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Does the Disclosure of the Component Auditor's Identity Enhance Audit Quality? A Difference-in-Difference Analysis

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Abstract

The question of whether audit quality can be enhanced by disclosing who participated in the audit is of interest to the PCAOB and others. We perform a difference-in-difference analysis using clients for which Form AP (PCAOB Rule 3211) required public disclosure of previously private information about the lead auditors' use of component auditors as a treatment group. The control group includes clients for which public disclosure of component auditor participation in the client's audit were available prior to Form AP. We find that audit quality increased for the treatment group and that lead auditors were more likely to reduce (increase) the use of low-quality (high-quality) component auditors after public disclosure was required. There is no evidence that component auditor disclosure imposes extra costs on clients by increasing audit fees. Overall, our evidence is consistent with Form AP disclosures achieving the PCAOB's goal of enhancing auditor accountability and audit quality.

Keywords: *component auditor; Form AP; Form 2; audit quality; Rule 3211.*

I. INTRODUCTION

There is growing interest in understanding the implications of using "component auditors" for overall audit quality.[1,2] The PCAOB (2016) notes that their inspections reveal significant deficiencies in audit work performed by component auditors that lead auditors did not identify or address. To enhance transparency on the role of other auditors in a global group audit as well as to increase the accountability of the lead auditor, the PCAOB passed Rule 3211 that requires in Form AP, the disclosure of information on component auditors, including their identity and the extent of their participation in audits for audit reports issued on or after June 30, 2017 (PCAOB 2015b; 2016; SEC 2016).[3] We address four questions relevant to assessing the efficacy of Form AP disclosures:

1. Did *audit quality improve* for clients for which Form AP required public disclosure of previously private information about lead auditors' use of component auditors?
2. Did lead auditors *change the component auditors* they used after Form AP required public disclosure of the identities of component auditors?
3. Did the *quality of component auditors* used change after Form AP required public disclosure of the identities of component auditors?
4. Did *audit fees change* after Form AP required public disclosure of the identities of component auditors?

[1] The U.S. global network audit firms audit 451 issuers among the *Fortune 500* companies and 364 of the audits of those issuers (more than 80 percent) involve component auditors (PCAOB 2016).

[2] We employ the terms "lead auditor (s)" and "component auditor(s)" (or "other auditor(s)") used by the PCAOB (PCAOB 2016, Appendix A). The lead auditor is "the registered public accounting firm issuing the auditor's report on the company's financial statements." Component auditors (other auditors) are audit firms that participate in the audit but that do not issue the audit report.

[3] Rule 3211 also requires disclosure of the identity of the engagement partner in Form AP. Though our primary focus is on the disclosure about the component auditor, we conduct tests to address the concern that our results could be driven by disclosure on the engagement partner and those results are discussed in a later section.

Our study is important for several reasons. First, the decision to mandate disclosure of information about component auditors was controversial and expected to impose costs on clients, auditors, and users of financial statements.[4] The PCAOB (2016, 30), notes that it "… is particularly interested in studies or data that could be used to assess potential benefits and costs" of the information in Form AP. We respond to this call by examining whether disclosure about the component auditor's identity contributes to higher audit quality, a benefit that could affect audit fees.

Second, the limited prior research on the relation between use of component auditors and audit quality yields mixed findings. For example, Dee, Gunny, and Lulseged (2018) find that audit quality is lower when component auditors are used but they do not find that the extent of participation by the component auditor drives audit quality. On the other hand, Burke, Hoitash, and Hoitash (2020b) find that it is the extent of participation by the component auditor that leads to lower audit quality not the mere use of a component auditor. Another study, Doxey, Lawson, Lopez, and Swanquist (2019), finds no evidence of investor response following the disclosure of information about component auditors, suggesting the disclosure lacks information content.

The PCAOB (2016, 29) states, "The small number of recent empirical studies … suggest that the impact of using other auditors on overall audit quality is *still a largely unanswered empirical question* …" (emphasis added). More importantly, prior research has not directly examined the relation between disclosure of information about component auditors and audit quality. In other words, while the limited prior research primarily examines whether there is a

[4] Some opposed the disclosure on the belief that disclosures were not useful or could be confusing to financial statement users about the degree of responsibility for the audit or contribute to information overload (PCAOB 2015b). The PCAOB also acknowledged that the disclosure could impose direct and indirect costs on the clients and auditors, such as higher audit fees and heightened litigation risk. In addition, some commenters noted that the disclosure may provide information about the issuer's operations in locations that would not otherwise be disclosed (PCAOB 2015b).

difference in audit quality between clients whose lead auditors use component auditors and those that do not, we examine a different research question – whether the disclosure of the component auditor's identity (i.e. Rule 3211) enhances audit quality.[5]

The innovation we bring to the literature on component auditors is a cleaner design that uses data from *both* PCAOB Forms 2 and AP.[6] Use of the two sources of data allows us to assess whether audit quality improved for a treatment group for which Form AP provided previously undisclosed information and a control group for which component auditor disclosures were available prior to the effective date of Form AP. The increased likelihood of public scrutiny by internal and external monitors provides incentives for component auditors to put in more efforts and lead auditors to choose high-quality component auditors and monitor them effectively.

Using a sample of companies that are likely to have used component auditors in the years before and after Rule 3211, we employ a difference-in-difference design where audit clients that disclosed identities about component auditors in Form 2 *and* Form AP constitute the control group and clients that did *not* disclose information about component auditors prior to Form AP are in the treatment group. We compare audit quality changes between clients in the treatment and control groups before and after Rule 3211. The difference-in-difference design allows us to isolate the causal effect of disclosing component auditor's identity on audit quality, as it effectively controls for contemporaneous confounding events.

The PCAOB (2015a, 4; 2016, 35) asserts that disclosure of information about component auditors will increase the accountability of the lead auditor and thus, audit quality. The link

[5] A concurrent study by Krishnan, Mao, and Zhang (2020) finds that cost of debt is higher when component auditors are used relative to engagements that do not involve component auditors. However, they do not examine audit quality, the focus of our study.

[6] Before Rule 3211 became effective, audit firms who did not serve as a lead auditor on an SEC issuer were required to disclose in Form 2 if they performed a "substantial role" (defined as 20 percent or more of total hours or total fees), or perform the majority of the audit work on a subsidiary that constitutes 20 percent or more of assets or revenues of the issuer in an audit for the lead auditor.

between increased auditor accountability and auditor effort and audit quality is supported in prior research (see Messier and Quilliam 1992; Hoffman and Patton 1997; Asare, Trompeter, and Wright 2000; DeZoort, Harrison, and Taylor 2006). We conjecture that component auditor disclosures in Form AP will result in increased accountability for *both* the lead auditor and the component auditor and thereby enhance overall audit quality. This is because the disclosure will expose low-quality component auditors and impose reputation costs (loss of clients and the opportunity to work with larger lead auditors). Thus, the disclosure incentivizes component auditors to uphold audit quality. Similarly, lead auditors, who take the final responsibility in group audits will also bear reputation costs arising from poor audits by component auditors.[7]

Although lead auditors knew the identity of the component auditors even before Form AP became effective, public disclosure of component auditors with poor track records will incentivize the lead auditor to switch to higher-quality component auditors to protect their own reputation. Further, the disclosure will motivate the lead auditor to better supervise and monitor component auditors. Collectively, these actions are expected to result in higher audit quality.[8]

Similarly, we predict that component auditor disclosures will have consequences (real effects) on the selection of component auditors. In other words, once the identities of the component auditors are known to investors and the audit committee, these monitors are likely to pressure the lead auditor to replace low-quality component auditors with high-quality ones.

Because disclosures about component auditors are likely to increase the quality of component auditors, auditors may charge higher fees after the disclosure. However, the resulting increase in audit quality associated with the work of component auditors may lower the audit risk

[7]Nagy (2014) provides evidence of the decline in market share associated with reputational damage related to disclosures of unremediated quality control findings from Part II of PCAOB inspection.

[8] Also, both agency and capital market theories provide a basis for expecting lead auditors to take steps to improve audit quality (discussed in the next section).

and audit efforts for the lead auditor, and therefore lower the audit fees charged by lead auditors. We test for a post-Form AP change in audit fees so that we can provide evidence on the cost as well as the benefits of Form AP disclosures. We do not predict the direction of any change in audit fees.

We hand-collect information about component auditors from Form 2 and Form AP and obtain related financial statement information from *Compustat* for the years 2014 through 2019. We employ multiple measures of audit quality: discretionary accruals based on the modified Jones model, the Dechow and Dichev (2002) model, and the Beneish (1999) M-score. We document several findings. First, discretionary accruals are lower after mandatory disclosure of component auditors for clients whose major component auditor identities were disclosed in Form AP but not in Form 2 (treatment group), compared to clients whose major component auditor identities were disclosed in *both* Form 2 and Form AP (control group). Second, the likelihood of earnings manipulation (measured by Beneish M-score) is lower after mandatory disclosure of component auditors for clients in the treatment group compared to clients in the control group. These findings are robust to controlling for client fixed effects in our models. We also use two alternative measures of audit quality: fraudulent misstatements (Dechow, Ge, Larson, and Sloan 2011) and propensity to issue going concern opinions. We find that the risk of a material misstatement is lower and the likelihood of issuing going concern opinions is higher after Rule 3211. Overall, the above findings support the notion that the disclosure of component auditors' identities improves audit quality.

Third, we find evidence of real effects of disclosing the component auditor's identity. For clients for which component auditor identities are disclosed for the first time in Form AP (i.e. treatment group), the lead auditor makes changes in its component auditor portfolio by decreasing

the use of a low-quality component auditor. These findings support the PCAOB's expectation that, "*information about the other audit participants … will incentivize lead auditors to use higher-quality component auditors"* (PCAOB 2015a). This is consistent with disclosures about component auditor identity increasing lead auditor accountability.

Fourth, we do not observe a significant difference in audit fees between clients in the treatment and control groups. This is an important result because it indicates that the higher audit quality, a benefit, associated with the clients in the treatment group is achieved without an increase in audit fees. Finally, we find that the improved audit quality associated with clients in the treatment group is more pronounced for clients whose component auditors are located far away from the lead auditor (proxied by the difference in time zones). This suggests that Rule 3211 brings more benefits to clients that are subject to greater communication and coordination challenges between the lead auditor and the component auditors.

We make three contributions to the literature. First, to the nascent literature on component auditors, we provide evidence on the causal link between information about the identity of component auditors disclosed in Form AP and audit quality and fees. Our findings support the notion that audit quality increased for clients whose lead auditors disclosed information about component auditors for the first time in Form AP, while audit fees were not affected. Our findings are potentially important to the PCAOB because they provide evidence of benefits from the mandated disclosures. Second, our findings also point to some real effects of the disclosure, i.e., the disclosure is helpful to the audit committee and investors in separating high-quality component auditors from those with poor track records. To the extent that the use of low-quality component auditors is reduced, our findings suggest that the disclosures contribute to improving audit quality. Finally, we also contribute to the broader literature on the usefulness of Form AP disclosures. Prior

research on the issue of whether identification of the engagement audit partner in Form AP enhances audit quality due to higher perceived higher accountability generally fails to detect a significant change in audit quality following the identification of the engagement partner in Form AP (Cunningham, Li, Stein, and Wright 2019).[9] In contrast, our findings suggest that disclosures in Form AP about the component auditor are beneficial to audit quality.

