

The use and characteristics of foreign component auditors in U.S. multinational audits: Insights from Form AP disclosures*

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Abstract

This paper investigates the common, yet previously opaque, practice of using foreign audit firms (component auditors) to conduct portions of audit work for U.S. public companies. U.S. regulators have expressed concern for the transparency and quality of audits using component auditors. Employing data disclosed in the newly-mandated PCAOB Form AP, we find that component auditor use is largely structural, determined by the size and complexity of clients' multinational operations. We do not find the mere use of component auditors is detrimental to audit outcomes, rather, the *amount* of work conducted by component auditors is associated with lower audit quality (i.e., higher likelihood of misstatement), higher likelihood of non-timely reporting, and higher audit fees, which collectively suggest that component auditor engagements are associated with adverse outcomes. Further, we find that only work performed by less competent component auditors and those facing geographic and cultural/language barriers, including significant geographic and cultural distance, weak rule of law, and low English language proficiency, are associated with adverse audit outcomes. Overall, these findings provide initial archival evidence that the use of certain component auditors on U.S. multinational audits is associated with audit coordination issues, which suggests that PCAOB Form AP disclosures provide relevant information.

Keywords: PCAOB, Form AP, component auditor, group audit, audit quality, audit fees, non-timely reporting, geographic barriers, cultural barriers

JEL Classification Codes: M42, G18, G28, F0

1. Introduction

This paper explores the use of foreign audit firms, commonly referred to as component auditors, on the audits of U.S. public companies.¹ Lead U.S. auditors, who ultimately accept full responsibility for the resulting audit opinion, often utilize component auditors to conduct audit work in countries where clients have significant operations (e.g., Hanes 2013). Until recently, it was not mandatory, and therefore rare, to disclose this common practice. The Public Company Accounting Oversight Board (PCAOB), which is tasked with monitoring auditors of U.S. listed companies, now requires details of component auditor use to be disclosed in Form AP for each public company audit report issued after June 30, 2017. Before this disclosure requirement, investors and other interested parties were largely unaware of the involvement of component auditors in U.S. audits, nor their identity or the extent of work they conduct. This information is indicative of potential coordination and communication issues faced in the audit process (e.g., Downey and Bedard 2019a; Downey and Westermann 2019; Hanes 2013; Sunderland and Trompeter 2017), which may adversely impact audit outcomes.

Amidst the globalization of U.S. public companies, component auditor use by U.S. lead auditors is increasingly prevalent in countries where clients have significant operations. Component auditor use can result in competitive and efficiency benefits by allowing lead auditors to overcome jurisdictional hindrances, reduce labor costs, and leverage local expertise, amongst other benefits (Hanes 2013). For example, Deloitte's St. Louis, Missouri office leads the audit of Monsanto, an agricultural biotechnology company that sells its products in over 100 countries. To

¹ PCAOB standards use the term "other accounting firm" to refer to public accounting firms that participate in the audit other than the firm signing the audit report. To maintain consistency with prior literature (e.g., Carson et al. 2019; Czerney et al. 2014; Downey and Bedard 2019a) and for expositional reasons, we refer to these firms as "component auditors" throughout this paper.

gather sufficient evidence to support the audit opinion, Deloitte uses five component auditors, including, amongst others, its affiliates in Argentina, Brazil, and Mexico to conduct 20 to 45 percent of the total audit hours. While these affiliates operate under the Deloitte global brand, they have varied professional standards and skills, familiarity with U.S. audits and the client's business model, and are located in countries with vastly different characteristics than the U.S., including cultural and language differences. Motivated by examples like this and using Form AP disclosures for a broad sample of U.S. public companies, we examine factors associated with component auditor use and investigate whether the use, extent of use, and characteristics of these component auditors and their locations are associated with variations in audit outcomes.

In a broad sample of 7,582 U.S. issuer-years from April 2017 to April 2019, 37.6 percent use at least one component auditor. This is a staggering 80.8 percent when limited to firms with significant multinational operations. These descriptives suggest that component auditor use is a prevalent phenomenon in the U.S., an issue that prior literature has not been able to examine prior to Form AP. Instead, a concurrent paper by Carson et al. (2019) uses public audit fee data from Australia, which has several important differences from the U.S., including that component auditor identity and location are not disclosed and Australian audit firms are regulated by IAASB standards and are more likely to use non-Big 4 and non-affiliated component auditors. Also, an earlier study by Dee et al. (2015) focuses on the *disclosure* of component auditor use in the U.S., which was relatively rare as it was only required for a small subset of component auditors. According to our data, reliance on these disclosure requirements could have resulted in as much

as 95 percent of U.S. engagements using component auditors not being identified.² Therefore, it is important to examine U.S. component auditor use and its implications in the Form AP era.

We first examine factors associated with the use of component auditors. We find that client size, foreign operations, foreign sales, mentions of foreign countries in 10-K filings, geographic segments, and accounting reporting complexity are all positively associated with the likelihood of component auditor use. These results illustrate that the use of component auditors is often unavoidable for clients with complex multinational operations.³

Next, we investigate the impact of U.S. component auditor use on audit outcomes. When proposing Form AP, the PCAOB expressed concern over maintaining a standard level of quality in multinational audits and cited inspection findings that highlight the difficulty of managing diverse teams of auditors in multiple countries (Doty 2016; PCAOB 2017). Qualitative research has further documented the challenges associated with managing component auditor engagements (Downey and Bedard 2019a; Downey and Westermann 2019). When comparing engagements that use and do not use component auditors within a sample of issuers with significant multinational operations, we only find a significant difference in audit fees (i.e., significantly higher for engagements using component auditors). This difference may suggest an incremental complexity of multinational audits that was not previously captured in the audit fee model. Audit quality,

² Component audit firms who were registered with the PCAOB and conducted more than 20 percent of audit hours for an SEC issuer, but were not a lead auditor for any SEC issuers, were required to disclose their involvement in U.S. audits on PCAOB Form 2. Within our sample, only five percent of engagements that use component auditors meet this criteria.

³ It is possible that using a component auditor in a specific location is driven by other unobservable characteristics of multinational corporations. For instance, lead auditors consider qualitative factors (e.g., potential to impact risk of material misstatement) when deciding whether to use a component auditor (Downey and Westermann 2019). Therefore, results of our determinants model should be interpreted with caution.

measured using misstatements and performance-matched discretionary accruals, and non-timely reporting do not significantly differ based solely on this dichotomous distinction.⁴

We next investigate whether variation in the extent of component auditor use, which proxies for the materiality of their work to the resulting audit, is associated with adverse audit outcomes. Within the 2,853 issuer-years that use component auditors, an average audit engagement uses 3.7 different component auditors who conduct 17.7 percent of total audit hours.⁵ Consistent with the component auditor use indicator, we generally do not find significant associations between the number of component auditors used and audit outcomes. In contrast, we find that the percentage of audit hours conducted by component auditors is associated with a higher likelihood of misstatements and non-timely 10-K reporting and higher audit fees. We do not find significant associations with accrual-based measures of audit quality.⁶ Taken together, these results highlight that the expected adverse outcomes are generally driven by the *amount* of work conducted by component auditors, rather than the number of component auditors used.

Since U.S. Form AP, unlike disclosures in other countries, requires identification of component auditors conducting significant audit work, we are uniquely able to explore whether

⁴ This contrasts with limited sample findings that the disclosure of component auditor use in the U.S. is associated with lower audit quality (Dee et al. 2015). One plausible explanation for this contrast is that component auditors examined in Dee et al. (2015) were small firms with limited experience on U.S. audits.

⁵ Using this information, we are able to distinguish, for example, Monsanto's use of five component auditors conducting 20 to 45 percent of audit hours from Chipotle's use of only one component auditor (i.e., different number), and from Microsoft's use of five component auditors that together conduct less than 10 percent of the audit (i.e., different percentage).

⁶ One explanation for our mixed findings for misstatements and performance-matched discretionary accruals is that accrual-based measures of audit quality are more reflective of financial reporting quality and earnings management issues, whereas misstatements can be more directly attributed to the auditor and evidence coordination issues on component auditor engagements (DeFond and Zhang 2014). Although we recognize that misstatements can also be jointly impacted by innate client characteristics and the audit process, PCAOB inspections strongly suggest that audit quality issues on component auditor engagements are incremental to the financial reporting issues at these companies. For example, in several instances the PCAOB reported that component auditors failed to perform appropriate audit procedures and misrepresented their work to the lead engagement partner, and that these issues have led to restatements (PCAOB 2018).

certain characteristics of component auditors exacerbate or mitigate the adverse audit outcomes observed.⁷ Component auditors in certain locations face geographic and cultural/language barriers which may harm the U.S. auditor's ability to properly manage a multinational audit and exacerbate the potential for adverse audit outcomes. Conversely, when managing these engagements, the lead auditor is expected to ensure that component auditors possess the appropriate independence, competence, and capabilities to serve on the engagement (PCAOB 2010a). This suggests that work performed by competent component auditors may not result in adverse audit outcomes.

We identify 333 unique component auditors that operate in 74 different countries and conduct component audit work for an average of 4.5 U.S. clients each. 92.8 percent of unique component auditors are members of an affiliate network and in-network affiliates conduct 90.2 percent of separately identified component auditor work, which suggests that it is rare for unaffiliated component auditors to conduct significant work on U.S. audits. Motivated by regulator statements and findings of recent qualitative studies, we construct measures of geographic and cultural/language barriers between the U.S. lead auditor and the component auditors they use, including geographic and cultural distance and differences in rule of law and English language proficiency. In multivariate analyses, we find that most adverse audit outcomes are limited to work conducted by component auditors located in countries with significant geographic and cultural/language barriers. We also employ two distinct measures of competence using hand-collected data on the number of CPAs employed by component auditors and component auditor experience in the client's industry. Across both competence proxies, we find that significant associations with adverse audit outcomes are mostly attributed to work conducted by less

⁷ Specifically, any component auditor individually contributing five percent or more of total audit hours must be separately listed and identified by name in U.S. Form AP filings.

competent component auditors. These results demonstrate that characteristics of component auditors and their location are important for predicting variations in audit outcomes and provide insight into factors that generate audit coordination issues that lead auditors should be aware of when managing component auditors.

We perform several additional analyses. First, we explore whether work conducted by competent component auditors in countries with the identified geographic and cultural/language barriers remains associated with adverse audit outcomes. Since the need to use component auditors is based on significant multinational operations, it is unlikely that lead auditors can avoid using component auditors in these countries. Our findings show that work conducted by competent component auditors in barrier countries is not associated with adverse outcomes, which suggests lead auditors can overcome certain country-specific barriers by ensuring component auditor teams are sufficiently competent. Lead auditors may do so by improving the supervision and training of affiliate firms in countries with these barriers, or even considering whether they should look outside of their affiliate network to find the necessary competence. Second, we examine changes in component auditor involvement between 2017 and 2018. On average, component auditor use is fairly consistent year-over-year, but we observe that individual firms do change their component auditor use, with 14.8 percent changing their extent of involvement by more than ten percent, 19.4 percent removing at least one separately identified component auditor in 2018, and 17.2 percent using at least one additional separately identified component auditor. In multivariate analysis, we observe that increasing (decreasing) the percentage of component auditor use increases (decreases) the likelihood of non-timely reporting. Increased component auditor use is also associated with higher audit fees.

Our study contributes to auditing research in several ways. This is the first study to use new Form AP data to provide initial evidence on the use, extent of use (i.e., number used and percentage of work conducted), and characteristics of foreign component auditors by U.S. lead auditors. These new data importantly allow insights into the audit team's judgment of the materiality of foreign operations to the financial statements and resulting audit, which other measures, such as the existence of foreign income or the number of foreign subsidiaries, are unable to capture.⁸ We find that the use of component auditors is primarily structural and that adverse outcomes are driven by the *amount* of work conducted by component auditors.

Our findings complement recent qualitative research documenting the challenges of managing component auditors (Downey and Bedard 2019a; Downey and Westermann 2019) by demonstrating that these challenges extend to identifiable trends in adverse outcomes across a broad sample of multinational engagements. Our study also complements and extends Carson et al. (2019), who similarly conclude component auditor involvement is negatively associated with audit quality in Australia, albeit with different proxies. We extend the shared conclusion that the extent of component auditor involvement harms audit quality by identifying characteristics of component auditors and their location that attenuate and amplify this relationship.

Overall, we conclude that component auditor information provided in new Form AP disclosures can help interested parties better assess the potential for adverse audit outcomes, and suggest the PCAOB consider expanding component auditor disclosure requirements.⁹ We also

⁸ In our analyses, we find that it is possible that (1) component auditors are used in locations with no foreign income, (2) subsidiary locations (which prior studies have collected from Exhibit 21 of the 10-K) are often not material or complex enough to demand component auditor use, and (3) that locations in which there are no subsidiaries listed in Exhibit 21, are still audited for other reasons. Most of our analysis is therefore performed within a more homogenous sample of issuer-years that use at least one component auditor.

