|DA|*			
Variable	**Coef.**	**p value**	**Coef.**	**p value**	**Coef.**	**p value**	**Coef.**	**p value**	**Coef.**	**p value**	**Coef.**	**p value**
ACCEPT	0.331	<0.0001	0.364	<0.0001	1.981	0.067	2.001	0.188	0.047	0.046	0.056	0.075
SAMENETWORK	−0.017	0.756	0.079	0.618	−0.559	0.558	1.346	0.422	−0.009	0.673	0.035	0.468
LN_NUM_COLLAB	−0.039	0.008	−0.019	0.596	−0.105	0.641	−0.285	0.582	0.000	0.947	0.005	0.642
US_OTHERAUDITOR	0.174	0.012	0.158	0.030	1.596	0.033	1.780	0.022	0.011	0.675	0.008	0.785
BIG6_OTHERAUDITOR	0.077	0.112	0.075	0.121	1.007	0.255	1.076	0.211	0.025	0.114	0.026	0.111
ACCEPT* *SAMENETWORK*			−0.097	0.571			−2.210	0.247			−0.046	0.368
ACCEPT* *LN_NUM_COLLAB*			−0.023	0.557			0.249	0.682			−0.005	0.716
N	1,272		1,272		1,051		1,051		1,077		1,077	
(Pseudo) R-Square	0.874		0.874		0.152		0.153		0.143		0.143	
C(ROC)					0.943		0.941					

Note: this is based on a subsample of group audits covered by Audit Analytics with the Other auditor information available. Group audits involving multiple Other auditors are not included. *SAMENETWORK* is 1 if the Other auditor is in the same network as the Lead auditor, 0 otherwise. *LN_NUM_COLLAB* is the natural log of the number of times the Other auditor has worked with the Lead auditor in group audits during our sample periods. *US_OTHERAUDITOR* is 1 if the Other auditor is a U.S. auditor, 0 otherwise. *BIG6_OTHERAUDITOR* is 1 if the Other auditor is a Big 6 auditor, 0 otherwise.

non-U.S. auditors in group audits and to accept responsibility for them. However, Lead auditors that accept versus decline responsibility have similar likelihoods of relying on Big 6 Other auditors in group audits.

We present the regression results in abbreviated form in panel B of Table 8, with the coefficients for our original control variables omitted from the presentation. Our major findings are as follows: (1) Lead auditors charge lower audit fees if Other auditors are frequent collaborators during our sample period; (2) Lead auditors charge higher audit fees, and are also more likely to have clients disclosing misstatements, if Other auditors are U.S. firms, possibly due to higher litigation risks and more frequent disclosure of restatements by U.S. clients (Srinivasan et al., 2014); and (3) whether the Lead auditor and the Other auditor are in the same network *is not* associated with the audit fee and audit quality of the overall group audit. Notably, we continue to find the Lead auditor's decision to accept responsibility for the work of the Other auditor is associated with a higher audit fee but not with higher audit quality. We also add two interaction terms (***ACCEPT*** and two variables measuring the relationship between Lead auditors and Other auditors: *SAMENETWORK* and *LN_NUM_COLLAB*). However, the coefficients associated with these interaction terms are not significant in any of the audit fee or quality models.