The rest of the paper proceeds as follows. Section II summarizes related research and develops our hypotheses. Section III describes the research design and the empirical models. Sample selection is described in Section IV followed by the results and Section VI concludes.

II. RELATED RESEARCH AND HYPOTHESES

Mandatory Disclosure as a Disciplining Mechanism

Mandatory disclosure is the primary mechanism used by the U.S. Securities and Exchange Commission (SEC) to inform investors and discipline capital markets (Mahoney 1985).[10] The SEC requires Form 10-K and other filings to discipline the agency relationship between the corporate management and shareholders. The relationship is further disciplined by mandating annual reports filed with the SEC be audited by an independent public accountant.

Form AP mandates disclosures with the potential for disciplining the behavior of the independent public accountants leading group audits, component auditors, corporate boards of directors, investors, and information intermediaries. Form AP focuses a lead auditor's attention on the quality of component auditors used and the effectiveness of his/her firm's quality control system for monitoring component auditor performance. It does this by providing information a

[9]Using a sample of Canadian companies, Bedard, Brousseau, and Sirois (2020) also fail to find a significant relation between engagement partner identification and audit quality.

[10] See Stiglitz and Weiss (1981) for an explanation of how greater information flows can mitigate principal-agent problems and in-turn improve resource allocation in financial markets and Huang, Jiang, Liu and Zhang (2012) for evidence that investors' valuation of cash and investments is associated with levels of disclosure and value-destroying projects are concentrated in companies with opaque disclosure policies.

client's board of directors can use to question the lead auditor about its use of component auditors and the quality of their work (Center for Audit Quality (CAQ) 2017). Over time, the board of directors' assessment of the lead auditor's use of component auditors can affect its decisions on auditor ratification (Ferguson and Sharp 2017). Agency theory provides a rationale for expecting an improvement in audit quality because of the incentives of internal actors (lead auditors, component auditors, boards of directors) to monitor more effectively.

Because Form AP filings are readily available on the PCAOB website, they invite external scrutiny of the lead auditor's use of component auditors by investors, analysts, corporate governance activists, and others. Arguably, increased internal and external scrutiny should increase audit quality. A difficult question to answer is how quickly this improvement will occur. Lew Ferguson (Ferguson and Sharp 2017), a former PCAOB Board member, notes that it may take time for users to develop a baseline for assessing what constitutes appropriate use of component auditors and how such use affects audit quality.

Efficient market theory provides a complementary basis for positing Form AP disclosures will improve audit quality by making previously unavailable information readily available on the PCAOB website (e.g., Easterbrook and Fischel 1984). Once the information is publicly available investors, analysts, investigative reporters and others can use it to assess audit quality and, in turn, the reliability of a registrant's financial statements.[11] The increased likelihood of public scrutiny provides an external incentive for component auditors to put in more efforts and lead auditors to use high quality component auditors and monitor them effectively.

[11] See (Gaynor, Kelton, Mercer, and Yohn 2016; Patterson, Reed, and Tiras 2019; Ewert and Wagenhofer 2019) for discussion of the link between audit quality and financial reporting quality.

Use of Component Auditor and Audit Quality

Coordination and communication issues and conflicts of interest are endemic to group audits (Downey and Bedard 2019; Downey and Westerman 2019; Sunderland and Trompeter 2017). If not mitigated, lower audit quality is likely. Early research comparing audit quality and audit fees for the clients of lead auditors using and not using component auditors uses non-Form AP sources**.** Specifically, using clients' disclosure of audit fees paid to lead auditors, to network affiliates of lead auditors, and to other non-affiliated auditors, Carson, Simnett, Vanstraelen, and Trompeter (2016) find audit fees are higher for group audits while audit quality is not significantly different; Relying on Form 2 disclosure of group audit participation by component auditors, Dee et al. (2015) find lower audit quality for group audits while they fail to find higher fees associated with group audits where lead auditors substantially use the work of component auditors. Questions about the inferences that can be drawn from these studies arise because of fundamental differences between clients that require group audits and those that do not (see Burke et al. 2020b).

Recent research examining the relation between component auditor use and audit quality/fees use Form AP disclosure and reach different conclusions. Dee et al. (2018) document that audit quality is lower for those lead auditors who use component auditors relative to those that do not. Working with a sample confined to clients with group audits, they find audit quality is lower and audit fees are higher when there is more than one component auditor. There is no evidence audit quality is associated with the percentage of work done by component auditors, whether the component auditor is affiliated with a Big 4 firm, not registered with the PCAOB, inexperienced as lead auditors of SEC clients, or domiciled in a country that does not permit inspection. The only component auditor characteristic associated with audit quality is the jurisdiction in which the component auditor is licensed.

However, Burke et al. (2020b) find that the percentage of work done by the component auditor and not simply the use of component auditors negatively affects audit quality.[12] They find a positive association between the amount of work conducted by component auditors and proxies for audit quality (likelihood of misstatements, non-timely reporting) and higher audit fees. Lower audit quality is associated with the use of less competent component auditors and the use of geographically distant component auditors that are licensed in jurisdictions with weak rule of law and cultural/language barriers.

Form AP disclosures – Initial Evidence

The effective date for Form AP partner identity preceded the effective date for component auditor disclosures by six months.[13] Because of this timing difference and the greater controversy associated with engagement partner disclosures (PCAOB 2015a), most studies to date focus on partner identification disclosures. The studies reviewed in this subsection and summarized in the footnote examine the effects of partner identity disclosures and motivate the use of differences-in-difference design that controls for partner identity disclosure in our study.

Burke et al. (2020a) investigate the impact of partner identity disclosures prior to the effective date for component auditor disclosures, and thereby avoid the potential confounding effect of component auditor disclosures. They find a significant increase in audit fees and audit quality (Big 4 firms only) as well as a significant decrease in audit delay following the disclosure of engagement partner identity. Integrating information from other data sources about auditor

[12] Cunningham et al. (2019) use a test period that precedes the effective date for component auditor disclosures.
[13]The PCAOB responded to registrants' concerns about the time initially required to assemble the elements of component auditor disclosure by setting the effective date for component auditor disclosures (35 days after 6/30/17 audit reports) six months later than the effective date for engagement partner disclosures ((35 days after 1/31/17 audit reports).

characteristics (partner gender, busyness, education and social connection) shows that these characteristics are associated with variations in audit fees and audit delay but not audit quality.[14]

Doxey et al. (2019) use the staggered effective dates for partner identification and component auditor disclosures to assess separately the effects of the disclosures on securities market trading volume. Previous research (e.g., Bamber, Barron, and Stevens 2011) suggests the arrival of value relevant information increases trading volume. Doxey et al. (2019) hypothesize the market will react to component auditor disclosures because they allow investors to more readily identify group audits, which may be of lower quality because of component auditor involvement or may involve component auditors that operate in jurisdictions that do not allow PCAOB inspections. Results provide no significant evidence of abnormal trading volume in response to either initial engagement partner identification or component auditor disclosures.

Using a difference-in-difference specification, different control groups, multiple controls and extensive sensitivity testing, Cunningham et al. (2019) find little evidence that Form AP disclosure of engagement partner identity affected either audit quality or fees. The researchers posit the absence of effect may be attributable to (1) the multiple controls for temporal trends and contemporaneous events, (2) a test period that includes only one year of post-Form AP disclosures, (3) partner accountability that was sufficiently high prior to Form AP mandatory disclosure requirement, and (4) disclosure in Form AP rather than in the audit report.

Our study adds to the previous literature by providing a theoretical basis for expecting the mandatory disclosure of the identity and hours of work provided by component auditors to improve audit quality. We use these frameworks to explain how mandatory component auditor disclosures

[14] Papers investigating the link between Form AP engagement partner identification and audit quality but not incrementally relevant find the following: an increase in Big 5 auditors' propensity to issue going concern opinions (Abbott, Boland, Buslepp, and McCarthy 2019); and real earnings management decreased after Form AP disclosure requirement, authors characterize as an unintended consequence (Abbott et al. 2019).

can reduce agency costs and provide new, potentially value relevant, information about the lead auditor's use of component auditors. Use of a difference-in-difference specification increases the likelihood that the increase in audit quality and absence of change in audit fees we document is attributable to the mandatory component auditor disclosure rather than contemporaneous changes that could have affected audit quality or audit fees. Unlike earlier studies, we also examine changes in the portfolio of component auditors used by the lead auditor of a given public company after the mandatory component auditor disclosure. Consistent with the expectation that mandatory component auditor disclosures provide incentives for lead auditors to improve the quality of the component auditors, we find a decrease in the proportion of component auditors used that had previously received negative PCAOB inspection findings.

Hypotheses

Examination of statements in PCAOB documents (e.g., PCAOB 2015a and 2015b) discussing the rationale for mandating disclosure of the identity and hours worked by component auditors indicates the intent of the mandated disclosures is to improve audit quality. Mahoney (1985) identifies two theoretical frameworks for predicting mandatory disclosures will achieve regulators' intent: agency cost and market efficiency. Using the agency cost framework, the improvement in audit quality will occur because of improved monitoring of conflicts of interest among agents and principals. In group audits, short-run profit maximizing lead auditors would have incentives to reduce costs by choosing cheaper, lower quality component auditors or underinvesting in monitoring component auditors' performance. Lead auditors with a longer-term perspective would refrain from such behavior to reduce the likelihood of reputational damage.

Similarly, a short-term oriented component auditor would have incentives to shirk or underinvest in developing the knowledge and skills necessary to perform audit work conforming

to PCAOB standards. Mandatory disclosures about the lead auditor's use of component auditors would provide a basis for the client's board of directors to ask questions and to be in a position to better monitor the work of the lead auditor and thereby serve as a better monitor for the interests of corporate shareholders. Improved monitoring could lead to long term as well as short-term improvement in audit quality by both component auditors and the lead auditor. An almost immediate increase in audit quality could occur if, for example, the disclosures incentivized auditors to decrease the likelihood of reputational damage by reviewing the performance of component auditors and replacing lower quality component auditors with higher quality component auditors.

Under the market efficiency framework, mandatory component auditor disclosure would provide new information for group audits for which no component auditor disclosures were made prior to Form AP. Because Form AP disclosures are readily available on the PCAOB website, the disclosure can affect the perceptions of investors, analysts, investigative journalists and others using information, described by the PCAOB as linked to audit quality, to assess the reliability of a company's financial statements. Such linkage provides a capital market incentive for management and the board of directors to demand high quality group audits from the lead auditor. In addition, in the post-Form AP era, component auditors also face incentives to enhance audit quality to be recruited by high-quality lead auditors. Finally, the PCAOB (2015a, 4; 2016, 35) states that disclosure of information about component auditors will increase the accountability of the lead auditor.[15]

Peecher, Solomon, and Trotman (2013) note that auditors are accountable, especially to the PCAOB, the SEC, and others for audit outcomes as well as for the quality of their professional

[15] Lerner and Tetlock (1999) define accountability as the expectation that one need to justify one's beliefs, feelings, and actions to others.

judgment process. There is extensive behavioral research on the effect of auditor accountability on audit planning and audit effort, including testing, risk assessment, and materiality judgments which could contribute to audit quality (King, Davis, and Mintchik 2012). Collectively, the foregoing lines of reasoning lead to our first hypothesis stated below.