⁹ Two policy implications, in particular, stand out. First, our characteristics results suggest that information on specific component auditors is useful. The PCAOB may consider requiring the disclosure of more information on the identified component auditors as well as lowering the threshold at which component auditors must be separately identified.

complement a recent literature stream which explores the efficacy of PCAOB oversight and standard setting and the content and implications of Form AP (e.g., Aobdia and Shroff 2019; Burke et al. 2019; Cunningham et al. 2019; DeFond and Lennox 2017; Krishnan et al. 2017).

2. Background and Hypotheses Development

Use of component auditors on U.S. engagements

Recent reports suggest that 43.2 percent of S&P 500 sales revenue comes from outside of the U.S. (S&P Dow Jones Indices 2017). This globalization of U.S. public companies has led to geographically distributed audit work and the expanded use of foreign auditors in public company audits. Generally, U.S. auditors are not allowed to perform audit work within foreign jurisdictions.¹⁰ Therefore, when auditing a multinational company, the lead auditor, who ultimately bears responsibility for the entire audit (PCAOB 2010a), must use other auditors to gather evidence and perform work on material foreign operations (Downey and Westermann 2019; Hanes 2013).¹¹ In addition to these auditors' proximity to foreign operations, most countries require accounting firms to have separate local licenses and professionals in order to practice

Expanding this reporting requirement should not introduce significant compliance costs because the information is readily available. While a component auditor that conducts less than five percent of audit hours may not seem significant individually, a firm may use several of these component auditors, which in aggregate conduct a significant portion of audit work. Second, our results suggest that the percent of component auditor use is the most informative measure for predicting adverse outcomes, but that 95.7 percent of issuer-years report this percentage as range. Most of these ranges are in ten percent increments, as permitted by Form AP requirements. The PCAOB may consider narrowing the allowed ranges to five percent to provide more precise information.

¹⁰ Even within the handful of countries where U.S. auditors are legally allowed to perform audit work, there are significant certification and training requirements which often prevent them from participating in the audit (NASBA 2018).

¹¹ We conduct informal interviews with senior managers involved on audits of multinational corporations, which reveal that lead auditors use both quantitative (e.g., revenue by country) and qualitative (e.g., potential to impact risk of material misstatement) materiality assessments to determine whether foreign operations should be scoped into the overall audit, and thus whether a component auditor should be used. Importantly, anecdotes suggest that the U.S. lead auditor cannot perform remote audit work on foreign transactions, which implies that component auditor use is unavoidable for multinational entities with significant foreign operations. These conclusions are supported by findings of Downey and Westermann (2019).

(Carson 2009). These other auditors are commonly referred to as “component auditors” in the extant literature.

The type and extent of work conducted by component auditors can vary considerably and may include testing an inventory listing or specified account balance in that location, performing high-level review procedures, or conducting a full scope audit of a foreign subsidiary that prepares standalone financial statements (Barrett et al. 2005). Further, this work may differ from audit work conducted in the U.S given that the client’s operations in foreign locations may be significantly different from their operations in the U.S.¹² While in aggregate the work performed by component auditors can represent a significant portion of the audit, the lead auditor is responsible for directing and supervising all work pertaining to the financial statement audit opinion. However, the lead auditor’s review is often legally restricted to summary documentation of the work performed and conclusions reached (Downey and Bedard 2019a; Sunderland and Trompeter 2017).

In 2016, the PCAOB and SEC passed Rule 3211, which requires disclosure of information on the use of component auditors in Form AP for audit reports issued on or after June 30, 2017. This disclosure was motivated by a desire for increased transparency regarding who is conducting audits. Before this disclosure requirement, investors were largely unaware of the extent to which component auditors were involved in an audit.¹³ For example, in Monsanto’s Form AP Deloitte reports that between 20 and 45 percent of the audit is conducted by five different component auditors, with a majority conducted by their affiliates in Argentina, Brazil, and Mexico. Despite

¹² For example, pharmaceutical or technology companies often conduct their research and development activities in the U.S. and manufacture their products outside of the U.S.

¹³ Recent research examines the impact of Form AP on investor behavior. Doxey et al. (2019) do not find a significant investor response to information on component auditors disclosed in Form AP. In an experimental setting, Hux (2018) concludes similarly, with results suggesting that investors’ concerns over component auditor use are not significant enough to influence their investment behavior.

the magnitude of audit work conducted by these affiliates, Deloitte's Missouri office ultimately bears full responsibility for the audit opinion and was previously the only firm name disclosed.

Before the Form AP requirement mandated component auditor disclosure for all U.S. public company audits, three studies used various methods to identify subsets of audits involving component auditors.¹⁴ First, in a concurrent paper using a sample of Australian listed companies, Carson et al. (2019) examine different work arrangements for multinational engagements (e.g., lead auditor conducts all audit work, uses affiliated component auditors, or uses unaffiliated component auditors). Component auditor use and disclosure in Australia differs from the U.S. in several ways. First, component auditor identity is not disclosed and extent of use is determined from fees the lead auditor pays to component auditors. Additionally, audit market concentration differs, with non-Big 4 lead auditors and non-affiliated component auditors more represented in Australia (Ferguson et al. 2003).

Second, within a sample of U.S. audits where component auditor use is disclosed, Mao et al. (2019) compare lead auditors that accept and divide responsibility. In our study, we focus on engagements where the lead auditor accepts responsibility for the entire audit opinion (PCAOB 2010a). Lastly, Dee et al. (2015) compare engagements where U.S. lead auditors accept and disclose responsibility for the work of other auditors to similar engagements where component auditors are not disclosed. Specifically, Dee et al. (2015) identify a sample of 149 issuers that disclose the use of component auditors using the requirement that PCAOB registered audit firms who *do not serve as lead auditors on an SEC issuer* list the audits in which they substantially

¹⁴ We are aware of three concurrent papers examining U.S. component auditor use. Downey and Bedard (2019b) use proprietary PCAOB data to examine the role of the lead engagement partner in managing component auditor use. Dee et al. (2018) use the first year of component auditor disclosure in Form AP and do not find an association between the percentage of the audit conducted by component auditors and performance-matched discretionary accruals. Krishnan et al. (2019) examine implications of component auditor use for the earnings persistence and the cost of debt.

participate in their Form 2 annual report.¹⁵ Any component auditor who also serves as a lead auditor either would not appear in the sample or could even be misclassified in the no disclosure group. This is significant because according to the new Form AP data, nearly half of component auditors also serve as a lead auditor of an SEC issuer. For instance, major audit firms in Canada, China, and Israel often conduct component work and serve as lead auditors for SEC issuers such as IMAX, Lululemon, and Stantec.¹⁶

Now that Form AP requires disclosure of component auditor use for all U.S. issuers, we can accurately identify engagements that do and do not use component auditors. We thus can focus on the underlying use, and not merely the disclosure, of these component auditors, which was not previously possible. Using these data, we first examine factors associated with the use of component auditors. For instance, client characteristics such as the existence and extent of multinational operations are expected to prompt the lead auditor to use component auditors. In addition, client size, performance, and overall complexity may impact component auditor use.

Use of component auditors and audit outcomes

Recent PCAOB oversight activities have identified significant audit deficiencies related to component auditor work and the lead auditor's oversight of this work (Doty 2016; PCAOB 2016). For instance, PCAOB inspections have attributed restatements to component auditors not performing procedures requested by the lead auditor or required under PCAOB standards, as well

¹⁵ Specifically, when audit firms that are PCAOB registered but are not lead auditors on a SEC issuer file Form 2, they are required to list audit reports for which they played a substantial role in Item 4.2. A substantial role is defined as 20 percent or more of the issuer's total audit hours or fees. These data, in addition to this information for those that do serve as a lead auditor and for those performing any percentage of the audit, are now directly supplied by the lead auditor of all U.S. issuers in Form AP.

¹⁶ This limitation is not expected to impact the results of market reaction to the disclosure of information as examined by Dee et al. (2015) and for conducting certain analyses within the disclosure group (e.g., Mao et al. 2019). However, using these data to compare firms that use component auditors with those that do not is not possible and would result in biased samples.

as failing to communicate significant issues to the lead auditor (Harris 2016; PCAOB 2018).¹⁷ These inspection and enforcement findings suggest that there are quality concerns, beyond financial reporting quality issues that may be inherent to these companies, when lead auditors use component auditors.

Advantages of component auditor use include overcoming jurisdictional hindrances inherent to multinational companies, as well as reducing labor costs and increasing knowledge sharing via access to personnel who have specific expertise and familiarity with the company's operating environment in that country (e.g., Hanes 2013). Former PCAOB board member Lewis Ferguson summarized these benefits:

The use by the lead auditor of such other auditors in an audit, often located in a different country, and at times in several different countries, can provide a number of benefits, including competitive and efficiency benefits, by allowing lead auditors to leverage the use of locally-licensed auditors. The locally licensed auditors may have language skills and knowledge of local culture and business practices that can be a great benefit to the lead auditor if properly used and supervised. The use of other auditors in a multinational environment, however, also introduces a number of challenges that can lead to inadequate audit performance (Ferguson 2016).

This quote also highlights the significant barriers a lead auditor can face when using component auditors. While the component auditors' local presence is an advantage, it also results in geographic and cultural differences from the U.S. lead audit firm, which may cause coordination and communication problems (e.g., Hanes 2013; Sunderland and Trompeter 2017).

The aforementioned related studies, which use Australian and limited U.S. data in the pre-Form AP era, find firms that disclose component auditor use have lower audit quality, based on accrual-based measures of audit quality (Carson et al. 2019; Dee et al. 2015).¹⁸ Audit fee findings

¹⁷ We note that while PCAOB inspection results suggest issues in component auditor engagements, they may not be generalizable as they are infrequent and risk based. Further, the PCAOB is not allowed to inspect audit firms in certain countries. Our results are robust to controlling for engagements where significant work is conducted by component auditors located in these countries.

¹⁸ Importantly, we expect component audit firms that do not serve as lead auditors for SEC issuers (i.e., the Dee et al. 2015 sample) to be fundamentally different from those that do. Specifically, these component auditors are small non-

are mixed, with Dee et al. (2015) finding no difference between firms that disclose and do not disclose component auditor use and Carson et al. (2019) finding higher audit fees for component auditor engagements in Australia.

Since disclosing the use of component auditors was not previously required in the U.S., it is not known whether and in what direction component auditor use influences audit outcomes across a broad sample. If component auditors are properly used and supervised, the advantages of their use could result in competitive and efficiency benefits for the lead audit firm (i.e., increased audit quality and decreased non-timely reporting and audit fees). Conversely, without adequate supervision or perhaps even with a diligent effort by the lead auditor, geographic and cultural barriers between the U.S. and countries in which component auditors are located can result in deficient audits. Prior literature, as well as regulator comments, inspection findings, and proposed standards, have supported this prediction. Specifically, the barriers associated with component auditor use are thought to decrease audit quality and efficiencies (i.e., increase non-timely reporting and audit fees). Supporting this, Downey and Westermann (2019) survey and interview U.S. leads, who express dissatisfaction with the sufficiency, compliance, and timeliness of the work performed and documentation provided by component auditors. We therefore predict the following in our first hypothesis:

HYPOTHESIS 1. *The use/extent of use of component auditors is negatively associated with audit quality and positively associated with non-timely reporting and audit fees.*

Characteristics of component auditors used

The U.S. is the first to require disclosure of component auditor identity and location. Component auditors operate in many different countries, from the Cayman Islands to Belgium,

U.S. firms with limited experience on U.S. audits (Dee et al. 2015), which may explain the finding that the disclosure of component auditors is associated with adverse audit outcomes.

China, Egypt, Greece, Switzerland, Vietnam, and many more. Geographic and cultural differences between the U.S. lead audit firm and component auditors operating in other countries can harm the U.S. auditor's ability to properly manage a multinational audit (Hanes 2013; Sunderland and Trompeter 2017). Therefore, following recent literature that examines similarities and differences between country-pairs (e.g., Barrios et al. 2019; Gunn and Michas 2018), we next explore the usefulness of component auditor information by considering whether component auditors operating in locations with varying geographic and cultural/language barriers and possessing varying levels of competence are differentially associated with audit outcomes.

Geographic barriers

A potential barrier between the U.S. and other countries is their geographic proximity. Recent studies have found negative consequences of geographic dispersion in an auditing context, generally concluding that geographic dispersion creates information asymmetries and ineffective monitoring (Beck et al. 2019; Choi et al. 2012; DeFond et al. 2018; Dong et al. 2018). Greater geographic barriers make it more difficult for lead and component auditors to interact when questions or problems arise, and cooperation and knowledge sharing may suffer (Beck et al. 2019). Opportunities for U.S. lead and component auditor team members to share information through informal channels, observe cues, receive feedback and social support, develop a shared identity, and understand the interdependence of their work are additionally limited by geographic barriers (Downey and Bedard 2019a; Hanes 2013). Further, component auditors that are located farther from the U.S. auditor's location may be at an information disadvantage as they are less aware of and familiar with the client's operating environment (e.g., economic and regulatory environment

in the region), incentives, abilities, and opportunities (Choi et al. 2012; Coval and Moskowitz 1999; Covrig et al. 2007).¹⁹

We therefore expect that work performed by component auditors facing greater geographic barriers will drive the negative association with audit quality and positive association with non-timely reporting and audit fees predicted in Hypothesis 1.²⁰

HYPOTHESIS 2. The predicted association with adverse audit outcomes is more pronounced when there are more, relative to less, geographic barriers.