5.4. Use of two-stage Heckman model

We use a two-stage Heckman selection model to check the robustness of the results of our main analysis. The first-stage model explains the probability that the Lead auditor will accept responsibility. The dependent variable is ***ACCEPT***, coded as one if the Lead auditor accepts responsibility and as zero otherwise. We are not aware of prior research modeling the Accept/Decline decision. Hence, our model includes factors a Lead auditor might consider in deciding whether to accept the responsibility (AU 543, para. 04–05). We include variables indicating whether the Other auditor was a Big 6 auditor (*BIG6_OTHERAUDITOR*) or was in the same network (*SAMENETWORK*), and the number of times the Lead auditor worked with the Other auditor (*LN_NUM_COLLAB*). We also include whether the Other auditor is headquartered in the U.S. (*US_OTHERAUDITOR*). We include two variables that could pre-dispose the Lead auditor to decline responsibility: prior client restatement (*PRIOR_RES*) and prior internal control material weakness (*PRIOR_ICMW*). We consider *SAMENETWORK* as an instrument variable in our first-stage model. Lead auditors are more likely to accept responsibility for the work of Other auditors if they are in the same network per the guidance of the auditing standard AU 543. However, whether the Lead auditor and the Other auditor are in the same network should not directly affect the audit fees the client pays to the Lead auditor. This argument is also supported by our additional analyses controlling for characteristics of Other auditors as shown in Table 8. The coefficient of *SAMENETWORK* is not significant in any of the models in Table 8. The remaining variables are ones mainly used in our primary analysis.

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Table 9
Heckman two-stage models.

Panel A: First-stage model explaining Lead auditor's decision to accept responsibility for the work of Other auditors

Variable	Coef.	t Stat.	p value
Intercept	2.561	8.169	0.004
SAMENETWORK	4.606	99.186	<0.0001
LN_NUM_COLLAB	0.502	14.489	0.000
US_OTHERAUDITOR	−2.279	42.030	<0.0001
BIG6_OTHERAUDITOR	−1.748	18.619	<0.0001
BIG6AUDITOR	−1.036	11.999	0.001
PRIOR_RES	0.235	0.443	0.506
PRIOR_ICMW	−0.353	2.054	0.152
FRGN	−0.249	0.821	0.365
LNBUSSEGNUM	−0.740	9.448	0.002
LNGEOSEGNUM	−0.536	9.488	0.002
MA	−0.211	0.494	0.482
ROA	−0.194	0.168	0.682
LOSS	0.035	0.023	0.881
LEVERAGE	−0.365	0.270	0.603
SPECIAL_ITEM	0.357	2.161	0.142
LNASSET	0.046	0.380	0.538
LNFIRMAGE	−0.351	3.930	0.047
INVREC_AT	−0.224	0.080	0.778
BTM	0.133	3.568	0.059
CFO_LAGAT	−1.322	1.757	0.185
LOC_USA	0.447	1.685	0.194
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,282		
Pseudo R-square	0.592		
C(ROC)	0.992		

Panel B: Audit fee regression

Variable	Coef.	t Stat.	p value
Intercept	9.698	44.160	<0.0001
ACCEPT	0.227	3.130	0.002
INDUSTRYSPECIALIST	0.233	3.810	0.000
LNASSET	0.515	48.890	<0.0001
LOSS	0.156	4.650	<0.0001
LEVERAGE	0.039	0.440	0.661
BIG6	0.402	8.870	<0.0001
LNBUSSEGNUM	−0.007	−0.270	0.785
LNGEOSEGNUM	0.003	0.090	0.925
ISSUE	0.081	1.780	0.075
SPECIAL_ITEM	0.161	4.870	<0.0001
AO_UQ	−0.039	−1.040	0.299
QUICKRATIO	−0.015	−1.960	0.050
BTM	−0.075	−4.450	<0.0001
MA	−0.004	−0.110	0.916
INVREC_AT	0.573	4.930	<0.0001
BUSY	−0.101	−2.750	0.006
FRGN	0.132	3.100	0.002
FIRSTAUDIT	−0.046	−0.830	0.406
|DA|	0.212	3.500	0.001
ICMW	0.226	5.450	<0.0001
LOC_USA	0.241	5.680	<0.0001
IMR	0.033	0.200	0.840
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,248		
R-Square	0.878		

Panel C: Audit quality regression—Misstatement

Variable	Coef.	t Stat.	p value
Intercept	−7.968	10.074	0.002
ACCEPT	1.585	1.710	0.191
PRIORMISSTATE	3.088	33.172	<0.0001

(*continued on next page*)

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Table 9 (*continued*)