H_1: Audit quality for U.S. public companies improved after mandatory disclosure of component auditor participation in a group audit.

Agency, capital market and behavioral theories provide a basis for expecting lead auditors to take steps to improve audit quality. One-step a lead auditor could take relatively quickly to improve audit quality is to change the portfolio of component auditors used to audit a given client. To provide a better understanding of the changes in component auditors made by lead auditors, we test the following two hypotheses.

H_2: The composition of lead auditors' portfolios of component auditors changed after the PCAOB mandated component auditor disclosures by the lead auditor.

H_3: The quality of component auditors used by lead auditors increased after the PCAOB mandated component auditor disclosures by the lead auditor.

To the extent that there is a cost of reviewing the performance of component auditors, changing the portfolio of component auditors used on a given engagement, and increasing monitoring and that cost can be passed on to clients, audit fees will increase. On the other hand, the increased audit quality by component auditors could significantly decrease the audit risks and effort for the lead auditor, resulting in lead auditors charging lower fees. Because of recent client concerns about increasing audit fees (e.g. Papenfuss 2019; Whitehouse 2015), we question the lead auditors' ability to pass along what may be minimal incremental cost and therefore state the following non-directional hypothesis.

H_4: Audit fees for U.S. public companies changed after mandatory disclosure of component auditor participation in group audit.

III. RESEARCH DESIGN

Difference-in-difference Method

To test the effect of the disclosure of the component auditor's identity in Form AP on audit quality, we use a sample of companies that likely used component auditors in both pre- and post-Rule 3211 periods, and employ a difference-in-difference method to compare the audit quality between three years before and three years after the mandatory disclosure of component auditors. We estimate the following regression model:

$$AQ_{it} = \beta_1 + \beta_2 DCOMPAUD_i + \beta_3 POST_t + \beta_4 DCOMPAU \times POST + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (1)$$

Where *i* and *t* denote client and time, respectively. The dependent variable, *AQ* is our proxy for audit quality (described below in detail). $DCOMPAU_i$ is a dummy variable, which equals 1 for clients for which participation of component auditors was *not* disclosed in Form 2 prior to Form AP (treatment companies), and 0 for clients for which major component auditors' names were disclosed in Form 2 before Form AP (i.e. control companies). $POST_t$ is a dummy variable that equals 1 for observations in or after the year when component auditor names are disclosed in Form AP and 0 for observations in years before Form AP became effective.[16] The coefficient of interest in model (1) is β_4 which captures the effect of component auditor disclosure on audit quality. This method essentially compares the change in audit quality for treatment companies before and after the mandated disclosure of component auditors in Form AP and compares this change with control companies over the same period.[17] Control companies are those that are not (or are less) impacted

[16] About 99 percent of our sample clients disclosed component auditor information in Form AP starting in fiscal year 2017 (i.e., *POST*=1 for 2017, 2018, and 2019). There are only a few clients started the disclosure of component auditor information in Form AP in fiscal year 2016 (i.e., *POST*=1 for 2016, 2017, 2018, and 2019).

[17] It is possible that clients in our treatment group had component auditors that did not perform a "substantial role" before Rule 3211, but started to perform a "substantial role" after Rule 3211 (see footnote 6). In other words, companies in our treatment group might experience an increase in the use of component auditors after Rule 3211. Nonetheless, prior research (Burke et al. 2020; Carlson et al. 2019) finds that increased use of component auditors is

by Form AP's mandated disclosure of component auditors because the disclosure of their major component auditors were publicly available prior to Form AP requirement (i.e., in Form 2).

We use two measures of audit quality. The first one is the signed discretionary accruals model based on the Modified Jones model controlled for performance (Kothari, Leone and Wasley 2005) and Dechow and Dichev (2002). The second one is the Beneish M-Score (Beneish 1999), which captures the probability of earnings manipulation.[18] We use these two measures because they are directly influenced by the quality of the audits of components of the consolidated entity. A high-quality audit at the component level that restrains earnings management would lead to better accrual quality and a lower likelihood of earnings manipulation at the parent level, resulting in higher overall audit quality. Also, Jones, Krishnan, and Melendrez (2008) compare the performance of the M-score and various other metrics used in the accounting literature in detecting financial fraud and earnings management. They find that the M-score outperforms many other accrual-based metrics in detecting earnings management.

Audit quality is determined by clients' financial reporting systems and innate characteristics (DeFond and Zhang 2014). We include client size (*SIZE*), client age (*AGE*) and leverage (*LEVERAGE*) to control for innate characteristics. We also include return on assets (*ROA*) and operating cash flow (*CASHFLOW*) to control for client performance. Book to market ratio (*BM*), sales growth (*GROWTH*), and equity issuance (*ISSUANCE*) are included to control for client growth and potential earnings management incentives. To control for client complexity, we include the number of business segments (*BSEGMENT*), the number of geographic segments

associated with decreased audit quality. Thus, this potential limitation in our research design works against us finding a positive relation between disclosure of component auditors' identity and audit quality.

[18] We are not able to use the actual misstatements/manipulations to proxy for audit quality because the restatement disclosure lag (the time between the original misstatement year and the restatement announcement year) could be on average, two to three years. M-Score is used in prior research as a proxy for earnings manipulation risk (see Cassell, Myers, Myers and Seidel 2017; Mark, Lim, and Zang 2016; Teoh, Welch, and Wong 1998).

(*GSEGMENT*), and the level of foreign income (*FORNNI*). Lastly, we control for lead auditor quality using a Big 4 auditor indicator (*BIG*). In all models, we include year and industry fixed effects (or client fixed effects) and cluster standard errors at the client level.

To test the effect of mandatory disclosure of the component auditor's identity on audit pricing, we estimate (hypothesis 4) the following difference-in-difference model to compare the change in audit fees for treatment companies before and after the mandated disclosure of component auditors in Form AP and with the change for control companies over the same period:

$$LAFEE_{it} = \beta_1 + \beta_2 DISCLOSE_i + \beta_3 POST_t + \beta_4 DISCLOSE \times POST + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (2)$$

where $LAFEE_{it}$ is the natural log of audit fees for client *i* in fiscal year *t*. Our variable of interest is the coefficient on the interaction term *DISCLOSE*×*POST*, which captures the effect of component auditor disclosure on audit fees.

Following prior studies (Francis and Yu 2009; Lobo and Zhao 2013), we include a vector of control variables that are potential determinants of audit fees. First, we control for client complexities using *SIZE*, *AGE*, *GROWTH*, *BSEGMENT*, *GSEGEMENT*, and *FOREIGNNI*. Second, we control for client risks using *LEVERAGE*, *BM*, *ACCR* (a proxy for earnings quality), *ISSUANCE*, and *ICW*. *ACCR* is the ratio of total accruals to total assets. *ICW* is an indicator for the reporting of internal control weakness under SOX404. Third, *ROA* and *CASHFLOW* are included to control for profitability. Finally, we include *TENURE* and *BIG* to control for lead auditor characteristics.

Real Effects of Component Auditor Disclosure

Using data from the post mandatory disclosure era, we analyze whether the disclosure of component auditors' identity has a real effect on the selection of component auditors. Specifically, we test whether there is a change in the component auditor portfolios (hypotheses 2 and 3) after

Form AP mandates the disclosure of component auditors by estimating the following logit regression models:

$$CHCOMPAUD_{it} = \beta_1 + \beta_2 DCOMPAUD_i + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (3)$$

$$CHCOMPAUDIMQ_{it} = \beta_1 + \beta_2 DCOMPAUD_i + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (4)$$

$$CHCOMPAUDNIMQ_{it} = \beta_1 + \beta_2 DCOMPAUD_i + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (5)$$

The dependent variable in model (3), $CHCOMPAUD_{it\ t}$, is a dummy variable that equals 1 for clients that changed the selection of component auditors in year t compared to year t-1, and 0 for clients that used the same component auditors as the prior year. $DCOMPAUD_i$ is the same as defined before, which equals 1 for clients that did not disclose the use of component auditor in Form 2 prior to Form AP (treatment companies), and 0 for clients that disclosed major component auditors' names in Form 2 before Form AP (i.e., control companies). The coefficient of interest in model (2) is β_2. Hypothesis 2 predicts $\beta_2 > 0$.

In model (4) and (5), we separately examine component auditor changes that lead to a decrease in the use of low-quality component auditors and those that do not decrease the use of low-quality component auditors. We measure the quality of a component auditor using the most recent PCAOB inspection results for each component auditor.[19] A component auditor is deemed as low quality if it received at least one audit-related efficiency in the PCAOB inspection report. $CHCOMPAUDIMQ_{it}$ is a dummy variable indicating that the clients made changes in the selection of component auditors in year t and the ratio of low-quality component auditors decreases from year t-1 to year t (i.e., improvement in component auditor quality). $CHCOMPAUDNIMQ_{it}$ is a dummy variable indicating that the clients made changes in the selection of component auditors in

[19] We also use the three most recent PCAOB inspection results, the five most recent PCAOB inspection results, or the average inspection results over the sample periods, and our results remain the same.

year t and there is no decrease in the ratio of low-quality component auditors from year t-1 to year t (i.e., no improvement in component auditor quality).

All client-level control variables in model (1) are used in model (3) to (5). In addition, we also include additional control variables that may be associated with changes in component auditor selection. One reason for a change in component auditors would be a change to a lead auditor with a different portfolio of component auditors. We control for lead auditor changes using, *AUDCHANGE*, a dummy variable that equals 1 if there is a change in the lead auditor and 0 otherwise. [20] Other reasons for component auditor changes would be client mergers and acquisitions or operational changes or growth that require use of additional component auditors. Thus, we include in the model an indicator variable for merger and acquisition (*M&A*), *CBSEGMENT*, change in the number of business segments, *CGSEGMENT*, change in the number of geographic segments, and *CFOREIGNNI* change in the level of foreign income.

IV. SAMPLE

Our sample period is from fiscal 2014 to fiscal 2019 because we intend to compare audit quality between three years before and after the mandatory disclosure of component auditors in Form AP. In the post mandatory disclosure era, we obtain information related to component auditors from Form AP filed with the PCAOB. In the pre mandatory disclosure era, we obtain information related to component auditors from Form 2 filed with the PCAOB. Each year since 2010, all PCAOB registered audit firms are required to file Form 2, which includes information about the firms' audit clients and audit reports, offices and affiliations, and personnel among others. In Form 2 Item 4.2, audit firms who do not issue any audit report for a U.S. listed issuer are required to provide information about issuer audits in which they played a substantial role during that

[20] In addition to lead auditor change, we also consider controlling for audit partner change in the model. We find no significant association between audit partner change and change in component auditor selection.

reporting year. Some firms with issuer clients also choose to voluntarily disclose such information.[21]

To be included in the sample, a client's auditors must have disclosed component auditors' identities in Form AP after Rule 3211. Our initial sample consists of 9,975 client-year observations from fiscal year 2014 to fiscal year 2019. We construct our treatment sample by excluding the 920 clients for which there were component auditor disclosures prior to Form AP. These excluded clients compose our control sample. To ensure clients in our treatment sample likely used a component auditor prior to Rule 3211, we retain only clients whose average component auditor usage in the post Rule 3211 era equals or is greater than 20 percent.[22] We do so because clients with relatively high usage of component auditors are usually large multinational companies for whom the use of component auditors is necessary.[23] After eliminating clients that have fewer than 4 observations during the sample period[24], our treatment sample comprises of 3,122 client-year observations and 545 unique client companies.