Cultural/language barriers

When evaluating component auditors, the lead auditor is expected to understand their compliance with ethics and whether they operate in a regulatory environment that actively oversees auditors. Cultural differences between the U.S. and countries in which component auditors are located may be informative in this evaluation.²¹ Cultural differences will exist when shared norms and values of individuals in the U.S. differ from those of individuals in component auditor countries. For instance, individuals may have different beliefs in religion, familial values, individualism, self-expression, hard work, and quality of life (Tadesse and White 2010). Different

¹⁹ Constrained resources in terms of time and budget limit the lead auditors' ability to provide timely feedback to component auditors, as well as travel for in-person visits to conduct supervision and coaching. Component auditors similarly face constrained resources as they are often tasked with completing component work, conducting statutory audits, and serving local clients (Downey and Westermann 2019; Sunderland and Trompeter 2017).

²⁰ For expositional reasons, in Hypotheses 2-4, we refer to these associations as "adverse audit outcomes." While higher audit fees can be indicative of greater effort, which may have a positive impact on the audit, we predict that higher audit fees signal inefficiency and are an adverse audit outcome in combination with our prediction of lower audit quality. Nevertheless, we acknowledge that higher audit fees may also arise from a risk premium related to the management of component auditor work.

²¹ Several studies on country-level similarities and differences have examined country-specific culture. For instance, Tadesse and White (2010) find that cultural differences between immigrants' host and home countries inhibit international trade and Barrios et al. (2019) find that cultural similarity between the home countries of foreign directors influence their likelihood of appointment.

beliefs in the rule of law, which are informative for team members' obedience and trust towards authority, may also form cultural differences relevant to interdependent audit work.²²

Significant cultural differences can lead to different approaches to audit work and ultimately, misunderstanding and misinterpretation between the U.S. and component auditor teams. For instance, if rule of law is weak relative to the U.S., a component auditor may be more likely to cut corners when following the lead auditors' instructions as well as adhering to professional standards, and it may be difficult to trust their work. For example, Downey and Westermann (2019) report that component auditors in some countries are less skeptical, and trust what the client tells them rather than obtaining audit evidence. Issues can be compounded if lead auditors put undue trust in audit work performed by component auditors in countries with significant cultural differences, and as a result, rely on work that contains errors or is not performed in accordance with auditing standards. Further, component auditors with significant cultural differences may perceive certain events, transactions, and risk valuations differently than the U.S. auditor. Accordingly, we predict that these different norms and values cause difficulty when managing component auditor engagements.

Similar to cultural barriers, differences in language may make it more difficult to perform necessary interdependent audit work in component auditor engagements. The lead auditor may often work with component auditors in countries with different native languages and varied levels of English proficiency. Language barriers can make it difficult for U.S. auditors to understand

²² Rule of law is commonly examined in business literature (e.g., Levie and Autio 2011; Licht et al. 2007; Nwabuzor 2005; Srinivasan et al. 2015) and reflects the extent to which individuals believe and abide by the rules of their society, such as its contract enforcement, property rights, law enforcement, the judicial system, and the likelihood of crime and violence (World Bank 2016). Several recent studies have used the rule of law of subsidiary countries to proxy for institutional differences from the lead auditor's home country (Carson et al. 2019; Dyreng et al. 2012; Gunn and Michas 2018). For instance, since component auditor identities and locations are not available in Australia, Carson et al. (2019) examine the average rule of law of subsidiaries. Gunn and Michas (2018) similarly measure the proportion of significant subsidiaries located in weak rule of law countries.

inquiries and information received from the component auditor team, and vice versa. Component auditor teams with low English proficiency may have difficulty following U.S. standards, firm audit methodology, and the lead auditor's direction (Downey and Westermann 2019). They may also miss information and salience cues, causing information relevant to the audit opinion not to be conveyed to the lead auditor (Hanes 2013). While English may be the language of primary communication between these teams (Downey and Bedard 2019a), including for written instructions about the scope and timing of the work (Downey and Westermann 2019), component auditor teams can still be composed of non-native English speakers who are more apt to misunderstand direction in the English language.²³ Supporting these predictions, PCAOB oversight activities have found lead auditor failures in supervising component auditor work when there were language barriers (PCAOB 2013).

In sum, we expect that work performed by component auditors facing greater cultural and language barriers will drive the associations predicted in Hypothesis 1.

HYPOTHESIS 3. The predicted association with adverse audit outcomes is more pronounced when there are more, relative to less, cultural/language barriers.

Competence

In addition to country-specific geographic and cultural/language barriers, the competence of component auditors used may vary. When selecting and retaining component auditors, the lead auditor must ensure that component auditors are independent and possess appropriate competence and capabilities. Specifically, the lead auditor is permitted to express an opinion on the financial

²³ Downey and Bedard (2019a) survey U.S. auditors about their experience on group audits, and do not find that language barriers are ranked as a significant challenge. They note, however, that these barriers may be more challenging to the component auditor who is forced to speak in a non-native language. Supporting this, Downey and Westermann (2019, 28) report that many interviewees cited language differences as a challenge in global group audits, with one stating: "The local Japanese resources have varying levels of English proficiency and most of them are not great, for example, it can difficult to have a nuanced conversation."

statements as a whole if they can satisfy themselves as to the ethics, independence, and professional reputation (including knowledge of the professional standards, skill, and ability) of component auditors used (PCAOB 2010a; PCAOB 2016).

PCAOB standards suggest the lead auditor confirm component auditor familiarity with U.S. GAAP, generally accepted auditing standards (GAAS), and relevant SEC requirements in their evaluation of competence.²⁴ Familiarity may be indicated, for example, by their relevant professional certifications, such as a CPA or equivalent (Dee et al. 2015; Nagy et al. 2020).²⁵ Regulators have also expressed concern over component auditors lacking the industry experience necessary to perform work requested by the lead auditor (PCAOB 2016) since industry experience is thought to improve audit quality (Minutti-Meza 2013; Reichelt and Wang 2010).²⁶ In sum, the competence of component auditors is an important factor when managing a complex multinational audit, a notion confirmed by respondents to the Downey and Bedard (2019a) questionnaire. We therefore predict the following:

HYPOTHESIS 4. The predicted association with adverse audit outcomes is more pronounced when less, relative to more, competent component auditors are used.

3. Research Design

Sample selection

²⁴ This is consistent with responses to the Downey and Bedard (2019a) questionnaire, where component auditor knowledge, measured using their understanding of GAAP, GAAS, the regulatory environment, and the client's industry, is thought to reduce coordination and communication challenges on multinational audits.

²⁵ While Dee et al. (2015) do not find this to be a significant characteristic in their subset of firms that disclose component auditor use, recent studies find local education levels and professional certifications of relevant individuals to be informative characteristics (e.g., Beck et al. 2018; Hoitash et al. 2016; Ge et al. 2011; Prawitt et al. 2009). Nagy et al. (2020) find that the number of CPAs in U.S. audit firm offices is positively associated with audit quality, measured by the likelihood of restatements and discretionary accruals.

²⁶ We acknowledge that these metrics of competence are likely correlated with the size of the component auditor. However, we expect that size captures the availability of resources, formalized trainings, and the ability to attract talent. This is consistent with numerous studies that attribute higher audit quality to Big 4 auditors based on their size (DeAngelo 1981). Further, larger component auditors have more flexibility to manage the competing demands between local and component auditor work (Downey and Westermann 2019).

We begin our data collection by identifying a sample of U.S. public companies subject to the Form AP component auditor disclosure requirement, which includes fiscal year ends between April 2017 and April 2019.²⁷ We remove observations where the lead auditor divides responsibility for component auditor work or is a non-U.S. auditor. We also remove observations where U.S. component auditors are used and those without necessary data in Compustat and Audit Analytics. The resulting sample, which is used to test the determinants of component auditor use, is 7,582 U.S. issuer-years.²⁸ Within this broad sample, 37.6 percent of observations use at least one component auditor.

To better compare component auditor use versus non-use, we further isolate our sample to 3,529 issuer-years with significant multinational operations, which is the primary determinant of component auditor use. Specifically, we classify an issuer as multinational if they (1) use a component auditor, or (2) have substantial (above median) mentions of countries other than the U.S. in their 10-K filing²⁹ and have non-missing pre-tax foreign income. This approach allows us

²⁷ Form AP filings containing information on component auditor use (if any) are required for audit reports of U.S. issuers issued after June 30, 2017. We collect these filings from the AuditorSearch database made available by the PCAOB (<https://pcaobus.org/Pages/AuditorSearch.aspx>). In Item 4.1 of Form AP lead auditors report the legal name, extent of participation, city, state, and country for each component auditor that individually contributes five percent or more of total audit hours. In Item 4.2 lead auditors report the number and aggregate percentage of component auditors that individually contribute less than five percent of total audit hours.

²⁸ In the determinants analysis, which is the only analysis that uses this broadest sample, 7,570 observations are tabled because 12 issuer-years are dropped due to perfect prediction of the likelihood of component auditor use.

²⁹ Recent finance studies have used 10-K text parsing to flag mentions of specific U.S. states to measure within-U.S. geographic dispersion (Bernile et al. 2015; Garcia and Norli 2012). Using Python, we customize this method to our context by counting mentions of foreign countries in each firm's 10-K. The median number of unique foreign countries mentioned is nine and combined, countries are mentioned a median of 67 times. We validate this approach by matching, when possible, component auditor countries for an issuer-year with the countries mentioned in the 10-K for that issuer-year. We find that 92.5 percent of component auditor country-issuer-years match to a country-issuer-year identified in our 10-K parsing. This approach allows us to capture the significance of multinational operations to the firm.

to isolate issuers likely to require a multinational audit while avoiding issues with foreign subsidiary data reported in Exhibit 21.³⁰

The most homogenous sample in our context is comprised of 2,853 issuer-years that use at least one component auditor. We examine the extent of use (i.e., number and percent) within this sample. Finally, our characteristics analyses require the disclosure of the identity and location of component auditors, which happens for each component auditor that contributes five percent or more of total audit hours. This sample includes 1,790 issuer-year observations and is used to test H2-H4. The derivations of our samples, including which hypotheses they are used to test, are reported in Table 1.

Component auditor variables

We use three test variables in analysis for H1. *COMPONENT-USE* is an indicator variable equal to one if at least one component auditor participated in the engagement, and zero otherwise. *COMPONENT-NUMBER* is a count variable for the total number of component auditors that participated in the audit. *COMPONENT-PCT* is the total percentage of audit hours conducted by component auditors. Lead auditors have the option to report the extent of participation as either an exact percentage or a range of the percentage of audit hours (e.g., “5 percent to less than 10 percent of total audit hours,” “10 percent to less than 20 percent of total audit hours,” etc.). When the range is reported, we use the midpoint in our tabled calculations. For example, “10 percent to less than

³⁰ Before component auditor information was available, Gunn and Michas (2018) identify multinational operations as firms with non-zero foreign sales and at least one foreign subsidiary reported in Exhibit 21. We observe in our data that subsidiary locations reported in Exhibit 21 are often not material or complex enough to demand component auditor use. 3,614 firm-years report at least one foreign subsidiary, but only 2,853 firm-years use at least one component auditor. Additionally, component auditors are often used in locations that are not listed as a subsidiary in Exhibit 21. In fact, many issuer-years that do not list any foreign subsidiaries use a component auditor. Nevertheless, to allow comparisons between our studies, we conduct our H1 *COMPONENT-USE* analysis using the Gunn and Michas (2018) foreign subsidiary criteria instead of country mentions in the 10-K. Results are consistent, with one exception. *COMPONENT-USE* is positively associated with *NON-TIMELY*.

20 percent of total audit hours” becomes 15 percent. Component auditor use is reported as a range, rather than an exact percentage, for 95.7 percent of issuer-years. In untabulated analysis, we confirm our results are generally robust to using the minimum and maximum of this range.

We select measures of geographic and cultural/language barriers following recent literature examining country-pair characteristics (e.g., Barrios et al. 2019; Gunn and Michas 2018). To test H2, we proxy for geographic barriers using the distance, in miles, between the U.S. lead auditor office and component auditor office. To test H3, we proxy for cultural barriers using the cultural distance³¹ and rule of law³² of the component auditor’s country and for language barriers using the average TOEFL score³³ of the component auditor’s country. To capture the amount of work done by component auditors with high and low barriers (i.e., differences from the U.S.), we split the percentage of audit hours conducted by separately listed component auditors into two mutually exclusive variables capturing the percentage of audit hours performed by component auditors scoring high and low based on these proxies.³⁴ We consider component auditors with geographic and cultural/language barriers to be those with significant geographic distance (*HIGH-GEO-*

³¹ Cultural distance is an aggregate measure of the degree to which norms and values (e.g., belief in religion, familial values, authority, individualism, self-expression, hard work, and quality of life) in one country differ from those in another country. Country-specific scores are obtained from the World Values Survey (Inglehart et al. 2014) and cultural distance between the U.S. and each country is calculated following Tadesse and White (2010).