Panel C: Audit quality regression—Misstatement

Variable	Coef.	t Stat.	p value
BIG6	−1.659	5.176	0.023
SE_NYSE	−0.919	0.930	0.335
SE_AMEX	1.078	1.213	0.271
SE_NASDAQ	−0.409	0.252	0.616
LNASSET	0.143	1.218	0.270
LOSS	0.315	0.241	0.623
MA	0.248	0.213	0.645
ICMW	1.629	10.741	0.001
BTM	−0.063	0.111	0.740
ROA	0.176	0.181	0.671
LEVERAGE	−0.775	0.505	0.477
RESTRUCT	0.450	0.605	0.437
FRGN	0.109	0.039	0.844
LNBUSSEGNUM	0.155	0.149	0.700
LNGEOSEGNUM	0.085	0.067	0.795
SPECIAL_ITEM	0.555	1.033	0.310
ISSUE	2.408	5.303	0.021
LNFIRMAGE	−0.298	1.135	0.287
LOC_USA	1.879	10.526	0.001
IMR	2.782	0.906	0.341
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,025		
Pseudo R-square	0.153		
C(ROC)	0.939		

Panel D: Audit quality regression—Discretionary accruals

Variable	Coef.	t Stat.	p value
Intercept	0.252	1.770	0.077
ACCEPT	0.067	2.220	0.027
OFFICESIZE	−0.012	−1.730	0.085
INFLUENCE	0.005	0.090	0.927
FIRSTAUDIT	−0.011	−0.580	0.561
INDUSTRYSPECIALIST	−0.006	−0.250	0.800
LNBUSSEGNUM	−0.017	−1.300	0.195
LNGEOSEGNUM	−0.005	−0.410	0.681
LNASSET	−0.001	−0.200	0.844
SALESGROWTH	−0.004	−0.150	0.882
SALESVOLATILITY	−0.001	−0.130	0.893
CFO_LAGAT	−0.117	−1.450	0.148
CFOVOLATILITY	0.003	0.970	0.331
ICMW	0.036	1.560	0.119
LEVERAGE	0.028	0.880	0.378
LOSS2	0.000	0.010	0.989
BIG6	0.012	0.470	0.637
ALTMANZ	−0.001	−0.340	0.731
BTM	−0.002	−0.350	0.730
RETVOL	0.373	2.970	0.003
LOC_USA	0.006	0.410	0.683
IMR	0.072	1.170	0.243
Year Dummies	Yes		
Industry Dummies	Yes		
N	1,072		
R-Square	0.142		

Note: *SAMENETWORK* is 1 if the Other auditor is in the same network as the Lead auditor, 0 otherwise. *LN_NUM_COLLAB* is the natural log of the number of times the Other auditor has worked with the Lead auditor in group audits during our sample periods. *US_OTHERAUDITOR* is 1 if the Other auditor is a U.S. auditor, 0 otherwise. *BIG6_OTHERAUDITOR* is 1 if the Other auditor is a Big 6 auditor, 0 otherwise. *PRIOR_RES* is 1 if the client disclosed a restatement in prior year, 0 otherwise. *PRIOR_ICMW* is 1 if the client has any internal control material weakness as disclosed in the SOX 302 disclosure or SOX 404 internal control reports, 0 otherwise. All others are defined before.

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Table 9, panel A reports the results for the first-stage model. All four of the variables motivated by the auditing literature are significant. Notably, we document that Lead auditors are more likely to accept responsibility for Other auditors who belong to their own networks and are their frequent collaborators. They also tend to accept responsibility for non-U.S. auditors and non-Big 6 auditors. Neither *PRIOR_RES* nor *PRIOR ICMW* is significant. The ROC statistic of 0.992 suggests that our first-stage model has very high explanatory value.