To construct our control sample, we retain clients for which component auditor disclosures were available in Form 2, which results in a loss of 9,055 observations and thus an initial sample of 920 client-years. Similar to the treatment sample, we also exclude clients that have fewer than

[21] Form 2 alerts auditors to the importance of full and accurate disclosure by requiring an authorized partner sign Form 2 on behalf of the firm and assert that "the form does not contain any untrue statement of a material fact or omit a material fact necessary to make the statements" (PCAOB 2008, 16).

[22] We choose 20 percent as the threshold because it is the threshold used by Form 2 for component auditor disclosure. The origin of the 20 percent threshold is SEC Release No. 34-48180, File No. PCAOB 2003-03 (July 16, 2003).

[23] Using Form AP data, we find that 99 percent of the clients whose average use of component auditors is equal or above 20 percent consistently use component auditors every year. Therefore, very likely those treatment companies also used component auditors in the pre-Form AP period. As a result, such a design allows us to more confidently attribute any improvement in the audit quality to the disclosure of component auditors.

[24] The advantage of using an unbalanced panel (i.e., we require at least four rather than six observations for each client) is that it achieves greater efficiency as more observations are included in the unbalanced panel. The disadvantage of using an unbalanced panel is that the composition of the sample could change over time. To make sure that our results are not sensitive to the structure of the data, in sensitivity analyses, we re-estimate our models using a balanced panel with six years of observations for each company in the sample and reach similar conclusions as from our main analyses using an unbalanced sample.

4 observations during the sample period. Our control sample comprises 874 client-year observations and 176 unique client companies. After combining the treatment and control samples, we obtain an unbalanced panel of 721 client companies with 3,996 client-year observations. After eliminating observations with missing information to calculate our audit quality measures, our final sample for the test of H1 ranges from 2,738 to 3,470 observations. After eliminating observations with missing information on audit fees, our final sample for the test of H4 has 3,546 client-year observations.

To test hypotheses 2 and 3, we focus on the change in component auditors' selection in the post Rule 3211 era. Recall that we have 3,996 clients-years from the treatment and control groups. After excluding 1,934 observations in the pre-Form AP era, there are 2,062 client-year observations that disclosed component auditors' identities in Form AP, among which 1,552 are treatment companies for which component auditor disclosures were not publicly available before Form AP became effective, and 510 are control companies for which such information was available before Form AP. Since we examine the change in component auditors' selection between the prior year and current year, we exclude all first-year Form AP disclosures. We further exclude observations with missing values for control variables and our final sample for H2 and H3 comprise 1,174 client-year observations and 628 unique client companies.

[Insert Table 1 About Here]

V. RESULTS

Univariate Analysis

Descriptive statistics of the final sample used in our main analyses are presented in Table 2. Panel A reports the descriptive statistics of variables used in model (1). Results in Panel A indicate that the mean values of *DISACCMJ, DISACCDD* and *MSCORE* are, -0.039, -0.037 and -2.621, respectively. For the entire *Compustat* population during the period of 2014 to 2019

(untabulated), the mean values of *DISACCMJ*, *DISACCDD* and *MSCORE* are, -0.007, 0.003 and -2.582, respectively. Thus, relative to companies covered by *Compustat*, our sample companies have lower discretionary accruals (higher audit quality). About 77 percent of the observations in our final sample are in the treatment group (i.e., companies whose identities of component auditors were not disclosed before Rule 3211), and the remaining 23 percent of the observations are in the control group (i.e., companies whose major component auditors were disclosed before Rule 3211 through Form 2).

The mean value of total assets and company age is around $30,316 million and 27 years; Both are significantly larger than Compustat average.[25] This is because companies in our sample are mostly multinational companies that tend to be larger and older. The mean *LEVERAGE* and *ROA* is about 28.8 and 2 percent of total assets, respectively. On average, the book to market ratio (*BM*) is 0.612, the ratio of operating cash flow to total assets (*CASHFLOW*) is 0.076, the sales growth rate (*GROWTH*) is 0.073. About 64.3 percent of the observations issued new equity (*ISSUANCE*) and 86.7 percent of the observations have one of the Big 4 as their lead auditor (*BIG*). The average number of business segments and geographic segments are 3.119 and 4.691, and the average foreign net income to total assets is 2.30 percent.

Panel B compares the characteristics of companies in the treatment and control groups. Results in Panel B indicate that on average, companies in the treatment group are larger, older, more profitable, have lower discretionary accruals, lower book to market ratio, lower sales growth rate, more business segments, and are more likely to be audited by the Big 4 auditors, compared to companies in the control group.

[25] The average total assets and company ages for the entire *Compustat* population during the period of 2014 to 2019 are about $16,040 million and 18 years.

Panel C presents the descriptive statistics of variables used in audit fee analysis. The mean value of audit fees is about $7 million. This is again much larger than the average audit fees of the *Compustat* population, which is about $1.6 million. The mean value of auditor tenure is 15.110 years. Total accruals to total assets ratio is -0.055, and around 8.9 percent of the observations report internal control weakness under SOX 404. Panel D provides descriptive statistics of variables used in models (3) to (5). In the post Rule 3211 period, around 39.9 percent of the observations made changes in their selection of component auditors, 16.8 percent made changes that decreased the use of low-quality component auditors, and 23.2 percent made changes that either increased or had no effect on the ratio of low-quality to high-quality component auditors. About 37.4 percent of the observations engaged in merger and acquisition activities, and 3.7 percent changed their lead auditors.

[Insert Table 2 About Here]

Table 3 provides Pearson correlations for the variables used in the discretionary accrual models. The correlations between the independent variables are relatively low. Nonetheless, we check the variance inflation factor (VIF) of each variable tested in the model. The mean VIF of the independent variables are 1.89, and none of the individual VIFs exceeds 5. The relatively low correlation coefficients in the correlation matrix and the VIF results suggest that multicollinearity is not a concern in this study.

[Insert Table 3 About Here]

Component Auditor Disclosure and Audit Quality

Results of model (1) on the relation between component auditor disclosure and audit quality are in Table 4. In columns 1 and 2, the audit quality is measured by discretionary accruals and in column 3, the audit quality is measured by M-score (Beneish 1999). Industry and year fixed

effects are included in columns 1 to 3, while client and year fixed effects are included in columns 4 to 6[26]. The coefficients on *DCOMPAUD* and *POST* are insignificant, and the coefficients on the interaction term, *DCOMPAUD× POST* are negative and significant in all columns. These results indicate that compared to clients in the control group for which component auditors were disclosed before Form AP, clients in the treatment group experienced a significant decrease in discretionary accruals and M-score. In other words, the disclosure of component auditor leads to an increase in audit quality and hypothesis 1 is supported. These findings are consistent with the notion that component auditor disclosure provides incentives for component auditors to enhance audit quality and for lead auditors to select high-quality component auditors and/or to increase monitoring of component auditors, resulting in improved audit quality. By including client fixed effects, our results are less likely to be confounded by time-invariant unobservable client characteristics. Turning to control variables, we find that discretionary accruals are positively associated with *ROA* and *GSEGMENT* and negatively associated with *CASFFLOW* and *SIZE*, while *MSCORE* is positively associated with *SIZE, ROA,* and *GROWTH* and negatively associated with *AGE, LEVERAGE*, *CASHFLOW* and *FORGNNI*.

[Insert Table 4 About Here]

Change in Component Auditor Selection in the Post Mandatory Disclosure Period

Results of models (3) to (5) on whether the disclosure of information about component auditors leads to a change in component auditor selection are in Table 5. There are 1,174 client-year observations among which 900 did not disclose component auditors before the mandatory disclosure requirement and 274 disclosed the major component auditors (i.e., those performing a substantial role, see footnote 6) in Form 2 prior to Rule 3211.

[26] *DCOMPAUD* is omitted after we control for client fixed effect.

Panel A provides a univariate comparison between companies in the treatment and control groups. About 43 percent of the treatment companies made changes in their component auditors (*CHCOMPAUD*) and about 20 percent resulted in an improvement in component auditor quality (*CHCOMPAUDIMQ*). For control companies, about 28 percent made change in their component auditors and about 7 percent resulted in an improvement in component auditor quality. The differences in and between the two groups are statistically significant. However, for component auditor changes that do not lead to an improvement in component auditor quality (*CHCOMPAUDNIMQ*), we find no significant difference between the two groups.

Panel B provides multivariate regression results. In column 1, the dependent variable *CHCOMPAUD* equals 1 if there was a change in the component auditor in year t, and 0 otherwise. The coefficient on *DCOMPAUD* is positive and significant at the 0.01 level after controlling for lead auditor changes and potential operational changes of the clients. This finding suggests that after component auditor identities became publicly available, there is an increase in the likelihood of a change in the selection of the component auditor. This finding supports hypothesis 2 and is consistent with PCAOB's expectation that component auditor disclosure would incentivize the lead auditor, client company management and its audit committee to reconsider and make changes to the component auditor portfolio in a way that meets investors' expectations.

In columns 2 and 3, we separately look at the component auditor changes that improve the overall quality of the component auditor portfolio and changes that do not change or even lower the overall quality of the component auditor portfolio. Results show that the coefficient on *DCOMPAUD* is positive and significant at the 0.01 level in column 2 where *CHCOMPAUDIMQ* is the dependent variable and is insignificant in column 3 where *CHCOMPAUDNIMQ* is the

dependent variable.[27] This means that after the disclosure of component auditors, the lead auditor and the client company are likely to make changes in component auditor selection that improves the overall quality of the component auditor team. These findings are in support of hypothesis 3 that component auditor disclosure is followed by changes in the selection of component auditors. With regard to control variables, we find that changes in component auditors are more likely for large clients, more complex clients, and clients with high growth or high leverage. Also, a change in lead auditor significantly increases the likelihood of changing component auditors. Collectively, the results in Table 5 support the notion that disclosures on component auditors in Form AP had a real effect on retention and replacement of component auditors.

[Insert Table 5 About Here]

Component Auditor Disclosure and Audit Fees

Table 6 presents results of model (2) on the relation between component auditor disclosure and audit fees. In column (1) we include industry and year fixed effects and in column (2) we include client and year fixed effects. In both columns, we find that the coefficients on *DISCLOSE×POST* are statistically insignificant. This finding suggests that the disclosure of component auditor has no impact on audit fees. In other words, we find evidence that the mandatory disclosure of component auditor offers benefits to clients without imposing additional audit cost. One plausible explanation for this finding is that although mandatory disclosure of component auditors likely leads to an increase in audit work and quality by component auditors, it lowers audit efforts and risk for the lead auditor. Therefore, overall audit fees do not change. Thus,

[27] Recall that *CHCOMPAUDIMQ* equals 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors decreases from year t-1 to year t, and 0 otherwise. *CHCOMPAUDNIMQ* equals 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors increases or remain the same from year t-1 to year t, and 0 otherwise. Component auditor quality is measured using audit deficiencies as disclosed in its PCAOB inspection reports.

hypothesis 4 is not supported and there is no evidence that component auditor disclosure imposes extra costs on clients that is passed on to clients. Consistent with prior research, we find audit fees are larger for clients with larger size, older clients, higher sales growth, lower cash flow, ineffective internal control, and clients that hire Big 4 auditor. Overall, results in Tables 4-6 provide robust evidence that component auditor disclosure increased audit quality with no effect on audit fees.