³² A country’s rule of law is a metric provided by the World Governance Institute and reflects the extent to which individuals believe and abide by the rules of their society. This metric proxies for a component auditors’ trust and obedience of authority. Untabulated results are consistent if we use an indicator for whether the country’s legal system is based on common law, following La Porta et al. (2008), who examine if country-pairs have the same legal origin.

³³ Test of English as a Foreign Language (TOEFL) is a standardized test for the English language ability of non-native speakers applying to English-speaking universities, and has been used to measure English proficiency in recent accounting studies (e.g., Brochet et al. 2016). TOEFL provides mean scores by country, which we use to proxy the English-speaking ability of the country’s professional population.

³⁴ Since component auditors that individually conduct less than five percent of the audit are reported in aggregate in Item 4.2 of Form AP, we cannot identify their characteristics and therefore cannot incorporate them in these cross-sectional analyses. Results are robust to controlling for the percentage of audit hours performed by component auditors that are not separately listed, which is 4.77 percent on average. This percentage is not significantly associated with *MISSTATEMENT*, *DISC-ACCRUALS*, nor *NON-TIMELY* and is positively associated with *AUDIT-FEES* in all models.

DISTANCE), significant cultural distance (*HIGH-CULTURAL-DISTANCE*), weak rule of law (*LOW-RULE-OF-LAW*), and low English language proficiency (*LOW-ENGLISH*). The counterparts to these variables are *LOW-GEO-DISTANCE*, *LOW-CULTURAL-DISTANCE*, *HIGH-RULE-OF-LAW*, and *HIGH-ENGLISH*. Since one engagement could use several different component auditors, these sets of measures allow us to split the percentage of work conducted by component auditors with and without each characteristic. For example, if 40 percent of audit hours are conducted by component auditors, 15 percent could be classified as having high geographic barriers (e.g., *HIGH-GEO-DISTANCE*) and 25 percent as low geographic barriers (e.g., *LOW-GEO-DISTANCE*).

To test H4, we similarly create variables capturing the percentage of audit hours performed by component auditors scoring high and low on two proxies for competence. Motivated by PCAOB standards, which suggest the lead auditor confirm component auditor professional reputation and familiarity with U.S. GAAP and GAAS, we measure competence using the number of personnel with a CPA or comparable license³⁵ and experience conducting PCAOB regulated audit work in the client's industry (i.e., either a lead or component auditor on at least one additional client). For each measure, we consider less competent (more competent) component auditors to be those with below (above) average values within the sample and refer to these variables as *LOW-CPAS* (*HIGH-CPAS*) and *NO-IND-EXPERIENCE* (*IND-EXPERIENCE*), respectively.

Dependent variables

³⁵ We hand-collect these data for each component auditor registered with the PCAOB from their annual Form 2 filing (Item 6.1). Since these data are not available for component auditors that are not registered with the PCAOB, we classify them in the below average number of CPAs group. Our results remain consistent if we instead remove engagements requiring this assumption from analysis.

We employ four dependent variables throughout our analyses. The first measure is an indicator variable equal to one for issuers that have subsequently restated their filings, and zero otherwise (*MISSTATEMENT*).³⁶ Recent studies suggest misstatements are a strong and direct measure of audit quality (e.g., Aobdia 2018; DeFond and Zhang 2014). We also include performance-matched discretionary accruals (*DISC-ACCRUALS*) as a dependent variable. Discretionary accruals capture earnings management/financial reporting quality issues, whereas misstatements can be more directly attributed to the auditor and can capture coordination issues. Third, we use an indicator for non-timely 10-K filings (*NON-TIMELY*) as a proxy for coordination difficulties that arise in multinational audits. A Form NT 10-K filing signals an inability to prepare and audit financial statements on a timely basis (Cao et al. 2016; Czerney et al. 2019; Wang et al. 2013).³⁷ Lastly, *AUDIT-FEES* is the natural log of audit fees, which serves as a proxy for audit cost and audit effort.

Control variables

We employ a common set of control variables across all models, which includes controls for size, complexity, foreign operations, financial performance, and several other common

³⁶ When examining misstatements, the sample is limited to observations in 2017 to provide sufficient time for the discovery and disclosure of misstatement periods. We caution readers that at the time of our analysis it is still likely that this variable is underestimated and that more misstatements related to 2017 financial statements will be disclosed. Due to power issues caused by the low frequency of the annual misstatement variable, we include both quarterly and annual misstatements in our tabled results. While quarterly restatements are subject to less auditor scrutiny than annual reports, extant literature suggests a strong association with future annual restatements being disclosed (e.g., Pittman and Zhao 2018). When we re-run our analyses using the annual misstatement variable and a one-digit SIC codes for industry fixed effects to avoid loss of observations due to perfect prediction, we find results are robust with one exception. Specifically, *LOW-RULE-OF-LAW* is not significantly associated with *MISSTATEMENT* in results replicating Table 6, Panel B.

³⁷ Issuers are required to file Form NT 10-K no later than one day after their original 10-K due date, and doing so provides an automatic 15-day extension to file their 10-K. Downey and Westermann (2019) report lead auditor statements that untimely component auditor work (i.e., missed deadlines or failure to escalate audit issues in a timely manner) is “an impediment to the group auditor’s ability to complete the audit opinion in conjunction with the client’s preference for accelerated filing.” A non-timely 10-K filing can therefore represent coordination issues on component auditor engagements. This variable overcomes recent critiques of traditional audit delay measures, which lack meaningful variation in the current financial reporting environment (e.g., Glover, Hansen, and Seidel 2019).

variables (e.g., Hay et al. 2006; Hoitash and Hoitash 2018). We control for company size (*SIZE*), firm complexity, and foreign operations with several variables, including the number of business segments (*BUS-SEG*), the number of geographic segments (*GEO-SEG*)³⁸, an indicator for foreign operations (*FOREIGN-OPERATIONS*), the natural log of the count of country mentions in the 10-K (*COUNTRY-MENTIONS-10K*), and the extent of their foreign sales (*FOREIGN-SALES*). We also control for accounting reporting complexity (*ARC*) which captures the amount of accounting disclosures in annual filings. Additional control variables and their definitions are provided in the Appendix. All continuous variables are winsorized at the 1st and 99th percentiles and all models also include year and two-digit SIC industry fixed effects.

4. Results

Descriptive statistics

Our sample includes 2,853 issuer-years that use component auditors, which is 37.6 percent of all available issuer-years and 80.8 percent of issuer-years with significant multinational operations. Table 2, panel A presents descriptive statistics of the component auditor test variables. We observe that, for issuer-years that use component auditors, the mean (median) number of components used in an audit engagement is 3.7 (2.0) and ranges from one to 20. The mean (median) percentage of audit hours conducted by component auditors is 17.7 (15.0), ranging from two to 65 percent. Histograms of the number of component auditors used and the percentage of hours they conduct are shown in Figure 1.

³⁸ It is not possible to fully map geographic segments to component auditor data. Specifically, data on geographic segments, when reported, is often presented in aggregate. For example, one company can list Asia as one of its geographic segments, while another can separately report information on Japan and China. Our component auditor data is unique as it reveals the auditors' perception of the materiality and risk of certain geographic locations. In fact, within a sample of firms that use at least one component auditor, the number of geographic segments does not exhibit significant and consistent associations with audit outcomes. This suggests component auditor work better captures the materiality of foreign operations to the audit.

Descriptives of our dependent and control variables within the sample of issuer-years that use component auditors, as well as t-test comparisons to the full available sample, are presented in Table 2, panel B. Of those that use component auditors, 8.2 percent misstate their financials and 4.4 percent file a non-timely 10-K. According to sample means, audit fees are 4.6 million dollars.³⁹

In the component auditor work reported, we identify 333 unique component auditors. Descriptives on these component auditors, which are displayed in Table 2, panel C, show that they conduct component auditor work on an average of 4.5 engagements. Interestingly, 92.8 percent are part of an affiliate network.⁴⁰ This suggests the use of unaffiliated auditors is extremely rare in the U.S., which is different from statistics reported for Australia (Carson et al. 2019).⁴¹ 54.1 percent of these unique components are classified as having high geographic distance (*HIGH-GEO-DISTANCE*), 76.3 percent as having high cultural distance (*HIGH-CULTURAL-DISTANCE*), 44.4 percent as having low rule of law (*LOW-RULE-OF-LAW*), and 38.7 percent as having low English language proficiency (*LOW-ENGLISH*). These variables highlight geographic and cultural/language barriers predicted to impact the management of component auditor engagements. Lastly, 18.6 (18.0) percent are classified as competent based on number of CPAs (experience conducting component auditor work in the client's industry). A correlation matrix of

³⁹ The variance inflation factors (VIFs) are below 10 in all of our models, with the highest VIFs being 6.02 for *LNTA* in the cultural distance discretionary accruals model and 4.34 for *FOREIGN-SALE* in the geographic distance discretionary accruals model. We therefore conclude that multicollinearity does not substantially impact the interpretation of our results (Cohen et al. 2003).

⁴⁰ Membership in an affiliate network is reported in each component auditor's Form 2 filing with the PCAOB. If the component auditor is not registered with the PCAOB, we manually search for their membership in an affiliated network.

⁴¹ 82.4 percent of unique U.S. lead audit firm and component auditor pairings are in-network affiliations (e.g., a U.S. Big 4 firm using their exclusive affiliate, or a smaller U.S. firm using the member of their affiliate network), and these in-network affiliates conduct 90.2 percent of separately listed component auditor work. These statistics are consistent with Downey and Westermann (2019), who conduct surveys and interviews with Big 6 auditors and report that most automatically select their in-network affiliate if component auditors are needed, and that smaller firms often use a network affiliate. Notably, we observe that Big 4 affiliations are almost exclusively within network. This implies that in current practice, large lead U.S. audit firms do not share their affiliates, and therefore have limited flexibility to switch the component auditors they use in a certain jurisdiction.

the geographic and cultural/language barriers and competence measures of these unique component auditors is displayed in Table 2, panel D. Correlations are generally low, which suggests that we measure different component auditor characteristics in H2-H4.

Table 2, panel A shows that 1,790 engagement-years, or 62.7 percent of those using component auditors, have at least one separately disclosed component auditor (i.e., individually responsible for more than five percent of the audit). Within this sample, an average of 1.7 separately listed component auditors are used to conduct 21.3 percent of audit hours. Descriptives of variables used to test H2, H3, and H4, which disaggregate the percentage of audit hours into those conducted by component auditors with more or less geographic and cultural/language barriers and by more and less competent component auditors, are presented in this panel.

Multivariate results

Factors associated with component auditor use

Our first set of models examine factors associated with the use of component auditors. Column 1 of Table 3 shows results of a logistic regression model where the dependent variable is an indicator for *COMPONENT-USE*. Results show that several client and auditor characteristics are significantly associated with component auditor use.

In Column 2 we add six different measures of firm complexity to the model and find that most are significantly associated with the likelihood of using a component auditor. Specifically, we find that *GEO-SEG*, *FOREIGN-OPERATIONS*, *COUNTRY-MENTIONS-10K*, *FOREIGN-SALES*, and *ARC* are each associated with an increased likelihood that a component auditor is involved ($p < 0.05$ or less). Interestingly, all variables from Column 1 other than *SIZE* and *INDUSTRY-EXPERT* are no longer significant when the complexity variables are included in Column 2. This suggests that the structure of firms, rather than their financial performance or

auditor choice, is the primary determinant of component auditor use.⁴² This is consistent with practitioner statements that component auditor use is unavoidable for companies with significant multinational operations (e.g., Downey and Westermann 2019). Despite differences between component auditor use in the U.S. and in Australia, as examined in Carson et al. (2019), our empirical analyses identify similar determinants of component auditor use, including client complexity and extent of foreign operations.

Use of component auditors and audit outcomes

Our first hypothesis predicts that the use of component auditors will be associated with lower audit quality, more non-timely reporting, and higher audit fees. We first test this hypothesis using an indicator for component auditor use (*COMPONENT-USE*) within the sample of issuer-years with significant multinational operations. In Table 4 panel A, we observe that *COMPONENT-USE* is not significantly associated with the likelihood of *MISSTATEMENT*, *NON-TIMELY*, nor *DISC-ACCRUALS*.⁴³ This contrasts with Dee et al. (2015), which employs a limited sample of U.S. component auditor disclosure and finds lower audit quality. However, we do find that *COMPONENT-USE* is positively associated with *AUDIT-FEES* ($p < 0.01$), which may suggest an incremental complexity of multinational audits that was not previously captured in the audit fee model. Audit fees for engagements using component auditors are, on average, \$256,123, higher relative to engagements not using component auditors. The audit fee result is similar to Downey

⁴² The explanatory power of the model in Column 2 is 44.3 percent and 84.04 percent of observations are correctly classified, which is not trivial. We also estimate the two models without industry fixed effects (not tabulated) and observe that the explanatory power in columns 1 and 2 are 11.87 and 41.13 percent respectively, further underscoring that the likelihood of component auditor use is mostly explained by the six complexity variables and not by company performance or by industry.