We include the inverse Mills ratio (IMR) computed from our first-stage model in the audit price and quality models. As shown in panels B-D of Table 9, the *IMR* variable is not significant in any of the models, which suggests the relationships between the Accept/Decline decision and audit pricing and audit quality are not driven primarily by underlying characteristics of clients and Other auditors. Notably, the coefficient of ***ACCEPT*** remains positive and significant in the audit fee model (panel B), insignificant in the misstatement model (panel C), and positive and significant in the discretionary accrual model (panel D).

5.5. Voluntary versus mandatory disclosure of Lead auditor acceptance status

As discussed previously, Form 2 disclosure of Other auditors' participation is only mandatory for Other auditors that do not serve as Lead auditors for any U.S. issuers. In additional analyses, we delete engagements associated with mandatory disclosures in Form 2 (i.e., Other auditors that do not have any U.S. issuers as identified in the Audit Analytics Audit Opinion dataset), and then include only engagements characterized by voluntary disclosures in the Accept sample. We again find that Lead auditors in the Accept sample charge higher auditor fees (coefficient of ***ACCEPT*** = 0.475, p value < 0.0001) than those in the Decline sample. Once again, we find that audit quality is no higher for the Accept sample, as evidenced by the accrual analysis.[34]

In additional untabulated analyses, we delete engagements characterized by voluntary Form 2 disclosures, and then include only engagements characterized by mandatory disclosures in the Accept sample (i.e., the Other auditors that have no U.S. issuers). We again find that Lead auditors in the Accept sample charge higher audit fees (coefficient of ***ACCEPT*** = 0.267, p value < 0.0001) and do not provide higher quality audits. In summary, we find the same results as in the main analyses, whether or not the "accept responsibility" sample is based on mandatory or voluntary disclosure of Other auditors in Form 2. These results suggest that Lead auditors accepting responsibility might charge higher risk premiums because of litigation concerns rather than as compensation for additional audit effort that could improve audit quality. Alternatively, a Lead auditor accepting responsibility may exert more effort, but that effort is not associated with improved audit quality.

5.6. Home countries of Other auditors

Differences in culture, language, knowledge of U.S. SEC and PCAOB rules, and other factors may predispose Lead auditors to accept responsibility for the work of Other auditors in certain countries but not in others. Our main analyses control for the home country of the client. We assess the sensitivity of our results by alternatively replacing these controls with (1) indicator variables for the top 10 countries of origin for Lead auditors and Other auditors, and (2) the rule of law index in each country (Burke et al., 2018). We also perform some of our analyses using a sample of clients of U.S. Lead auditors only.[35] Consistent with the results of our main analyses, these un-tabulated results continue to suggest that Lead auditors accepting responsibility charge higher fees but may not increase audit quality.

6. Conclusion

In a group audit, the Lead auditor certifies that financial statements are in conformity with U.S. GAAP and that the audit was conducted in accordance with PCAOB standards. An agency problem arises because Lead auditors often must rely on the work of Other auditors, especially in the case of clients with foreign subsidiaries. Because national laws on ownership and practice vary across jurisdictions, and due to geographic separation, Lead auditors have limited ability to control Other auditors' actions. This has led to PCAOB concern that group audits may be of lower quality. The PCAOB also has been concerned that the quality of group audits may differ depending on whether the Lead auditor accepts or declines responsibility for the work done by Other auditors, as allowed by PCAOB standards. Finally, the PCAOB has been concerned with the venue through which Lead auditors and Other auditors disclose their participation in group audits, including whether the Lead auditors accept or decline responsibility. The PCAOB has expressed these concerns, and attempted to mitigate them, through a series of proposals and new guidance (PCAOB, 2010, 2011a, 2011b, 2011c, 2013, 2015a, 2015b, 2016a).

In this study we provide evidence bearing upon the PCAOB's concerns during a sample period in which the SEC considered existing disclosure of group audit arrangements to be opaque and in need of improvement. We examine two types of group audits identified through two existing disclosures of participation by Other auditors and Lead auditors (PCAOB Form 2 and

[34] We could not estimate the misstatement model due to quasi-complete separation problems caused by the small sample size using the subsamples.
[35] We thank an anonymous reviewer for suggesting this analysis.