[Insert Table 6 About Here]

Additional Analysis

Alternative Measure of Audit Quality

In this section, we describe the results based on two alternative measures of audit quality. The first alternative measure is Dechow et al.'s (2011) F-score which captures the likelihood of earnings misstatements (Ge, Matsumoto, and Zhang 2011; Cunningham et al. 2019). We calculate F-score as the predicted probability of accounting misstatements scaled by the unconditional probability of having a misstatement. Then, we re-estimate model (1) and use F-score as the dependent variable. Results are presented in Panel A of Table 7. We include industry and year fixed effects in column (1), and client and year fixed effects in column (2). In both columns, we find that the coefficient on *DISCLOSE*×*POST* is negative and significant at the 0.05 level. These results indicate that the likelihood of earnings misstatements significantly decreases after component auditor disclosure for treatment companies, compared to control companies. This finding is consistent with our results in Tables 4 that the disclosure of component auditors leads to an increase in audit quality.

The second alternative measure is the propensity to issue going concern opinions for financially distressed clients (DeFond, Raghunandan, and Subramanyam, 2002; Li 2009).[28] As

[28] AUS No. 2014-15 may have a potential impact on auditors' assessment of going concern. However, since there is no reason to expect that AUS No. 2014-15 would affect clients in our treatment group differently than clients in control group, it is unlikely that AUS No. 2014-15 confounds our results.

the component auditor is responsible for matters relating to going concern status of the component (AU-C 600). The component auditor's willingness to raise going concern issues directly affects the lead auditor's propensity to issue going concern opinion. For going concern opinion analysis, we retain only company-year observations for clients that are under financial distress. We use Zmijewski's (1984) financial distress prediction model to predict financial distress probability. A client is deemed as under financial distress if the probability of financial distress is above 0.28 (Carcello and Neal 2000; Krishnan and Krishnan 1996).[29] After excluding observations that are not under financial distress, we are left with 781 observations for the going concern analysis and we estimate the following logit model:

$$GCOPN_{it} = \beta_1 + \beta_2 DCOMPAU_i + \beta_3 POST_t + \beta_4 DCOMPAU \times POST + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (6)$$

GCOPN is equal to 1 if the client receives a going concern audit opinion in year t, and 0 otherwise. All control variables used in model (1) are included. In addition, we also control for going concern opinion in the prior year and the probability of bankruptcy (*ZSCORE*) based on Zmijewski(1984).[30]

Table 7 Panel B presents the test on the relation between component auditor disclosure and the propensity to issue a going concern opinion. This test is estimated on a sample of financially distressed clients[31]. The coefficient on *DCOMPAUD×POST* is positive and significant at 0.01 level, indicating that there is an increase in the likelihood of issuing a going concern opinion after the disclosure of component auditors for clients in the treatment group, compared to clients in the

[29] We conducted sensitivity test using other cut-off point such as 0.35, 0.4, 0.5, and other financial distress models such as Altman's Z score model. Our results remain robust.

[30] Following prior studies (DeFond et al. 2002; Li 2009), we did not include book to market ratio (*BM*) and sales growth (*GROWTH*) in the going concern model because all clients used in the going concern model are financially distressed companies with little growth.

[31] Due to the lack of variation at the client level, we do not include client fixed effects in the going concern opinion model.

control group. This finding is consistent with the notion that audit quality improved after the disclosure of component auditors. In addition, we find prior a year's going concern opinion is significantly associated with the likelihood of receiving a going concern opinion in the current year. Companies with higher profitability are less likely to receive a going concern opinion, while companies with more complexity and higher likelihood of bankruptcy are more likely to get a going concern opinion. Overall, using alternative audit quality measures, we continue to find that component auditor disclosure increases audit quality.

[Insert Table 7 About Here]

Cross-sectional Analysis

Next, we examine whether the increase in audit quality associated with the disclosure of the identity of the component auditor varies cross-sectionally. We surmise that the enhanced audit quality would accrue to clients who previously suffered from low audit quality of component auditors. Burke et al. (2020b) show that the communication and coordination between component auditors and the lead auditor are more challenging when components are located far away from the location of the lead auditor. They find that the time zone difference between component auditors and the lead auditor is negatively associated with audit quality. If the disclosure about component auditors motivates lead auditors to strengthen monitoring of component auditors' work and similarly, if component auditors are motivated to improve audit quality, we expect the improvement in audit quality to be more evident when there is a large difference in time zones between the component auditors and the lead auditor.[32] To test our conjecture, we re-estimate model (1) with variables to represent companies with a larger time zone difference

[32] On average, the time zone difference between the component auditor and the lead auditor is about 7 hours.

(*DCOMPAUDLTDIFF)*, and companies with a smaller time zone difference (*DCOMPAUDSTDIFF)*.

The results are reported in Table 8. Coefficients on *DCOMPAUDLTDIFF* (larger time difference) are negative and significant in all columns, while coefficients on *DCOMPAUDSTDIFF* (smaller time difference) are significant only in column 2. Also, the coefficient on *DCOMPAUDLTDIFF* is significantly larger than coefficient on *DCOMPAUDSTDIFF*. These findings indicate that the negative association between component auditor disclosure and discretionary accruals is more pronounced in companies that face greater communication and coordination challenges between component auditors and the lead auditor. Overall, we find evidence in support of our conjecture that the component auditor disclosure results in greater improvement in audit quality for companies whose lead and component auditors face greater communication and coordination challenges.

[Insert Table 8 About Here]

Engagement Partner Disclosure-A Horse Race Analysis

The effective date for Form AP partner identity preceded the effective date for component auditor disclosures by six months. Thus, it is expected that component auditor disclosure is highly correlated with audit partner disclosure. We believe that our results are unlikely driven by audit partner disclosure because of two reasons. First, in our difference-in-difference design, companies in the treatment group and companies in the control group should be affected by audit partner disclosure in the same way. Thus, our findings of improved audit quality for the treatment group compared to the control group are unlikely to be attributed to audit partner disclosure. Second, Cunningham et al. (2019) and Bedard et al. (2020) do not find that disclosure of engagement partner identity affects audit quality. Nevertheless, we empirically test whether our results are

driven by component auditor disclosure or audit partner disclosure by estimating the following horse race regression:

$$AQ_{it} = \beta_1 + \beta_2 DCOMPAU_i + \beta_3 POST_t + \beta_4 DCOMPAU \times POST + \beta_5 DCOMPAU \times PARTNERD + \beta_3 PARTNERD_t + CONTROLS_{it} + INDFE + YEARFE + \varepsilon \quad (7)$$

PARTNERD is equal to 1 for client-years after the disclosure of engagement audit partners, and 0 for client-years before the disclosure of engagement audit partners. As expected, there is a high correlation between *PARTNERD* and *POST* (correlation coefficient= 0.753). Due to the high correlation, the degree of multicollinearity is high in this model. As a result, the reliability of the coefficients estimates is quite low. However, the goal of the horse race model is to examine whether given the high degree of multicollinearity, which disclosure (component auditor disclosure or audit partner disclosure) drives the results in Table 4. Results are presented in Table 9. In all columns, we find that the coefficient on *DCOMPAUD×POST* is negative and significant, while the coefficient on *DCOMPAUD×PARTNERD* is insignificant. These results indicate that the increase audit quality for the treatment group is driven by the disclosure of component auditors rather than the disclosure of audit partners.

[Insert Table 9 About Here]

Robustness Tests

We conduct several sensitivity tests to ensure the robustness of our results. To conserve space, we discuss these untabulated results briefly in this section. First, to address the concern that initial filings of Form AP might contain errors due to lack of familiarity with the new rule, we exclude all Form APs filed between July 2017 and December 2017 and re-estimate all models. We obtain results consistent with the results based on the full sample. Second, in our difference-in-difference analysis, we compare audit quality three years before and after the mandatory disclosure of component auditors. To ensure that our results are not sensitive to the sample period, we also

compare audit quality two years before and after, three years before and two years after, two years before and three years after the mandatory disclosure of component auditors. Our results remain unchanged. Third, to address the concern that characteristics of the audit partners in our treatment groups are significantly different from those in our control group, we collect audit partner characteristics from partners' LinkedIn profiles and control for audit partner busyness and audit partners' years of work experiences in the model. We continue to find a significant increase in audit quality after the disclosure of component auditors. Finally, in our main analysis we use an unbalanced panel data because some companies have missing values in certain years. To make sure that our results are not sensitive to the structure of the data, we re-estimate our models using a balanced panel with six years of observations for each company in the sample. Although we have a smaller sample with the balanced panel, our conclusions remain unchanged.

VI. CONCLUSION

In the post-Andersen/Enron era, audit quality continues to be an important topic for regulators, auditors, investors, and academics. Thus, empirical evidence on mechanisms that enhance audit quality is of fundamental interest to the PCAOB, the SEC, and regulators elsewhere. We examine the implications of the PCAOB's Rule 3211, which requires disclosure of the identity of component auditors in global group audits in Form AP filed with the PCAOB. Our evidence is consistent with the PCAOB's expectation that the increased transparency on component auditors would result in greater auditor accountability and thus, higher audit quality. We also provide evidence of a higher likelihood of change in lead auditors' portfolios of component auditors following Rule 3211. Collectively, our evidence suggests that component auditor disclosures under Rule 3211 provides incentives for component auditors to deliver higher quality audits of the components of consolidated entities, and that lead auditors appear to monitor better and select high

quality component auditors. Finally, we find no evidence that component auditor disclosure imposed costs that were passed on to clients through higher audit fees. Our findings are relevant to the PCAOB and others because they provide evidence of benefits associated with Rule 3211 requirements. Our findings also have implications for component auditors as well as for regulators in jurisdictions that are considering mandating similar disclosure requirements for component auditors.