⁴³ The number of observations differ across the logit models because observations are automatically dropped when any independent variable perfectly predicts (success or failure) the dependent variable. As sensitivity for Table 4, to avoid the loss of observations due to perfect prediction, we substitute two-digit SIC industry fixed effects for one-digit SIC fixed effects and find consistent results.

and Bedard (2019b), which finds higher audit fees for engagements using component auditors, but in contrast to Dee et al. (2015) which finds that firms disclosing the use of component auditors had no difference in audit fees when compared to those that did not disclose. Overall, this analysis illustrates that audit firms that were previously required to disclose their work as component auditors (i.e., small non-U.S. firms with limited experience on U.S. audits) are fundamentally different from the broader sample of component auditors.

Extent of use. Consistent with Carson et al. (2019), in analyses testing the extent of component auditor use, we focus on a sample of engagements using component auditors.⁴⁴ Table 4 panel B, presents results examining the association between *COMPONENT-NUMBER* and audit outcomes. We continue to only observe significant associations for audit fees, where *COMPONENT-NUMBER* is associated with higher audit fees ($p < 0.01$), suggesting the coordination of more component auditors increases the complexity of the audit. The lack of audit quality and non-timely reporting findings are unexpected given that respondents to the Downey and Bedard (2019a) experiential questionnaire perceived that a greater number of component auditors increased coordination and communication issues.

In Table 4 panel C, we investigate the association between the percentage of audit hours conducted by component auditors, which proxies for the materiality of their work to the resulting audit, and audit outcomes. This panel indicates support for Hypothesis 1, showing that *COMPONENT-PCT* is significant and positively associated with *MISSTATEMENT*, *NON-TIMELY*, and *AUDIT-FEES* ($p < 0.01$; $p < 0.05$; $p < 0.01$, respectively).⁴⁵ These results are also

⁴⁴ Results are consistent, with one exception, if we conduct this analysis within the sample of issuer-years with significant multinational operations. In this sample, *COMPONENT-NUMBER* is marginally positively associated with *NON-TIMELY* ($p < 0.10$).

⁴⁵ To assuage concerns that our results are driven by outliers, we transform *COMPONENT-PCT* into indicators for quartiles, quintiles, and deciles and repeat our analyses. We observe similar results in all three specifications. We

economically significant. For Column 1 we calculate economic significance as the change in the likelihood of *MISSTATEMENT* when *COMPONENT-PCT* moves from the 25th percentile to the 75th percentile. Holding all other variables at their sample mean, we observe a 41.06 percent increase in the likelihood of *MISSTATEMENT*. Further, the likelihood of non-timely reporting (Column 3) is 32.88 percent higher and audit fees (Column 4) are 10.35 percent higher when moving from the 25th to 75th percentile of *COMPONENT-PCT*. In Column 2, we do not observe a significant association for *DISC-ACCRUALS*, which is in contrast to the conclusions of Carson et al. (2019) that component auditor involvement is associated with accruals-based measures of audit quality.⁴⁶ Combined with our misstatement finding, this suggests component auditor involvement is associated with audit coordination, rather than financial reporting quality, issues.

Overall, we conclude that results for the *amount* of work conducted by component auditors show support for H1. Taken together, results in panels B and C of Table 4 document that while the number of components is only informative for audit pricing, the percentage of audit hours conducted by component auditors better captures the extent of challenges faced in audits that involve diverse teams of auditors.

Characteristics of component auditors used

Geographic barriers. In H2, we predict that not all component auditors are created equal and that engagements facing greater geographic barriers can experience more pronounced adverse audit outcomes. This analysis is conducted within the sample of 1,790 engagements where at least

further log-transform *COMPONENT-PCT* and again, results remain consistent. Finally, we trim the sample at *COMPONENT-PCT* greater than the 95th percentile and continue to observe similar results.

⁴⁶ To compare with Carson et al. (2019), we also examine associations with the absolute value of total accruals. In untabulated results, we do not find significant positive associations for component use or extent of use. This is consistent with our findings for performance-matched discretionary accruals.

one component auditor is separately listed on Form AP, and thus its identity is publicly available.⁴⁷

Results in Table 5 show that *HIGH-GEO-DISTANCE* is associated with a higher likelihood of *MISSTATEMENT* ($p < 0.01$) and *NON-TIMELY* ($p < 0.01$), while *LOW-GEO-DISTANCE* is not. These results support H2 and suggest that using component auditors in countries with greater geographic barriers is associated with negative audit outcomes while using component auditors in countries with low geographic barriers is not.

Cultural/language barriers. H3 predicts that work conducted by component auditors facing greater cultural/language barriers can result in more pronounced adverse audit outcomes. Results in Table 6 panel A, show that *HIGH-CULTURAL-DISTANCE* is associated with a higher likelihood of *MISSTATEMENT* ($p < 0.01$) and *NON-TIMELY* ($p < 0.01$), while *LOW-CULTURAL-DISTANCE* is not. We also measure cultural barriers using *LOW-RULE-OF-LAW*, which in Table 6 panel B is also positively associated with *MISSTATEMENT* ($p < 0.05$) and *NON-TIMELY* ($p < 0.01$), while *HIGH-RULE-OF-LAW* is not. Both of these measures suggest cultural barriers are associated with difficulties in managing component auditor engagements. Table 6, panel C examines language barriers and shows that *LOW-ENGLISH* is associated with a higher likelihood of *MISSTATEMENT* ($p < 0.05$) and *NON-TIMELY* ($p < 0.05$), while *HIGH-ENGLISH* is not. Consistent with cultural barriers, this suggests work performed by component auditors facing greater language barriers is associated with the adverse audit outcomes observed, which is consistent with the predictions of recent literature (e.g., Barrett et al. 2005; Downey and Westermann 2019; Hanes 2013; Sunderland and Trompeter 2017). Combined, using three proxies of cultural/language barriers, we find support for H3.

⁴⁷ We confirm that the *COMPONENT-NUM* and *COMPONENT-PCT* associations observed in Table 4 Panels B and C hold within this more homogenous sample of firms that use at least one component auditor that is separately listed on Form AP.

Competence. In Table 7 we focus on variations in component auditor competence. Results in panel A show that *LOW-CPAS* is associated with a greater propensity of *MISSTATEMENT* and *NON-TIMELY* ($p < 0.05$; $p < 0.01$, respectively). *HIGH-CPAS* is not significantly associated with any of the dependent variables. Results for *NO-IND-EXPERIENCE* and *IND-EXPERIENCE* are displayed in panel B and mimic panel A, suggesting that a lack of requisite experience in the client's industry is associated with lower audit quality and a higher likelihood of non-timely reporting. Overall, using both measurements of competence, results confirm H4 and suggest that work performed by less competent component auditors is driving the association with adverse audit outcomes. We do not find work performed by competent component auditors to be significant.⁴⁸

Additional analysis

Combined role of competence and geographic, cultural, and language barriers

Findings of Table 7 suggest that using component auditors in countries with geographic and cultural/language barriers generates adverse audit outcomes. However, as documented in Table 3, component auditor use is determined by firm size, complexity, and the extent of foreign operations, as lead auditors must use a component auditor if they deem a foreign operation material. In this additional analysis, we explore whether using competent component auditors can remediate the challenges associated with operating in countries with geographic and cultural/language barriers.

⁴⁸ To examine whether lead auditor expertise can mitigate the adverse outcomes in audits that involve component auditors, we also composed a new measure of lead auditor office-level multinational expertise by counting the number of clients that use a component auditor in each office. We consider lead auditors to be a multinational expert if they are the top ranked in each MSA-year. We interact this variable with the test variables for H2 and H3 and do not find a significant association with misstatements and non-timely disclosures. Over longer periods, future research may consider how lead auditor expertise in managing component auditor engagements, and particularly those with significant work in countries with geographic and cultural/language barriers, develops.

In Table 8, we disaggregate the percentage of work performed by component auditors into four mutually exclusive groups, including those with and without each barrier and by competent and less competent component auditors. We determine this split based on whether the component auditor meets both of the competence criteria used to test H4 (i.e., employs above average number of CPAs and has experience as either a lead or component auditor on at least one additional client in the same industry).⁴⁹

Panel A displays associations between these four groups and *MISSTATEMENT*, while panel B displays associations with *NON-TIMELY*. We focus on these two dependent variables as they consistently reflect audit coordination issues throughout our hypotheses tests.⁵⁰ We observe that work performed by less competent component auditors in countries with high geographic distance, high cultural distance, low rule of law, and low English language proficiency is associated with a higher likelihood of *MISSTATEMENT* (panel A) and *NON-TIMELY* (panel B). Importantly, adverse outcomes are not observed in locations with these barriers when the auditor is more competent.

We conclude that while using component auditors in countries with certain country-specific barriers may be unavoidable once operations are deemed material, using more competent component auditors in these countries may avoid associations with adverse audit outcomes. These results also alleviate the concern that financial reporting issues inherent to complex multinational engagements, and specifically to those with operations in countries with geographic and

⁴⁹ We validate this competence measure by testing its association with the audit outcomes. Untabulated results show that the percentage of work conducted by less (more) competent component auditors is (not) positively associated with misstatements and non-timely disclosures.

⁵⁰ Characteristics tested in H2 and H3 do not significantly predict audit fees in either Table 5 or Table 6. Interestingly, we generally find that the percentage of audit hours conducted by competent component auditors with barriers is positively associated with audit fees. Other categories are not significant.

cultural/language barriers, drive our main results. If that were the case, we would continue to find significant associations when using competent component auditors in these countries.

Changes in component auditor use

Since our sample includes the first two years of Form AP reporting on component auditor use, we examine whether component auditor use is significantly different between 2017 and 2018. In both 2017 and 2018, 37.6 percent of issuers use component auditors. In 2017 (2018) component auditors, on average, conduct 17.9 (17.5) percent of total audit hours. These statistics are not significantly different, which suggests that according to sample averages, U.S. lead auditors do not significantly change their component auditor use during the first two years of Form AP disclosure. However, we observe that individual issuers do change their component auditor use between 2017 and 2018. 14.8 (38.7) percent of issuers that used component auditors in both 2017 and 2018 changed the percentage of component auditors they used by more than ten (five) percent. Specifically, 19.4 percent of engagements stopped using at least one separately listed component auditor in 2018 (i.e., use it in 2017 but not in 2018) and 17.2 percent started using at least one separately listed component auditor (i.e. use it in 2018 but not in 2017).

Motivated by this variation, we separately examine whether a decrease or increase in component auditor percentage affects the likelihood of non-timely reporting and changes in audit fees for the sample of issuer-years with component auditors.⁵¹ Specifically, we create variables for increases in the percentage of component auditor work between 2017 and 2018 (*PCT-INCREASE*) and decreases in the percentage of component auditor work between 2017 and 2018 (*PCT-DECREASE*).⁵² Results in Table 9 show that *PCT-INCREASE* is positively associated with *NON-TIMELY* ($p < 0.05$) and with Δ *AUDIT-FEES* ($p < 0.01$), while *PCT-DECREASE* is negatively associated with *NON-TIMELY* ($p < 0.10$). Since information on component auditor use is in its

⁵¹ Consistent with our main analyses, we cannot reliably observe misstatements for 2018 since not enough time has elapsed for their discovery and detection.

⁵² Control variables are also measured as a change.

initial stage of reporting and may not be generalizable to year-over-year changes over a longer window, these results should be interpreted with caution. Future research can revisit this approach when more data become available.

Economic barriers

To examine whether economic barriers generate audit issues, we split the percentage of work conducted by component auditors into those with low and high differences in GDP from the U.S. (Barrios et al. 2019).⁵³ In untabulated results, we find that both groups are associated with a higher likelihood of misstatements and non-timely disclosures and higher audit fees, which replicates our main finding for extent of work and suggests that economic barriers are not a relevant concern in managing component auditor engagements.

5. Conclusion

In 2017, the PCAOB's Form AP requirement introduced new data to auditing research and the capital markets. Specifically, lead auditors on U.S. issuers are now required to disclose the use, extent of use, and identity of component auditors, which the PCAOB refers to as "other accounting firms." Recent PCAOB inspections identify significant audit deficiencies relating to component auditor work and the lead auditors' oversight of this work (PCAOB 2016; Doty 2016; Harris 2016). Therefore, these new disclosures could be informative when assessing audit outcomes.

We examine factors associated with component auditor use, and whether this use is associated with audit outcomes. At the outset, we find that the likelihood of using a component auditor is associated with company structural properties, such as size, complexity, and foreign operations. Audit engagements that involve significant component auditor work are associated

⁵³ GDP data is obtained from the World Bank's World Development Indicators.

with a higher likelihood of misstatement and non-timely reporting and higher audit fees. This information was not available before the new disclosure requirement and can be informative to interested parties when assessing the audit.