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the audit report). Lead auditors on some group engagements accept responsibility for work performed by Other auditors as disclosed in Form 2. Lead auditors on other group engagements explicitly decline to accept responsibility for work done by Other auditors, via language in their audit reports. Using a sample of U.S listed companies, all of which experience group audits, we find that Lead auditors that accept responsibility (disclosed in Form 2) charge higher audit fees than Lead auditors who do not assume responsibility for the work of Other auditors. However, despite charging higher audit fees, Lead auditors that accept responsibility are not associated with higher quality group audits, and in some cases might even be associated with lower quality audits. Importantly, our findings hold after controlling for client characteristics, self-selection, voluntary versus mandatory disclosure of Other auditors' identity, and the home country of Other auditors. We caution that data limitations prevent us from establishing causal associations of Lead auditors' acceptance decisions with audit fees, audit quality, and clients' financial reporting quality,

We attribute the higher audit fees associated with group audits identified through Form 2 disclosures to Lead auditors' performance of incremental audit steps when accepting full responsibility, and perhaps to perceptions of higher litigation risks. Lead auditors that accept responsibility might charge higher risk premiums rather than putting more effort into their audits. Alternatively, Lead auditors accepting responsibility do exert greater effort, but that effort is not effective in motivating and guiding Other auditors to improve their audits of client components. These results are robust to several additional analyses and suggest a phenomenon that warrants continued PCAOB scrutiny and additional academic research.

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Appendix A. Example Form 2 item 4.2 disclosure

Italicized terms are defined in PCAOB Rule 1001. The Firm must apply those definitions in completing this Form.

ITEM 4.2 - *AUDIT REPORTS* WITH RESPECT TO WHICH THE FIRM *PLAYED A SUBSTANTIAL ROLE* DURING THE REPORTING PERIOD

a. If no *issuers* are identified in response to Item 4.1.a, but the Firm *played a substantial role in the preparation or furnishing of an audit report* that was issued during the reporting period, provide the following information concerning each *issuer* with respect to which the Firm did so -

Note: If the Firm identifies any *issuer* in response to Item 4.1, the Firm need not respond to Item 4.2.

Note: In responding to Item 4.2, do not list any *issuer* more than once.

1. *Issuer* name
China Billingual Technology and Education Group Inc.

2. *Issuer* CIK (Central Index Key) number, if any
0001470129 ☐ Check here, if none

3. Name of the *registered public accounting firm* that issued the *audit report*(s)
Child, Van Wagoner & Bradshaw, PLLC

4. The end date(s) of the fiscal period(s) covered by the financial statements that were the subject of the *audit report*(s)
8/31/2011

5. *Substantial role played* by the Firm with respect to the *audit report*(s)
Audit Issuer Subsidiary

If other is selected, please enter *substantial role played* below -

Note: This Form 2 was filed by Tom Chan & Co. (the Other auditor in Hong Kong), who helped Child, Van Wagoner & Bradshaw, PLLC (the Lead auditor in the U.S.) audit its issuer client China Bilingual Technology for the fiscal year ended August 31, 2011 .

Item 4.1 lists audit reports issued by the Other auditor.