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Appendix: Variables Definitions

Dependent Variables	
CHCOMPAUD	Equals 1 if there was a change in the component auditor in year t, and 0 otherwise;
CHCOMPAUDIMQ	Equals 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors *decreases* from year t-1 to year t, and, 0 otherwise. Component auditor quality is measured using audit deficiency disclosed in the most recent PCAOB inspection reports;
CHCOMPAUDNIMQ	Equals 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors *increases* or remains the same from year t-1 to year t, and 0 otherwise. Component auditor quality is measured using audit deficiencies disclosed in the most recent PCAOB inspection reports;
DISACCMJ	Discretionary accruals using Modified Jones model and controlled for performance (Kothari et al. 2005);
DISACCDD	Discretionary accruals using Dechow and Dichev model (Dechow and Dichev 2002);
LAFEE	Natural log of total audit fees;
MSCORE	Beneish (1999) M-score calculated using the following model: MI_{it}=-*4.840+0.920*$DSRI_{it}$*+0.528*GMI_{it}*+0.404*AQI_{it}*+0.892*SGI_{it}*+0.115*$DEPI_{it}$*-0.172*$SGAI_{it}$*+4.679*$TATA_{it}$*-0.327*$LVGI_{it}$*. DSRI* is the days' sales receivable index; *GMI* is the gross margin index; *AQI* is the asset quality index; *SGI* is the sales growth index; *DEPI* is the depreciation index; *SGAI* is the sales, general, and administrative expenses index; *TATA* is the total accruals to total assets; *LVGI* is the leverage index. A higher value of *MSCORE* indicates a higher likelihood of manipulation;
Test Variables	
DCOMPAUD×POST	The interaction term of *DCOMPAUD* and *POST*
DCOMPAUD	Equals 1 for clients for which there were component auditor disclosures in Form AP but *not* in Form 2 (treatment group), and 0 for clients for which there were component auditor disclosure in Form 2 and Form AP (control group);
POST	Equals 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP;
Control Variables	
ACCR	Total accruals scaled by total assets;
AGE	Natural log of the number of years since the client appears in Compustat
AUDCHANGE	Equals 1 if the client changes its lead auditor in year t, and 0 otherwise;
BIG	Equals 1 if the auditor is one of the Big 4, and 0 otherwise;
BM	Book to market ratio;
BSEGMENT	The number of business segments;
CASHFLOW	Operating cash flows to total assets ratio;
CBSEGMENT	Change in the number of business segments;
CFORGNNI	Change in foreign net income to total assets ratio;

CGSEGMENT	Change in the number of business segments;
FORGNNI	Foreign net income to total assets ratio;
GROWTH	Sales growth rate;
GSEGMENT	The number of geographic segments;
ICW	Equals 1 if the client has reported internal control material weakness under SOX 404, and 0 otherwise;
ISSUANCE	Equals 1 if the company issues new equity during the year, and 0 otherwise;
LEVERAGE	Total debt to total asset ratio;
M&A	Equals 1 if there is a merger or acquisition, and 0 otherwise;
ROA	Net income to total assets ratio;
SIZE	Log of total assets;
TENURE	The number of years the lead auditor audited the client;
Additional Analysis Variables	
DCOMPAUDLTDIFF	Equals 1 for clients for which component auditors were not disclosed before Form AP and the average time zone difference between the lead and component auditors is above sample median;
DCOMPAUDSTDIFF	Equals 1 for clients for which component auditors were not disclosed before Form AP and the average time zone difference between the lead auditor and component auditors is below sample median;
FSCORE	The predicted probability of accounting misstatements in year t from Dechow et al. (2011, Model (1), Table7, Panel A) scaled by the unconditional probability of having accounting misstatements.
GCOPN	Equals 1 if the client received a going concern opinion, and 0 otherwise;
GCOPNLAG	Equals 1 if the client received a going concern opinion in the prior year, and 0 otherwise;
PROBNKRUPTCY	Zmijewski's probability of bankruptcy score (Zmijewski 1984);
PARTNERD	Equals 1 for client-years after the disclosure of engagement audit partners, and 0 for client-years before the disclosure of engagement audit partners;

Table 1: Sample Selection

Panel A	
Client-year observations from fiscal year 2014 to fiscal year 2019 for clients whose component auditors' identities are disclosed in post Form AP era	9,975
Less: clients with component auditor names disclosed in Form 2	-920
Less: clients with component auditor usage in the post Form AP era below 20 percent	-5,890
Less: clients with fewer than 4 observations during the sample period	-43
Treatment sample (client -years)	**3,122**
Treatment sample (unique clients)	**545**

Client-year observations from fiscal year 2014 to fiscal year 2019 for clients whose component auditors' identities are disclosed in post Form AP era	9,975
Less: clients without component auditor names disclosed in Form 2	-9,055
Less: clients with fewer than 4 observations during the sample period	-46
Control sample (client -years)	**874**
Control sample (unique clients)	**176**

Panel B	
Treatment sample and control sample (3,122+874)	3,996
Less: observations with missing value for Modified Jones discretionary accruals or control variables	-526
Final sample for H1 with AQ= *DISACCMJ*	**3,470**
Treatment sample and control sample (3,122+874)	3,996
Less: observations with missing values for M-score or control variables	-933
Final sample for H1 with AQ= *MSCORE*	**3,063**
Treatment sample and control sample (3,122+874)	3996
Less: observations with missing values for Dechow and Dichev (2002) discretionary accruals or control variables	-1,258
Final sample for H1 with AQ= *DISACCDD*	**2,738**
Treatment sample and control sample (3,122+874)	3,996
Less: observations with missing value for audit fees or control variables	-550
Final sample for H4	**3,546**

Panel C	
Treatment sample and control sample (3,122+874)	3,996
Less: observations in the pre-Form AP era	-1,934
Less: first-year disclosures of component auditors in Form AP	-721
Less: observations with missing values for control variables	-167
Final sample for H2 and H3	**1,174**

Table 2: Summary Statistics

This table presents the summary statistics of variables used in models (1) to (5). Panel A presents the descriptive statistics of variables in model (1) testing component auditor disclosure and audit quality. Panel B compares the characteristics of clients in the treatment and control groups used in model (1). Panel C presents descriptive statistics for variables used in model (2) testing component auditor disclosure and audit fees. Panel D provides descriptive statistics for variables used in models (3) to (5) examining the changes in component auditors. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

Panel A

variable	N	Mean	Median	SD	P25	P75
DISACCMJ	3470	-0.039	-0.025	0.091	-0.087	0.016
DISACCDD	2738	-0.037	-0.018	0.200	-0.116	0.041
MSCORE	3063	-2.621	-2.644	0.829	-2.892	-2.414
DCOMPAUD	3470	0.770	1.000	0.421	1.000	1.000
POST	3470	0.522	1.000	0.500	0.000	1.000
SIZE	3470	8.208	8.154	2.115	6.831	9.589
AGE	3470	3.063	3.091	0.730	2.639	3.526
LEVERGE	3470	0.288	0.265	0.197	0.140	0.407
ROA	3470	0.020	0.032	0.101	0.002	0.065
BM	3470	0.612	0.466	0.644	0.252	0.787
CAHSFLOW	3470	0.076	0.077	0.074	0.043	0.116
GROWTH	3470	0.073	0.034	0.260	-0.043	0.133
ISSUANCE	3470	0.643	1.000	0.479	0.000	1.000
BIG	3470	0.867	1.000	0.339	1.000	1.000
BSEGMENT	3470	3.119	3.000	2.281	1.000	4.000
GSEGMENT	3470	4.691	4.000	3.751	2.000	6.000
FORGNNI	3470	0.023	0.012	0.067	0.000	0.046

Panel B

	Treatment Sample (*DCOMPAUD*=1)			Control sample (*DCOMPAUD*=0)			
variable	N	Mean	Median	N	Mean	Median	Difference (Mean)
DISACCMJ	2672	-0.041	-0.026	798	-0.033	-0.025	-0.008**
DISACCDD	2104	-0.042	-0.018	634	-0.020	-0.018	-0.022***
MSCORE	2326	-2.624	-2.648	737	-2.610	-2.632	-0.014
SIZE	2672	8.369	8.379	798	7.667	7.455	0.701***
AGE	2672	3.080	3.091	798	3.003	3.135	0.077***
LEVERGE	2672	0.289	0.268	798	0.282	0.251	0.007
ROA	2672	0.022	0.033	798	0.014	0.028	0.007**
BM	2672	0.581	0.442	798	0.710	0.562	-0.129***
CAHSFLOW	2672	0.077	0.078	798	0.074	0.074	0.003
GROWTH	2672	0.069	0.032	798	0.081	0.046	-0.012**
ISSUANCE	2672	0.645	1.000	798	0.638	1.000	0.007
BIG	2672	0.912	1.000	798	0.717	1.000	0.195***
BSEGMENT	2672	3.200	3.000	798	2.847	3.000	0.353***
GSEGMENT	2672	4.691	4.000	798	4.690	4.000	0.001
FORGNNI	2672	0.024	0.013	798	0.021	0.007	0.003

Panel C

variable	N	Mean	Median	SD	P25	P75
LAFEE	3546	15.022	15.039	1.280	14.269	15.833
DCOMPAUD	3546	0.771	1.000	0.420	1.000	1.000
POST	3546	0.527	1.000	0.499	0.000	1.000
SIZE	3546	8.363	8.266	2.240	6.963	9.778
AGE	3546	3.083	3.135	0.702	2.708	3.526
LEVERAGE	3546	0.285	0.258	0.202	0.133	0.401
ROA	3546	0.020	0.031	0.101	0.003	0.065
BM	3546	0.623	0.478	0.644	0.257	0.810
CASHFLOW	3546	0.074	0.075	0.076	0.040	0.115
GROWTH	3546	0.073	0.035	0.270	-0.044	0.131
ISSUANCE	3546	0.646	1.000	0.478	0.000	1.000
BIG	3546	0.873	1.000	0.333	1.000	1.000
TENURE	3546	15.110	12.000	11.956	6.000	21.000
BSEGMENT	3546	3.127	3.000	2.306	1.000	4.000
GSEGMENT	3546	4.602	4.000	3.736	2.000	6.000
FORGNNI	3546	0.025	0.011	0.048	0.000	0.046
ICW	3546	0.089	0.000	0.285	0.000	0.000
ACCR	3546	-0.055	-0.046	0.079	-0.082	-0.016

Panel D

variable	N	Mean	Median	SD	P25	P75
CHCOMPAUD	1174	0.399	0.000	0.490	0.000	1.000
CHCOMPAUDIMQ	1174	0.168	0.000	0.374	0.000	0.000
CHCOMPAUDNIMQ	1174	0.232	0.000	0.422	0.000	0.000
DCOMPAUD	1174	0.767	1.000	0.423	1.000	1.000
SIZE	1174	8.477	8.403	2.154	7.158	9.767
AGE	1174	3.126	3.178	0.702	2.708	3.584
LEVERAGE	1174	0.308	0.284	0.204	0.162	0.427
ROA	1174	0.021	0.031	0.095	0.001	0.066
CASHFLOW	1174	0.070	0.072	0.076	0.037	0.109
BM	1174	0.633	0.483	0.708	0.257	0.826
FORGNNI	1174	0.025	0.011	0.046	0.000	0.047
GROWTH	1174	0.075	0.044	0.239	-0.024	0.130
ISSUANCE	1174	0.591	1.000	0.492	0.000	1.000
BSEGMENT	1174	3.105	3.000	2.326	1.000	4.000
GSEGMENT	1174	4.689	4.000	3.851	2.000	6.000
BIG	1174	0.881	1.000	0.324	1.000	1.000
M&A	1174	0.374	0.000	0.484	0.000	1.000
CBSEGMENT	1174	0.015	0.000	0.646	0.000	0.000
CGSEGMENT	1174	-0.004	0.000	0.927	0.000	0.000
CFORGNNI	1174	-0.002	0.000	0.029	-0.007	0.005
AUDCHANGE	1174	0.037	0.000	0.188	0.000	0.000