The U.S. is the first country to require that the identity of individual component auditors be disclosed. After collecting information on identified component auditors and their locations, we find that the percentage of audit hours conducted by less competent component auditors and those with significant geographic and cultural/language barriers exhibit significant associations with adverse audit outcomes, while the percentage of audit hours conducted by more competent component auditors and those without significant barriers generally do not. However, since our results show that component auditor use is structural and driven by client operations, lead auditors likely cannot control the countries in which they use component auditors, and thus the geographic and cultural/language barriers faced. Therefore, we conduct further analysis and find that using competent component auditors in locations with significant barriers can mitigate adverse outcomes. Overall, these findings can contribute to both future researchers and practitioners (e.g., lead and component auditors, client management, investors) using the new Form AP data to make decisions. For instance, our results suggest that U.S. lead auditors would benefit from paying closer attention to potential barriers and competence issues and adjust their procedures accordingly, which may include better training of affiliate firms and greater involvement by U.S. audit staff, managers, and partners in supervision and coaching.

Although data made available by Form AP enable this study, limitations remain. For instance, firms are in the first two years of reporting component auditor information and their current behavior, including the use and management of component auditors, is under scrutiny and may not be generalizable to future periods. Our additional analysis provides initial evidence that

while, on average, component auditor use is consistent year-over-year there are certain firms that drastically change the extent of component auditor use. Research should further examine component auditor involvement over time, such as whether and how U.S. lead auditors choose to use component auditors and if there are consistent trends and implications of scoping specific component auditors in and out. We are also unable to determine the identity or individual percentage of audit hours conducted by component auditors who conduct less than five percent of total audit hours. Further, for those that do conduct more than five percent of audit hours, very little information is available other than their required reporting with the PCAOB, which we use to create competence measures. Since we largely do not have information on the identities of employees at these component auditors, we must assume that characteristics (e.g., experience in the industry and English language proficiency, etc.) of the component auditor and the country it operates in apply to the audit team. Lastly, we conclude that the characteristics of component auditors and the countries in which they operate are indicative of audit coordination issues. While these trends are evident, we are unable to test whether the U.S. lead auditor would have performed better since they are generally not allowed to conduct work in these countries.

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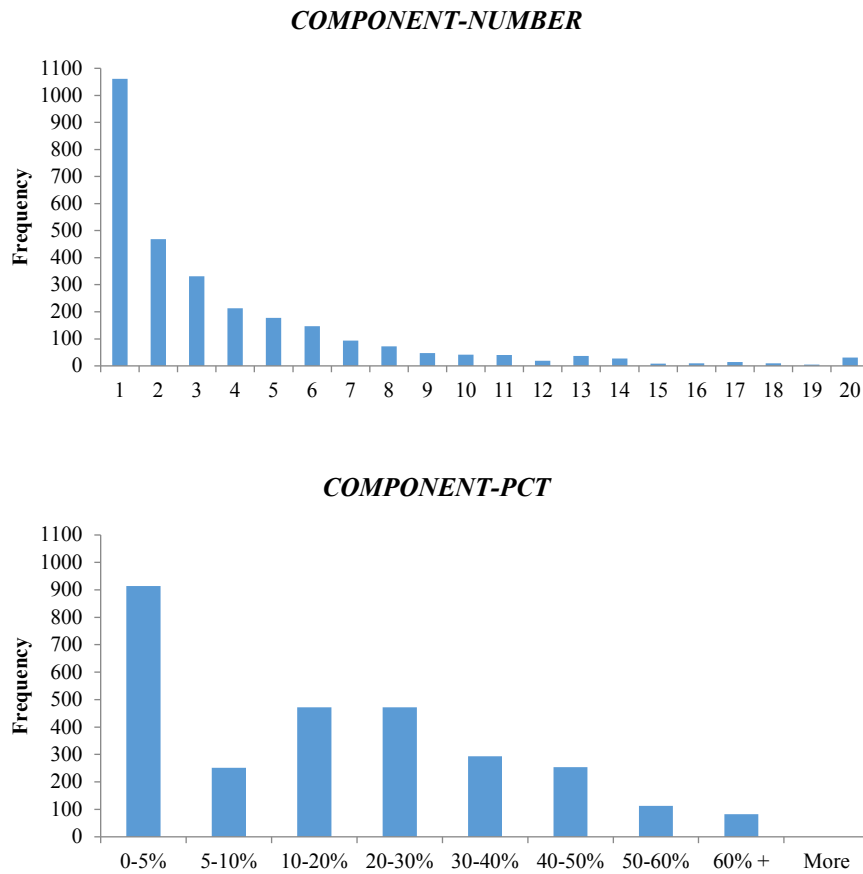
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Appendix: Variable definitions

<i>Test Variables</i>	Variable Definition
<i>COMPONENT-USE</i>	= 1 if the lead auditor indicates in Form AP that at least one component auditor participated on the engagement, zero otherwise [Form AP]
<i>COMPONENT-NUMBER</i>	The number of component auditors that participated on the audit [Form AP]
<i>COMPONENT-PCT</i>	The percentage of audit hours conducted by component auditors [Form AP]
<i>HIGH-GEO-DISTANCE</i>	The percentage of audit hours conducted by component auditors whose distance (in miles) from the U.S. lead auditor's office is above the sample median distance (in miles)
<i>LOW-GEO-DISTANCE</i>	The percentage of audit hours conducted by component auditors whose distance (in miles) from the U.S. lead auditor's office is below the sample median distance (in miles)
<i>HIGH-CULTURAL-DISTANCE</i>	The percentage of audit hours conducted by component auditors whose cultural distance (calculated following Tadesse and White (2010)) from the U.S. is above the sample 10 th percentile [World Values Survey 2014]
<i>LOW-CULTURAL-DISTANCE</i>	The percentage of audit hours conducted by component auditors whose cultural distance (calculated following Tadesse and White (2010)) from the U.S. is below the sample 10 th percentile [World Values Survey 2014]
<i>LOW-RULE-OF-LAW</i>	The percentage of audit hours conducted by component auditors whose rule of law is below the sample average [World Governance Institute]
<i>HIGH-RULE-OF-LAW</i>	The percentage of audit hours conducted by component auditors whose rule of law is above the sample average [World Governance Institute]
<i>LOW-ENGLISH</i>	The percentage of audit hours conducted by component auditors located in countries with a TOEFL exam score below the sample average [TOEFL]
<i>HIGH-ENGLISH</i>	The percentage of audit hours conducted by component auditors located in countries with a TOEFL exam score above the sample average [TOEFL]
<i>HIGH-CPAS</i>	The percentage of audit hours conducted by PCAOB registered component auditors with number of CPAs above the sample mean [Item 6.1 of PCAOB Form 2]
<i>LOW-CPAS</i>	The percentage of audit hours conducted by component auditors with number of CPAs below the sample mean [Item 6.1 of PCAOB Form 2]
<i>IND-EXPERIENCE</i>	The percentage of audit hours conducted by PCAOB registered component auditors with experience (as a lead or component auditor) in the client's industry
<i>NO-IND-EXPERIENCE</i>	The percentage of audit hours conducted by component auditors with no other experience (as a lead or component auditor) in the client's industry
<i>Dependent Variables</i>	
<i>MISSTATEMENT</i>	= 1 for issuer-years that misstated their financial reports, zero otherwise [Audit Analytics]
<i>DISC-ACCRUALS</i>	The absolute value of abnormal accruals derived from the difference between total and expected accruals estimated with the modified Jones model augmented with lag ROA (Kothari et al. 2005) [Compustat]
<i>NON-TIMELY</i>	= 1 for issuer-years that file a Form NT 10-K, zero otherwise [Audit Analytics]
<i>AUDIT-FEES</i>	The natural log of audit fees [Audit Analytics]
<i>Control Variables</i>	
<i>SIZE</i>	Natural log of total assets [Compustat]
<i>BUS-SEG</i>	The sum of reported business segments [Compustat Segment file]
<i>GEO-SEG</i>	The sum of reported geographic segments [Compustat Segment file]
<i>FOREIGN-OPERATIONS</i>	= 1 if the issuer-year has nonzero foreign pretax income, zero otherwise [Compustat]
<i>COUNTRY-MENTIONS-10K</i>	Natural log of the count of foreign country mentions in the 10-K

<i>FOREIGN-SALES</i>	Sum of sales reported in non-U.S. countries [Compustat Segment file]
<i>ARC</i>	The natural log of the total number of distinct monetary XBRL tags in Item 8 of the 10-K filings (Hoitash and Hoitash 2018) [http://www.xbrlresearch.com]
<i>NEGATIVE-INCOME</i>	= 1 if the company reported a net loss, zero otherwise [Compustat]
<i>LEVERAGE</i>	The ratio of total liabilities to total assets [Compustat]
<i>EXTERNAL-FINANCING</i>	An indicator variable that equals one if the year over year change in the number of shares outstanding is greater than 10%. [Compustat]
<i>EXTREME-GROWTH</i>	An indicator variable that equals one if the year-over-year industry adjusted sales growth falls in the top quintile, zero otherwise (Doyle et al. 2007) [Compustat]
<i>CAP-INTENSITY</i>	The ratio of net property plant and equipment to total assets [Compustat]
<i>INV-REC</i>	The ratio of inventory + accounts receivable to total assets [Compustat]
<i>ACCELERATED</i>	An indicator variable that equals one if the firm is an accelerated filer.
<i>BIG4</i>	= 1 for a Big 4 auditor, zero otherwise [Audit Analytics]
<i>INDUSTRY-EXPERT</i>	=1 if the audit office is responsible for more than 50 percent of the audit fees in a particular 2-digit SIC code and MSA, zero otherwise
<i>FIRM-AGE</i>	The natural log of number of years the firm has Compustat data [Compustat]
<i>PCT-INCREASE</i>	The positive change in the percentage of component auditor work between 2017 and 2018, zero if negative or no change
<i>PCT-DECREASE</i>	The negative change in the percentage of component auditor work between 2017 and 2018, zero if negative or no change
<i>LOW-GDP</i>	The percentage of audit hours conducted by component auditors whose GDP is below the sample average [World Bank]
<i>HIGH-GDP</i>	The percentage of audit hours conducted by component auditors whose GDP is above the sample average [World Bank]

Figure 1 Histograms of component auditor extent of use



This figure displays histograms of the number of component auditors used and the percent of hours they conduct within a sample of issuer-years that use at least one component auditor.

TABLE 1
Derivation of sample

U.S. public issuers with Form AP in PCAOB AuditorSearch with a fiscal-year-end between April 2017 and April 2019	15,410
Less: Divided responsibility in audit report	(84)
Less: Non-U.S. lead auditor	(2,158)
Less: U.S. component auditor used	(43)
Less: Missing or duplicate CIK	(839)
Less: Missing Compustat or Audit Analytics coverage	(3,989)
Potential companies in sample	8,297
Less: Missing data in Compustat or Audit Analytics for control variables	(715)
Companies in broad sample⁵⁴ (Table 3 – Determinants analysis)	7,582
Less: Insignificant foreign operations (i.e., no component auditor use, below median mentions of foreign countries in 10-K filing, and zero pre-tax foreign income)	(4,053)
Companies in significant multinational operations sample (Table 4, panel A – H1)	3,529
Companies in component auditor use sample (Tables 4, panels B and C – H1)	2,853
Less: Engagements not using at least one component auditor that individually contributes 5 percent of total audit hours	(1,063)
Companies in characteristics sample (Tables 5-7 – H2-H4)	1,790

⁵⁴ This table refers to the sample used in multivariate regressions where *AUDIT-FEES* is the dependent variable. Some observations are dropped in logistic regressions with *MISSTATEMENT* and *NON-TIMELY* as the dependent variables since observations for which control variables (e.g., industry or year fixed effects) perfectly predict the likelihood of misstatement or non-timely 10-K will be dropped.