Appendix B. Variable definitions

Variable		Definition
Dependent variables		
LNAUDITFEE	=	Natural log of total audit fees paid by clients to the Lead auditor in year t
MISSTATE	=	1 if the client's financial statement in year t is subsequently restated as disclosed in its 8-K item 4.02 (Non-Reliance on Previously Issued Financial Statements or a Related Audit Report or Completed Interim Review), 0 otherwise
|DA|	=	The absolute value of performance-matched discretionary accruals
Independent variables		
ACCEPT	=	1 if a Lead auditor accepts responsibility for the work of Other auditors in year t, as disclosed in the PCAOB Form 2, and is coded as 0 if a Lead auditor declines to accept responsibility for the work of Other auditors in year t, as disclosed in the audit report
Control variables in the audit fee model		
INDUSTRYSPECIALIST	=	1 if the Lead auditor has the largest market share in the client's industry in year t based on total fees, 0 otherwise
LNASSET	=	Natural log of total assets of the client in year t
LOSS	=	1 if the client reports negative net income in year t, 0 otherwise
LEVERAGE	=	Total debt divided by total assets in year t, (DLTT + DLC)/AT
BIG6	=	1 if the Lead auditor is a Big 6 firm (PwC, EY, KPMG, Deloitte, Grant Thornton, and BDO), 0 otherwise
LNBUSSEGNUM	=	Natural log of the number of business segments
LNGEOSEGNUM	=	Natural log of the number of geographic segments
ISSUE	=	1 if sale of common and preferred stock (SSTK) or long-term debt/issuance (DLTIS) is greater than zero, 0 otherwise
SPECIAL_ITEM	=	1 if the client reports special items (non-zero SPI) in year t, 0 otherwise
AO_UQ	=	1 if the client receives an unqualified opinion from the Lead auditor, 0 otherwise
QUICKRATIO	=	(Total current assets minus inventory) divided by total assets, (ACT-INVT)/LCT
BTM	=	Book value of equity divided by market value of equity, SEQ/ (CSHO *PRCC_F)
MA	=	1 if the client is involved in any merger/acquisition activity (AQS), 0 otherwise
INVREC_AT	=	The sum of inventory and account receivable divided by total assets, (INVT + RECT)/AT
BUSY	=	1 if the fiscal year is ended in December, 0 otherwise
FRGN	=	1 if pre-tax income from foreign operations (PIFO) is non-zero, 0 otherwise
FIRSTAUDIT	=	1 if the Lead auditor is in the first-year engagement with the client, 0 otherwise
|DA|	=	The absolute value of performance-matched discretionary accruals
ICMW	=	1 if the client has material weaknesses in SOX302 reports or SOX404a or SOX404b reports, 0 otherwise
LOC_USA	=	1 if the client is headquartered in the U.S., 0 otherwise
Additional controls in the misstatement model		
PRIORMISSTATE	=	1 if the prior year's financial statement is subsequently restated, 0 otherwise
SE_NYSE	=	1 if the client is listed on NYSE, 0 otherwise
SE_AMEX	=	1 if the client is listed on AMEX, 0 otherwise
SE_NASDAQ	=	1 if the client is listed on NASDAQ, 0 otherwise
ROA	=	Income before extraordinary items divided by total assets, IB/AT
RESTRUCT	=	1 if the client has any restructuring activity, 0 otherwise
LNFIRMAGE	=	Natural log of the number of years the client is in Compustat
Additional controls in the accrual model		
OFFICESIZE	=	Natural log of the total fees collected by the Lead auditor' office from all clients in year t
INFLUENCE	=	Total fees from the client divided by total fees collected by the Lead auditor's office from all clients in year t
SALESGROWTH	=	One-year growth rate in sales revenue. The maximum value is winsorized at 2, following Francis and Yu (2009)
SALESVOLATILITY	=	Standard deviation of sales revenue. The maximum value is winsorized at 10, following Francis and Yu (2009)
CFO_LAGAT	=	Cash flow from operations divided by lagged assets
CFOVOLATILITY	=	Standard deviation of cash flow from operations. The maximum value is winsorized at 10, following Francis and Yu (2009)

(*continued on next page*)

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Appendix B (*continued*)

Variable		Definition
LOSS2	=	1 if the operating income after depreciation is negative, 0 otherwise
ALTMANZ	=	The Altman Z-score, a measure of the probability of bankruptcy, with a lower value indicating greater financial distress AltmanZ = (1.2*(ACT-LCT)/AT + 1.4*RE/AT + 3.3*EBIT/AT + 0.6*CSH O*PRCC_F/LT + 0.999*SALE/AT)
RETVOL	=	Standard deviation of the client's 12 monthly stock return for the current fiscal year

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