Table 3: Correlations

	DISACCMJ	*DISACCDD*	*MSCORE*	*DCOMPAUD*	*POST*	*SIZE*	*AGE*	*LEVERAGE*	*ROA*	*BM*	*CASHFLOW*	*GROWTH*	*ISSUANCE*	*BIG*	*BSEGMENT*	*GSEGMENT*	*FORNNI*
DISACCMJ	1																
DISACCDD	**0.618**	1															
MSCORE	0.242	0.155	1														
DCOMPAUD	**-0.037**	**-0.046**	-0.008	1													
POST	0.012	-0.016	**0.049**	**-0.064**	1												
SIZE	-0.021	**-0.048**	**-0.047**	**0.139**	0.024	1											
AGE	**-0.057**	-0.027	**-0.067**	**0.044**	**0.035**	**0.257**	1										
LEVERAGE	-0.016	**0.049**	**-0.068**	0.015	**0.068**	**0.229**	**-0.052**	1									
ROA	**-0.038**	**-0.052**	**0.296**	**0.036**	**-0.034**	**0.243**	**0.186**	-0.004	1								
BM	**0.133**	**0.102**	-0.009	**-0.089**	0.001	**-0.064**	**-0.067**	**-0.193**	**-0.197**	1							
CASHFLOW	**-0.507**	**-0.358**	**-0.209**	0.016	**-0.064**	**0.188**	**0.143**	**0.076**	**0.584**	**-0.224**	1						
GROWTH	-0.005	**-0.055**	**0.364**	-0.025	**0.091**	**-0.048**	**-0.175**	-0.01	0.007	**-0.083**	0.020	1					
ISSUANCE	**-0.039**	**-0.056**	**0.059**	0.006	**-0.074**	**-0.038**	**0.036**	**-0.134**	**0.046**	**-0.192**	-0.011	**0.094**	1				
BIG	**-0.080**	**-0.051**	**-0.056**	**0.242**	-0.021	**0.479**	**0.125**	**0.170**	**0.118**	**-0.196**	**0.169**	**-0.030**	-0.010	1			
BSEGMENT	**-0.041**	-0.011	**-0.041**	**0.065**	-0.013	**0.335**	**0.217**	**0.033**	**0.038**	-0.010	**0.064**	**-0.034**	**-0.043**	**0.199**	1		
GSEGMENT	0.004	**0.032**	**-0.047**	0.001	0.011	**0.103**	**0.094**	0.018	0.022	-0.004	0.012	**-0.051**	**-0.099**	**0.059**	**0.143**	1	
FORNNI	**-0.127**	**-0.166**	**0.118**	0.019	-0.001	0.073	**0.167**	0.022	**0.539**	**-0.177**	**0.426**	**0.031**	**0.069**	**0.048**	0.024	**0.041**	1

This table presents the Pearson correlation coefficients. Please see the Appendix for variable definitions. Correlations in bold represent significance level below the 0.10 level.

Table 4: Relation between Disclosure of Component Auditor Identities and Discretionary Accruals

This table presents the results of model (1) testing component auditor disclosure and audit quality. The dependent variable is one of following audit quality measures: *DISACCMJ, DISACCDD,* or *MSCORE*. *DISACCMJ* is the discretionary accruals using Modified Jones model and controlled for performance (Kothari et al. 2005). *DISACCDD* is the discretionary accruals using Dechow and Dichev model (Dechow and Dichev 2002). *MSCORE* is measured following Beneish (1999). The independent variable of interest is *DCOMPAUD×POST*. *DCOMPAUD* = 1 for clients for which component auditor disclosure were *not* available in Form 2 but were available in Form AP (treatment group), and 0 for clients for which information about component auditors was available in Form 2 and Form AP (control group). *POST* = 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP. See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	*DISACCMJ*	*DISACCDD*	*MSCORE*	*DISACCMJ*	*DISACCDD*	*MSCORE*
DCOMPAUD	0.002	0.011	0.029			
	(0.651)	(0.367)	(0.598)			
POST	-0.014	-0.084	0.192	-0.008	-0.069	0.102
	(0.238)	(0.122)	(0.139)	(0.507)	(0.201)	(0.443)
DCOMPAUD×POST	**-0.014*** **	**-0.056*** **	**-0.140** **	**-0.010*** **	**-0.053*** **	**-0.165** **
	(0.005)	**(0.000)**	**(0.040)**	**(0.056)**	**(0.001)**	**(0.024)**
SIZE	-0.002*	-0.012***	-0.012	-0.017***	-0.025	0.226***
	(0.064)	(0.000)	(0.132)	(0.001)	(0.342)	(0.008)
AGE	0.002	0.011*	-0.040**	0.049***	-0.025	-0.480*
	(0.245)	(0.087)	(0.039)	(0.001)	(0.688)	(0.064)
LEVERAGE	-0.003	0.087***	-0.155*	-0.007	0.091	-0.430*
	(0.654)	(0.006)	(0.098)	(0.710)	(0.257)	(0.099)
ROA	0.357***	0.649***	5.058***	0.348***	0.756***	5.083***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
BM	-0.001	0.002	0.021	0.009***	0.024	-0.067
	(0.531)	(0.762)	(0.536)	(0.010)	(0.162)	(0.388)
CASHFLOW	-0.923***	-1.353***	-6.234***	-0.913***	-1.223***	-6.806***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GROWTH	0.000	-0.032	1.281***	0.011*	0.018	1.037***

	(0.949)	(0.373)	(0.000)	(0.076)	(0.593)	(0.000)
ISSUANCE	-0.003	-0.008	-0.008	-0.000	-0.002	-0.002
	(0.178)	(0.324)	(0.788)	(0.912)	(0.874)	(0.981)
BIG	0.005	0.014	0.078*	0.010	0.033	0.196
	(0.304)	(0.416)	(0.061)	(0.209)	(0.307)	(0.308)
BSEGMENT	0.000	0.002	0.002	0.001	0.003	0.027
	(0.771)	(0.290)	(0.788)	(0.526)	(0.498)	(0.222)
GSEGMENT	0.001***	0.003**	-0.007***	0.001	0.002	-0.006
	(0.001)	(0.025)	(0.008)	(0.187)	(0.413)	(0.628)
FORGNNI	0.021	-0.318***	0.262	0.058	-0.307***	1.022**
	(0.560)	(0.006)	(0.518)	(0.115)	(0.006)	(0.035)
Constant	0.079***	0.134**	1.076***	0.006	0.358	-2.642**
	(0.000)	(0.041)	(0.000)	(0.927)	(0.228)	(0.011)
Industry FE	Yes	Yes	Yes	No	No	No
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Client FE	No	No	No	Yes	Yes	Yes
Observations	3,470	2,738	3,063	3,470	2,738	3,063
R^2	0.672	0.323	0.395	0.414	0.160	0.351

Table 5: Disclosure of Component Auditor Identities and Real Effects

This table presents the results of models (3) to (5) examining component auditor changes. The dependent variables are *CHCOMPAUD*, *CHCOMPAUDIMQ*, or *CHCOMPAUDNIMQ*. *CHCOMPAUD* = 1 if there was a change in the component auditor in year t, and 0 otherwise. *CHCOMPAUDIMQ* = 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors *decreases* from year t-1 to year t, and 0 otherwise. Component auditor quality is measured using audit deficiencies disclosed in the most recent PCAOB inspection reports. *CHCOMPAUDNIMQ* = 1 if there was a change in the component auditor in year t and the ratio of low-quality component auditors *increases* or remains the same from year t-1 to year t, and 0 otherwise. The independent variable of interest is *DCOMPAUD*. *DCOMPAUD* = 1 for clients for which information about component auditors was not available in Form 2 but was disclosed in Form AP (treatment group), and 0 for clients for which information about component auditors was available in Form 2 and Form AP (control group). Panel A presents a univariate comparison between clients in the treatment and control groups for variables capturing change in component auditors (*CHCOMPAUD*, *CHCOMPAUDIMQ*, or *CHCOMPAUDNIMQ*). Panel B presents the multivariate results of models (3) to (5) (component auditor changes). See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

Panel A

	Treatment Group (DCOMPAUD=1)			*Control Group (DCOMPAUD=0)*			
Variables	N	Mean	Median	N	Mean	Median	Difference (Mean)
CHCOMPAUD	900	0.434	0.000	274	0.285	0.000	0.149***
CHCOMPAUDIMQ	900	0.197	0.000	274	0.073	0.000	0.124***
CHCOMPAUDNIMQ	900	0.238	0.000	274	0.212	0.000	0.026

Panel B

VARIABLES	*CHCOMPAUD*	*CHCOMPAUDIMQ*	*CHCOMPAUDNIMQ*
DCOMPAUD	**0.609*** **	**1.087*** **	**0.083**
	(0.004)	**(0.001)**	**(0.687)**
SIZE	0.157***	0.147***	0.086*
	(0.001)	(0.009)	(0.091)
AGE	0.070	0.132	-0.031
	(0.556)	(0.356)	(0.794)
LEVERAGE	0.990**	-0.099	1.275***
	(0.014)	(0.857)	(0.002)
ROA	0.562	-1.028	2.529*
	(0.613)	(0.415)	(0.055)
CASHFLOW	-1.234	-2.172	0.223
	(0.349)	(0.149)	(0.885)
BM	-0.058	-0.313*	0.092
	(0.598)	(0.050)	(0.477)
FORGNNI	-0.302	4.697**	-4.688**
	(0.876)	(0.036)	(0.028)
GROWTH	0.568*	0.803**	0.020

	(0.062)	(0.043)	(0.952)
ISSUANCE	-0.180	-0.345*	0.095
	(0.259)	(0.077)	(0.561)
BSEGMENT	-0.012	-0.093*	0.028
	(0.744)	(0.062)	(0.424)
GSEGMENT	0.037**	0.052**	-0.004
	(0.030)	(0.016)	(0.839)
BIG	-0.088	0.423	-0.365
	(0.758)	(0.283)	(0.223)
M&A	0.052	-0.275	0.299*
	(0.730)	(0.135)	(0.066)
CBSEGMENT	0.179	0.282**	0.009
	(0.179)	(0.039)	(0.948)
CGSEGMENT	0.067	0.039	0.013
	(0.644)	(0.708)	(0.909)
CFORGNNI	-2.218	-2.943	-0.480
	(0.299)	(0.358)	(0.824)
AUDCHANGE	3.922***	1.098***	1.989***
	(0.000)	(0.005)	(0.000)
Constant	-4.496***	-6.076***	-3.304***
	(0.000)	(0.000)	(0.000)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	1,174	1,174	1,174
Pseudo R^2	0.148	0.126	0.082
Number of *CHGCOMPAUD*	469		
Number of *CHCOMPAUDIMQ*		197	
Number of *CHCOMPAUDNIMQ*			272

Table 6: Disclosure of Component Auditor Identities Audit Fees

This table presents the results of model (2) testing the relation between component auditor disclosure and audit fees with column (1) including industry and year fixed effects and column (2) including year and client fixed effects. The dependent variable is *LAFEE*, the natural log of audit fees the client paid in year t. The independent variable of interest is *DCOMPAUD*×*POST*. *DCOMPAUD* = 1 for clients for which information about component auditors was not available in Form 2 but was disclosed in Form AP (treatment group), and 0 for clients for which information about component auditors was available in Form 2 and Form AP (control group). *POST* = 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP. See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