TABLE 2

Descriptive statistics

Panel A: Component auditor test variables

	N	Mean	Med.	Std. Dev	25 th percentile	75 th percentile
Full sample (Determinants)						
<i>COMPONENT-USE</i>	7,582	0.376	0.000	0.484	0.000	1.000
Significant multinational operations sample (H1)						
<i>COMPONENT-USE</i>	3,529	0.808	1.000	0.394	1.000	1.000
Component auditor use sample (H1)						
<i>COMPONENT-NUMBER</i>	2,853	3.721	2.000	3.820	1.000	5.000
<i>COMPONENT-PCT</i>	2,853	17.712	15.000	16.194	2.500	27.500
Component auditor characteristics sample (H2-H4)						
<i>COMPONENT-PCT (separately listed)</i>	1,790	21.297	15.000	13.136	8.000	30.000
<i>HIGH-GEO-DISTANCE</i>	1,790	9.604	7.500	12.040	0.000	15.000
<i>LOW-GEO-DISTANCE</i>	1,790	11.693	7.500	11.826	0.000	15.000
<i>HIGH-CULTURAL-DISTANCE</i>	1,790	14.270	15.000	13.275	0.000	22.500
<i>LOW-CULTURAL-DISTANCE</i>	1,790	7.027	7.500	9.272	0.000	15.000
<i>LOW-RULE-OF-LAW</i>	1,790	7.474	0.000	11.932	0.000	15.000
<i>HIGH-RULE-OF-LAW</i>	1,790	13.823	15.000	11.340	7.500	22.500
<i>LOW-ENGLISH</i>	1,790	7.464	0.000	11.214	0.000	15.000
<i>HIGH-ENGLISH</i>	1,790	13.779	15.000	11.098	7.500	22.500
<i>HIGH-CPAS</i>	1,790	10.423	7.500	10.843	0.000	15.000
<i>LOW-CPAS</i>	1,790	10.875	7.500	11.971	0.000	15.000
<i>IND-EXPERIENCE</i>	1,790	10.184	7.500	11.270	0.000	15.000
<i>NO-IND-EXPERIENCE</i>	1,790	11.113	7.500	12.919	0.000	15.000

Panel B: Dependent and control variables

	COMPONENTS USED=1			COMPONENTS USED=0		
	N	Mean	Median	N	Mean	Median
<i>MISSTATEMENT</i>	1,470	0.082	0.000	2,438	0.076	0.000
<i>DISC-ACCRUALS</i>	2,423	0.056	0.034	3,063	0.098	0.050
<i>NON-TIMELY</i>	2,853	0.044	0.000	4,729	0.062	0.000
<i>AUDIT-FEES</i>	2,853	14.730	14.778	4,729	13.357	13.425
<i>SIZE</i>	2,853	7.579	7.650	4,729	6.202	6.445
<i>BUS-SEG</i>	2,853	2.320	2.000	4,729	1.402	1.000
<i>GEO-SEG</i>	2,853	3.203	3.000	4,729	1.022	1.000
<i>FOREIGN-OPERATIONS</i>	2,853	0.822	1.000	4,729	0.247	0.000
<i>COUNTRY-MENTIONS-10K</i>	2,853	4.461	4.852	4,729	2.646	2.996
<i>FOREIGN-SALES</i>	2,853	5.301	6.021	4,729	0.910	0.000
<i>ARC</i>	2,853	5.932	5.943	4,729	5.729	5.724
<i>NEGATIVE-INCOME</i>	2,853	0.298	0.000	4,729	0.388	0.000
<i>LEVERAGE</i>	2,853	0.298	0.269	4,729	0.268	0.155
<i>EXTERNAL-FINANCING</i>	2,853	0.118	0.000	4,729	0.219	0.000
<i>EXTREME-GROWTH</i>	2,853	0.137	0.000	4,729	0.206	0.000
<i>CAP-INTENSITY</i>	2,853	0.206	0.125	4,729	0.207	0.062
<i>INV-REC</i>	2,853	0.250	0.222	4,729	0.295	0.188
<i>ACCELERATED</i>	2,853	0.855	1.000	4,729	0.604	1.000
<i>BIG4</i>	2,853	0.807	1.000	4,729	0.506	1.000
<i>INDUSTRY-EXPERT</i>	2,853	0.451	0.000	4,729	0.381	0.000
<i>FIRM-AGE</i>	2,853	3.089	3.178	4,729	2.727	2.890

TABLE 2 (continued)

Panel C: Unique component auditor characteristics

<i>N</i> = 333	= 0	= 1	Mean	Med.	Std. Dev.	25 th percentile	75 th percentile
<i>Number of component auditor engagements</i>			4.465	2.000	8.472	1.000	4.000
<i>Member of an affiliated network</i>	24	309	0.928	1.000	0.259	1.000	1.000
<i>High geographic distance</i>	153	180	0.541	1.000	0.499	0.000	1.000
<i>High cultural distance</i>	79	254	0.763	1.000	0.426	1.000	1.000
<i>Low rule of law</i>	185	148	0.444	0.000	0.498	0.000	1.000
<i>Low English language proficiency</i>	204	129	0.387	0.000	0.488	0.000	1.000
<i>High CPAs</i>	271	62	0.186	0.000	0.390	0.000	0.000
<i>Industry experience</i>	273	60	0.180	0.000	0.385	0.000	0.000
<i>Low GDP</i>	167	166	0.498	0.000	0.501	0.000	1.000

Panel D: Correlation matrix of unique component auditor characteristics

	<i>HIGH- GEO- DISTANCE</i>	<i>HIGH- CULUTRAL- DISTANCE</i>	<i>LOW- RULE-OF- LAW</i>	<i>LOW- ENGLISH</i>	<i>HIGH- CPAS</i>	<i>IND- EXPERI ENCE</i>
<i>HIGH-GEO-DISTANCE</i>	1					
<i>HIGH-CULUTRAL-DISTANCE</i>	0.038	1				
<i>LOW-RULE-OF-LAW</i>	0.243***	-0.013	1			
<i>LOW-ENGLISH</i>	0.201***	0.371***	0.294***	1		
<i>HIGH-CPAS</i>	0.162**	0.085	0.054	0.063	1	
<i>IND-EXPERIENCE</i>	-0.117*	-0.032	-0.058	-0.004	0.197***	1

This table reports descriptive statistics of the component auditor test variables in panel A, dependent and control variables in panel B, and unique component auditor characteristics in panel C. Variables are defined in the Appendix. In panels B and D, two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 3
Determinants of component auditor use

	(1) <i>COMPONENT-USE</i>	(2) <i>COMPONENT-USE</i>
<i>SIZE</i>	0.499*** (21.31)	0.082** (2.52)
<i>NEGATIVE-INCOME</i>	0.156** (2.12)	-0.001 (-0.01)
<i>LEVERAGE</i>	0.164 (1.44)	-0.097 (-0.73)
<i>EXTERNAL-FINANCING</i>	-0.191** (-2.21)	-0.066 (-0.68)
<i>EXTREME-GROWTH</i>	-0.223*** (-2.67)	-0.090 (-0.95)
<i>CAP-INTENSITY</i>	-0.731*** (-3.89)	-0.242 (-1.12)
<i>INV-REC</i>	1.041*** (5.08)	0.377 (1.62)
<i>ACCELERATED</i>	0.231** (2.55)	0.013 (0.13)
<i>BIG4</i>	0.210** (2.44)	0.091 (0.93)
<i>INDUSTRY-EXPERT</i>	-0.304*** (-4.48)	-0.270*** (-3.41)
<i>FIRM-AGE</i>	0.167*** (3.64)	0.010 (0.19)
<i>BUS-SEG</i>		0.047 (1.38)
<i>GEO-SEG</i>		0.094*** (3.71)
<i>FOREIGN-OPERATIONS</i>		0.924*** (10.66)
<i>COUNTRY-MENTIONS-10K</i>		0.154*** (6.98)
<i>FOREIGN-SALES</i>		0.288*** (15.21)
<i>ARC</i>		0.762*** (4.99)
<i>Industry and year fixed effects</i>	Included	Included
<i>Constant</i>	-7.304*** (-16.46)	-10.251*** (-11.64)
<i>Observations</i>	7,570	7,570
<i>Pseudo R²</i>	0.301	0.443

This table reports results of regressions of client characteristics on *COMPONENT-USE*. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by *** and ** for 1% and 5%, respectively.

TABLE 4

Panel A: H1 - Component auditor use and audit outcomes

	(1) <i>MISSTATEMENT</i>	(2) <i>DISC-ACCRUALS</i>	(3) <i>NON-TIMELY</i>	(4) <i>AUDIT-FEES</i>
<i>COMPONENT-USE</i>	-0.049 (-0.17)	-0.004 (-0.99)	0.425 (1.44)	0.121*** (5.53)
<i>SIZE</i>	-0.056 (-0.61)	-0.007*** (-5.11)	-0.431*** (-4.44)	0.358*** (48.60)
<i>BUS-SEG</i>	-0.029 (-0.35)	0.000 (0.05)	-0.078 (-0.84)	0.034*** (5.07)
<i>GEO-SEG</i>	0.088* (1.78)	-0.001 (-1.40)	0.026 (0.48)	-0.002 (-0.36)
<i>FOREIGN-OPERATIONS</i>	-0.539* (-1.65)	-0.006 (-1.22)	-1.061*** (-3.89)	0.058** (2.20)
<i>COUNTRY-MENTIONS-10K</i>	0.006 (0.08)	-0.001 (-0.99)	0.063 (0.99)	0.014** (2.28)
<i>FOREIGN-SALES</i>	-0.001 (-0.02)	0.001 (1.31)	0.005 (0.10)	0.043*** (10.25)
<i>ARC</i>	1.724*** (4.04)	0.007 (1.19)	1.830*** (4.21)	0.504*** (14.60)
<i>NEGATIVE-INCOME</i>	-0.040 (-0.17)	0.014*** (4.18)	0.587*** (2.69)	0.151*** (8.11)
<i>LEVERAGE</i>	-0.780* (-1.74)	-0.009 (-1.49)	1.177*** (3.79)	-0.037 (-1.13)
<i>EXTERNAL-FINANCING</i>	-0.323 (-1.01)	0.027*** (6.32)	-0.067 (-0.26)	0.034 (1.41)
<i>EXTREME-GROWTH</i>	-0.222 (-0.73)	0.018*** (4.60)	0.212 (0.85)	0.010 (0.47)
<i>CAP-INTENSITY</i>	-0.834 (-1.18)	-0.011 (-1.24)	-1.292** (-2.00)	-0.422*** (-8.59)
<i>INV-REC</i>	1.331** (2.01)	-0.045*** (-4.28)	0.452 (0.74)	0.216*** (3.84)
<i>ACCELERATED</i>	-0.457 (-1.51)	-0.022*** (-4.80)	0.176 (0.64)	0.169*** (6.59)
<i>BIG4</i>	-0.389 (-1.36)	-0.003 (-0.83)	-0.577** (-2.26)	0.453*** (19.17)
<i>INDUSTRY-EXPERT</i>	0.043 (0.20)	0.004 (1.47)	-0.054 (-0.24)	0.020 (1.20)
<i>FIRM-AGE</i>	-0.153 (-1.05)	-0.006*** (-2.58)	-0.037 (-0.25)	-0.043*** (-3.58)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-10.560*** (-4.47)	0.113*** (3.29)	-12.332*** (-4.73)	8.026*** (41.94)
<i>Observations</i>	1,665	3,002	2,991	3,529
<i>Pseudo/Adjusted R²</i>	0.100	0.191	0.174	0.863

TABLE 4 (continued)

Panel B: H1 - Number of component auditors involved in the audit and audit outcomes

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>COMPONENT-NUMBER</i>	0.020 (0.64)	0.000 (1.12)	0.041 (1.07)	0.045*** (17.00)
<i>SIZE</i>	-0.085 (-0.82)	-0.005*** (-3.71)	-0.441*** (-4.18)	0.345*** (43.87)
<i>BUS-SEG</i>	-0.033 (-0.37)	-0.000 (-0.41)	-0.090 (-0.93)	0.029*** (4.23)
<i>GEO-SEG</i>	0.097* (1.87)	-0.001** (-1.97)	0.044 (0.80)	-0.003 (-0.62)
<i>FOREIGN-OPERATIONS</i>	-0.621* (-1.83)	-0.006 (-1.38)	-1.033*** (-3.66)	0.074*** (2.85)
<i>COUNTRY-MENTIONS-10K</i>	-0.014 (-0.20)	-0.002 (-1.52)	0.058 (0.89)	0.010 (1.62)
<i>FOREIGN-SALES</i>	0.005 (0.08)	0.001 (1.54)	-0.035 (-0.57)	0.025*** (5.49)
<i>ARC</i>	1.715*** (3.61)	-0.004 (-0.68)	1.638*** (3.37)	0.438*** (12.06)
<i>NEGATIVE-INCOME</i>	0.070 (0.28)	0.017*** (5.08)	0.590** (2.53)	0.144*** (7.33)
<i>LEVERAGE</i>	-0.523 (-1.07)	-0.014** (-2.36)	1.321*** (3.88)	-0.007 (-0.20)
<i>EXTERNAL-FINANCING</i>	-0.275 (-0.78)	0.022*** (5.00)	0.101 (0.37)	0.040 (1.52)
<i>EXTREME-GROWTH</i>	-0.187 (-0.56)	0.023*** (5.56)	0.208 (0.78)	0.000 (0.00)
<i>CAP-INTENSITY</i>	-0.551 (-0.70)	-0.026*** (-2.76)	-1.129 (-1.63)	-0.356*** (-6.65)
<i>INV-REC</i>	1.384* (1.83)	-0.059*** (-5.41)	0.171 (0.25)	0.195*** (3.25)
<i>ACCELERATED</i>	-0.354 (-1.01)	-0.019*** (-3.77)	0.263 (0.84)	0.214*** (7.41)
<i>BIG4</i>	-0.314 (-0.95)	-0.002 (-0.52)	-0.326 (-1.15)	0.426*** (16.37)
<i>INDUSTRY-EXPERT</i>	0.132 (0.56)	0.004 (1.18)	-0.053 (-0.23)	0.017 (0.94)
<i>FIRM-AGE</i>	-0.192 (-1.19)	-0.006*** (-2.77)	0.043 (0.27)	-0.051*** (-3.95)
<i>Industry and year fixed effects</i>	Yes	Yes	Yes	Yes
<i>Constant</i>	-10.427*** (-3.83)	0.147*** (3.80)	-10.334*** (-4.00)	8.626*** (38.81)
<i>Observations</i>	1,275	2,423	2,324	2,853
<i>Pseudo/Adjusted R²</i>	0.101	0.202	0.169	0.875