	(1)	(2)
VARIABLES	*LAFEE*	*LAFEE*
DCOMPAUD	0.023	
	(0.651)	
POST	0.037	-0.013
	(0.794)	(0.840)
DCOMPAUD×POST	**0.008**	**0.017**
	(0.809)	**(0.448)**
SIZE	0.496***	0.319***
	(0.000)	(0.000)
AGE	0.087***	0.109
	(0.002)	(0.304)
LEVERAGE	0.078	0.099
	(0.492)	(0.280)
ROA	-0.144	-0.436***
	(0.610)	(0.008)
BM	-0.152***	0.028*
	(0.000)	(0.053)
CASHFLOW	-1.389***	-0.099
	(0.001)	(0.598)
GROWTH	-0.130***	0.033*
	(0.001)	(0.052)
ISSUANCE	-0.001	-0.002
	(0.979)	(0.932)
BIG	0.387***	0.251***
	(0.000)	(0.001)
BSEGMENT	0.017*	-0.001
	(0.065)	(0.896)
GSEGMENT	-0.000	-0.004
	(0.989)	(0.205)
FORGNNI	1.179***	-0.115
	(0.006)	(0.523)
ICW	0.231***	0.077***
	(0.000)	(0.001)
ACCR	-0.623*	-0.004
	(0.053)	(0.984)

Constant	9.628***	11.828***
	(0.000)	(0.000)
Industry FE	Yes	No
Year FE	Yes	Yes
Client FE	No	Yes
Observations	3,461	3,461
R^2	0.845	0.318

Table 7: Alternative Measure of Audit Quality

This table presents the results of model (1) testing the relation between component auditor disclosure and audit quality using alternative measures. Panel A presents results using Dechow et al.'s (2011) F-score as the measure of audit quality. The dependent variable in Panel A is *FSCORE*. Panel B presents results using lead auditors' propensity to issue going concern opinions for financially distressed clients as an alternative measure for audit quality. The dependent variable in Panel B is *GCOPN*. The independent variable of interest in Panel A and Panel B is *DCOMPAUD*×*POST*. *DCOMPAUD* = 1 for clients for which information about component auditors was not available in Form 2 but disclosed in Form AP (treatment group), and 0 for clients that disclosed information about component auditors in Form 2 and Form AP (control group). *POST* = 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP. See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

Panel A: FSCORE

	(1)	(2)
VARIABLES	*FSCORE*	*FSCORE*
DCOMPAUD	0.087**	
	(0.029)	
POST	0.001	0.062
	(0.988)	(0.292)
DCOMPAUD×POST	**-0.076****	**-0.065****
	(0.031)	**(0.035)**
SIZE	0.041***	0.257***
	(0.000)	(0.000)
AGE	0.068**	0.067
	(0.029)	(0.625)
LEVERAGE	0.385***	0.032
	(0.000)	(0.871)
ROA	0.162	-0.595*
	(0.541)	(0.067)
BM	-0.037*	-0.024
	(0.079)	(0.682)
CASHFLOW	-1.082***	-1.265***
	(0.000)	(0.001)
GROWTH	0.953***	0.954***
	(0.000)	(0.000)
ISSUANCE	0.194***	0.158***
	(0.000)	(0.000)
BIG	-0.130**	-0.113
	(0.024)	(0.265)
BSEGMENT	-0.002	-0.012
	(0.723)	(0.461)

GSEGMENT	-0.008**	0.008
	(0.016)	(0.335)
FORGNNI	-0.091	-0.056
	(0.706)	(0.883)
Constant	0.621***	-1.411**
	(0.000)	(0.023)
Industry FE	Yes	No
Year FE	Yes	Yes
Company FE	No	Yes
Observations	2,956	2,956
R-squared	0.357	0.249

Panel B: Going Concern Opinions

VARIABLES	(1) *GCOPN*
DCOMPAUD	-1.207
	(0.160)
POST	-3.180
	(0.185)
DCOMPAUD×POST	**2.908*****
	(0.006)
GCOPNLAG	2.399***
	(0.005)
SIZE	-0.213
	(0.369)
AGE	-0.100
	(0.788)
LEVERAGE	2.162
	(0.103)
ROA	-6.135**
	(0.011)
CASHFLOW	-5.296
	(0.134)
BIG	-1.573
	(0.182)
BSEGMENT	0.065
	(0.670)
GSEGMENT	0.146*
	(0.060)
PROBNKRUPTCY	10.100***
	(0.003)
FORGNNI	1.481
	(0.813)
Constant	-25.793***
	(0.000)
Industry FE	Yes
Year FE	Yes
Observations	781
Pseudo R^2	0.676

Table 8: Disclosure of Component Auditor Identities and Audit Quality Conditioned on Communication and Coordination Challenges

This table presents results of the cross-sectional analysis that examines whether the improvement in audit quality associated with component auditor disclosure in Form AP is more salient in group audits facing more communication and coordination challenges (i.e., a larger time zone difference between the lead auditor and component auditors). The dependent variable is one of following audit quality measures: *DISACCMJ, DISACCDD*, or *MSCORE*. *DISACCMJ* is the discretionary accruals using Modified Jones model and controlled for performance (Kothari et al. 2005). *DISACCDD* is the discretionary accruals using Dechow and Dichev model (Dechow and Dichev 2002). *MSCORE* is measured following Beneish (1999). The independent variables of interest are *DCOMPAUDLTDIFF*×*POST* and *DCOMPAUDSTDIFF*×*POST*. *DCOMPAUDLTDIFF* is coded as 1 for clients in the treatment group and the average time zone difference between the lead auditor and component auditors is above sample median and *DCOMPAUDSTDIFF* is coded as 1 for clients in the treatment group and the average time zone difference between the lead auditor and component auditors is below sample median. *POST* = 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP. See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

VARIABLES	(1) *DISACCMJ*	(2) *DISACCDD*	(3) *MSCORE*
DCOMPAUDLTDIFF	0.006	0.015	0.013
	(0.201)	(0.241)	(0.814)
DCOMPAUDSTDIFF	-0.001	0.008	0.016
	(0.802)	(0.614)	(0.825)
POST	-0.013	-0.084	0.177
	(0.260)	(0.120)	(0.174)
DCOMPAUDLTDIFF×POST	**-0.019*** **	**-0.062*** **	**-0.144** **
	(0.000)	**(0.000)**	**(0.034)**
DCOMPAUDSTDIFF×POST	**-0.008**	**-0.045** **	**-0.071**
	(0.167)	**(0.017)**	**(0.447)**
SIZE	-0.002*	-0.012***	-0.012
	(0.062)	(0.000)	(0.144)
AGE	0.002	0.011*	-0.037*
	(0.274)	(0.093)	(0.056)
LEVERAGE	-0.003	0.087***	-0.154
	(0.656)	(0.007)	(0.103)
ROA	0.357***	0.647***	5.063***
	(0.000)	(0.000)	(0.000)
BM	-0.001	0.002	0.021
	(0.530)	(0.777)	(0.527)
CASHFLOW	-0.922***	-1.351***	-6.242***
	(0.000)	(0.000)	(0.000)
GROWTH	0.001	-0.031	1.281***
	(0.936)	(0.375)	(0.000)

ISSUANCE	-0.003	-0.008	-0.007
	(0.192)	(0.333)	(0.820)
BIG	0.005	0.013	0.079*
	(0.321)	(0.425)	(0.058)
BSEGMENT	0.000	0.002	0.001
	(0.776)	(0.299)	(0.835)
GSEGMENT	0.001***	0.003**	-0.007***
	(0.001)	(0.025)	(0.008)
FORGNNI	0.019	-0.319***	0.283
	(0.588)	(0.006)	(0.490)
Constant	0.079***	0.135**	1.105***
	(0.000)	(0.040)	(0.000)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	3,470	2,738	3,063
R^2	0.673	0.323	0.396
F-test *DCOMPAUDLTDIFF×POST - DCOMPAUDSTDIFF×POST*	-0.011***	-0.017*	-0.073*

Table 9: Horse Race Analysis

This table presents the results of horse race analyses testing whether our conclusions about component auditor disclosure and audit quality hold after including the disclosure of engagement partners. The dependent variable is one of following audit quality measures: *DISACCMJ*, *DISACCDD*, or *MSCORE*. *DISACCMJ* is the discretionary accruals using Modified Jones model and controlled for performance (Kothari et al. 2005). *DISACCDD* is the discretionary accruals using Dechow and Dichev model (Dechow and Dichev 2002). *MSCORE* is measured following Beneish (1999). The independent variables of interest are *DCOMPAUD*×*POST* and *DCOMPAUD*×*PARTNERD*. *DCOMPAUD* = 1 for clients that did *not* disclose information about component auditors in Form 2 but disclosed in Form AP (treatment group), and 0 for clients that disclosed information about component auditors in Form 2 and Form AP (control group). *POST* = 1 for years when component auditors are disclosed in Form AP and 0 for years before Form AP. *PARTNERD* is equal to 1 for client-years after the disclosure of engagement audit partners, and 0 for client-years before the disclosure of engagement audit partners. See the Appendix for definitions of other variables. Standard errors are clustered at the client level. ***, **, and * indicate, respectively, statistical significance at the 0.01, 0.05, and 0.10 levels.

VARIABLES	(1) *DISACCMJ*	(2) *DISACCDD*	(3) *MSCORE*
DCOMPAUD	0.001	-0.002	0.018
	(0.767)	(0.892)	(0.803)
POST	-0.012	-0.057	0.216
	(0.389)	(0.331)	(0.103)
DCOMPAUD×POST	**-0.016***	**-0.087*****	**-0.167****
	(0.066)	**(0.001)**	**(0.037)**
DCOMPAUD×PARTNERD	**0.003**	**0.044**	**0.038**
	(0.755)	**(0.117)**	**(0.702)**
PARTNERD	-0.006	-0.051	-0.045
	(0.533)	(0.230)	(0.674)
SIZE	-0.002*	-0.012***	-0.012
	(0.065)	(0.000)	(0.133)
AGE	0.002	0.011*	-0.040**
	(0.249)	(0.088)	(0.039)
LEVERAGE	-0.003	0.087***	-0.155*
	(0.650)	(0.006)	(0.096)
ROA	0.357***	0.649***	5.059***
	(0.000)	(0.000)	(0.000)
BM	-0.001	0.002	0.021
	(0.526)	(0.770)	(0.536)
CASHFLOW	-0.923***	-1.353***	-6.235***
	(0.000)	(0.000)	(0.000)
GROWTH	0.001	-0.031	1.282***
	(0.939)	(0.384)	(0.000)
ISSUANCE	-0.003	-0.008	-0.008
	(0.174)	(0.326)	(0.786)
BIG	0.005	0.015	0.078*
	(0.294)	(0.389)	(0.060)

BSEGMENT	0.000	0.002	0.002
	(0.773)	(0.270)	(0.782)
GSEGMENT	0.001***	0.003**	-0.007***
	(0.001)	(0.025)	(0.008)
FORGNNI	0.021	-0.317***	0.263
	(0.562)	(0.006)	(0.515)
Constant	0.082***	0.157**	1.098***
	(0.000)	(0.024)	(0.000)
Industry FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	3,470	2,738	3,063
R-squared	0.672	0.324	0.395