TABLE 4 (continued)

Panel C: H1 - Percentage of audit hours conducted by component auditors and audit outcomes

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>COMPONENT-PCT</i>	0.018*** (2.60)	0.000 (0.05)	0.017** (2.41)	0.004*** (6.95)
<i>SIZE</i>	-0.061 (-0.59)	-0.005*** (-3.56)	-0.405*** (-3.84)	0.371*** (45.89)
<i>BUS-SEG</i>	-0.021 (-0.23)	-0.000 (-0.37)	-0.090 (-0.92)	0.033*** (4.55)
<i>GEO-SEG</i>	0.087* (1.66)	-0.001* (-1.91)	0.042 (0.77)	-0.000 (-0.05)
<i>FOREIGN-OPERATIONS</i>	-0.565* (-1.66)	-0.007 (-1.44)	-1.009*** (-3.57)	0.055** (2.04)
<i>COUNTRY-MENTIONS-10K</i>	-0.046 (-0.63)	-0.001 (-1.47)	0.036 (0.56)	0.009 (1.42)
<i>FOREIGN-SALES</i>	-0.040 (-0.64)	0.002* (1.74)	-0.068 (-1.09)	0.033*** (6.77)
<i>ARC</i>	1.694*** (3.55)	-0.004 (-0.64)	1.633*** (3.35)	0.442*** (11.68)
<i>NEGATIVE-INCOME</i>	0.069 (0.27)	0.017*** (5.08)	0.617*** (2.64)	0.148*** (7.22)
<i>LEVERAGE</i>	-0.466 (-0.96)	-0.014** (-2.34)	1.345*** (3.93)	0.012 (0.32)
<i>EXTERNAL-FINANCING</i>	-0.298 (-0.83)	0.023*** (5.02)	0.122 (0.44)	0.043 (1.57)
<i>EXTREME-GROWTH</i>	-0.196 (-0.59)	0.022*** (5.55)	0.186 (0.69)	-0.001 (-0.06)
<i>CAP-INTENSITY</i>	-0.774 (-0.97)	-0.027*** (-2.83)	-1.336* (-1.91)	-0.449*** (-8.05)
<i>INV-REC</i>	1.230 (1.62)	-0.058*** (-5.35)	0.128 (0.19)	0.194*** (3.08)
<i>ACCELERATED</i>	-0.278 (-0.79)	-0.019*** (-3.89)	0.265 (0.85)	0.184*** (6.11)
<i>BIG4</i>	-0.340 (-1.03)	-0.002 (-0.55)	-0.330 (-1.15)	0.416*** (15.33)
<i>INDUSTRY-EXPERT</i>	0.117 (0.50)	0.004 (1.24)	-0.055 (-0.24)	0.026 (1.41)
<i>FIRM-AGE</i>	-0.193 (-1.19)	-0.006*** (-2.68)	0.066 (0.42)	-0.033** (-2.48)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-10.143*** (-3.75)	0.145*** (3.73)	-10.328*** (-4.00)	8.521*** (36.77)
<i>Observations</i>	1,275	2,423	2,324	2,853
<i>Pseudo/Adjusted R²</i>	0.109	0.201	0.173	0.864

This table tests H1 and reports results of regressions of component auditor use/extent of use on several dependent variables. Panel A reports *COMPONENT-USE* as the test variable within the sample of firms with significant multinational operations. Panel B reports *COMPONENT-NUMBER* and Panel C reports *COMPONENT-PCT* as test variables within a sample of firms that use at least one component auditor. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 5

H2 - Percentage of audit hours conducted by component auditors with geographic barriers

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>HIGH-GEO-DISTANCE</i>	0.030*** (2.70)	0.000 (1.04)	0.033*** (2.81)	0.001 (0.60)
<i>LOW-GEO-DISTANCE</i>	0.016 (1.38)	0.000 (0.09)	0.019 (1.37)	0.001 (0.52)
<i>SIZE</i>	-0.218 (-1.46)	-0.007*** (-3.88)	-0.430*** (-2.70)	0.347*** (31.23)
<i>BUS-SEG</i>	0.033 (0.31)	0.001 (0.53)	-0.106 (-0.81)	0.021** (2.36)
<i>GEO-SEG</i>	0.045 (0.70)	-0.001 (-1.49)	0.054 (0.77)	-0.002 (-0.43)
<i>FOREIGN-OPERATIONS</i>	-0.557 (-1.22)	-0.006 (-0.83)	-1.087*** (-2.63)	0.069* (1.71)
<i>COUNTRY-MENTIONS-10K</i>	-0.019 (-0.22)	-0.002* (-1.69)	0.022 (0.25)	0.007 (0.90)
<i>FOREIGN-SALES</i>	-0.012 (-0.12)	0.003** (2.26)	-0.061 (-0.60)	0.061*** (8.33)
<i>ARC</i>	1.868*** (2.97)	-0.002 (-0.26)	1.031 (1.51)	0.470*** (9.54)
<i>NEGATIVE-INCOME</i>	0.194 (0.63)	0.018*** (4.50)	0.449 (1.44)	0.127*** (4.83)
<i>LEVERAGE</i>	0.123 (0.22)	-0.010 (-1.36)	2.112*** (4.41)	0.051 (1.02)
<i>EXTERNAL-FINANCING</i>	-0.187 (-0.41)	0.013** (2.41)	0.025 (0.06)	0.040 (1.08)
<i>EXTREME-GROWTH</i>	-0.202 (-0.49)	0.031*** (6.23)	0.117 (0.31)	-0.023 (-0.70)
<i>CAP-INTENSITY</i>	-1.359 (-1.30)	-0.027** (-2.30)	-3.113*** (-2.85)	-0.507*** (-6.77)
<i>INV-REC</i>	0.033 (0.03)	-0.060*** (-4.58)	0.142 (0.15)	0.329*** (3.92)
<i>ACCELERATED</i>	-0.527 (-1.21)	-0.016*** (-2.66)	0.310 (0.71)	0.212*** (5.31)
<i>BIG4</i>	0.042 (0.10)	-0.005 (-0.90)	0.176 (0.42)	0.416*** (11.68)
<i>INDUSTRY-EXPERT</i>	0.076 (0.27)	0.004 (1.17)	-0.465 (-1.44)	0.049** (2.14)
<i>FIRM-AGE</i>	-0.110 (-0.57)	-0.003 (-1.00)	-0.031 (-0.15)	-0.019 (-1.13)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.643*** (-2.77)	0.112** (2.34)	-5.854 (-1.60)	8.530*** (28.26)
<i>Observations</i>	800	1,529	1,314	1,790
<i>Pseudo/Adjusted R²</i>	0.120	0.175	0.204	0.865

This table tests H2 and reports results of regressions of variables that capture work conducted by component auditors with more and less geographic barriers on several dependent variables. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 6

Panel A: H3 - Cultural/language barriers – Cultural distance

	(1) <i>MISSTATEMENT</i>	(2) <i>DISC-ACCRUALS</i>	(3) <i>NON-TIMELY</i>	(4) <i>AUDIT-FEES</i>
<i>HIGH-CULTURAL-DISTANCE</i>	0.027*** (2.66)	0.000 (0.72)	0.027** (2.52)	0.000 (0.28)
<i>LOW-CULTURAL-DISTANCE</i>	0.014 (0.91)	-0.000 (-0.22)	0.009 (0.54)	0.001 (0.70)
<i>SIZE</i>	-0.201 (-1.34)	-0.008*** (-3.99)	-0.443*** (-2.76)	0.344*** (30.85)
<i>BUS-SEG</i>	0.035 (0.33)	0.001 (0.55)	-0.107 (-0.81)	0.021** (2.33)
<i>GEO-SEG</i>	0.053 (0.84)	-0.001 (-1.43)	0.064 (0.91)	-0.002 (-0.43)
<i>FOREIGN-OPERATIONS</i>	-0.605 (-1.33)	-0.007 (-1.11)	-1.174*** (-2.88)	0.061 (1.52)
<i>COUNTRY-MENTIONS-10K</i>	-0.023 (-0.26)	-0.002* (-1.80)	0.016 (0.18)	0.006 (0.77)
<i>FOREIGN-SALES</i>	-0.013 (-0.13)	0.003** (2.46)	-0.039 (-0.37)	0.063*** (8.52)
<i>ARC</i>	1.779*** (2.83)	-0.004 (-0.48)	0.814 (1.20)	0.464*** (9.45)
<i>NEGATIVE-INCOME</i>	0.203 (0.66)	0.018*** (4.52)	0.476 (1.53)	0.128*** (4.86)
<i>LEVERAGE</i>	0.066 (0.12)	-0.011 (-1.45)	2.024*** (4.23)	0.045 (0.90)
<i>EXTERNAL-FINANCING</i>	-0.227 (-0.50)	0.014** (2.56)	0.104 (0.27)	0.046 (1.25)
<i>EXTREME-GROWTH</i>	-0.205 (-0.50)	0.030*** (6.07)	0.070 (0.19)	-0.027 (-0.83)
<i>CAP-INTENSITY</i>	-1.483 (-1.42)	-0.024** (-2.05)	-2.672** (-2.57)	-0.483*** (-6.44)
<i>INV-REC</i>	0.073 (0.07)	-0.063*** (-4.86)	-0.028 (-0.03)	0.308*** (3.67)
<i>ACCELERATED</i>	-0.575 (-1.32)	-0.017*** (-2.71)	0.329 (0.76)	0.210*** (5.26)
<i>BIG4</i>	0.021 (0.05)	-0.005 (-0.92)	0.175 (0.42)	0.415*** (11.64)
<i>INDUSTRY-EXPERT</i>	0.063 (0.22)	0.005 (1.30)	-0.395 (-1.25)	0.053** (2.29)
<i>FIRM-AGE</i>	-0.105 (-0.54)	-0.003 (-1.10)	-0.053 (-0.25)	-0.020 (-1.23)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.856*** (-2.97)	0.125*** (2.61)	-4.501 (-1.25)	8.581*** (28.55)
<i>Observations</i>	801	1,530	1,315	1,791
<i>Pseudo/Adjusted R²</i>	0.118	0.181	0.203	0.864

TABLE 6 (continued)

Panel B: H3 - Cultural/language barriers – Rule of law

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>LOW-RULE-OF-LAW</i>	0.027** (2.49)	0.000 (1.01)	0.031*** (2.78)	0.001 (1.31)
<i>HIGH-RULE-OF-LAW</i>	0.019 (1.63)	0.000 (0.06)	0.020 (1.46)	-0.000 (-0.22)
<i>SIZE</i>	-0.221 (-1.47)	-0.007*** (-3.86)	-0.439*** (-2.75)	0.347*** (31.26)
<i>BUS-SEG</i>	0.034 (0.32)	0.001 (0.52)	-0.105 (-0.81)	0.021** (2.34)
<i>GEO-SEG</i>	0.053 (0.84)	-0.001 (-1.40)	0.062 (0.88)	-0.002 (-0.39)
<i>FOREIGN-OPERATIONS</i>	-0.620 (-1.37)	-0.006 (-0.87)	-1.111*** (-2.71)	0.070* (1.74)
<i>COUNTRY-MENTIONS-10K</i>	-0.025 (-0.28)	-0.002* (-1.72)	0.016 (0.19)	0.007 (0.91)
<i>FOREIGN-SALES</i>	-0.004 (-0.04)	0.003** (2.27)	-0.053 (-0.52)	0.061*** (8.32)
<i>ARC</i>	1.828*** (2.91)	-0.003 (-0.34)	0.990 (1.45)	0.470*** (9.61)
<i>NEGATIVE-INCOME</i>	0.186 (0.61)	0.018*** (4.54)	0.465 (1.49)	0.129*** (4.89)
<i>LEVERAGE</i>	0.066 (0.12)	-0.011 (-1.40)	2.077*** (4.33)	0.048 (0.97)
<i>EXTERNAL-FINANCING</i>	-0.223 (-0.49)	0.013** (2.37)	0.002 (0.00)	0.039 (1.06)
<i>EXTREME-GROWTH</i>	-0.203 (-0.49)	0.031*** (6.27)	0.132 (0.35)	-0.022 (-0.68)
<i>CAP-INTENSITY</i>	-1.321 (-1.26)	-0.026** (-2.25)	-3.103*** (-2.83)	-0.508*** (-6.81)
<i>INV-REC</i>	-0.064 (-0.06)	-0.060*** (-4.61)	0.035 (0.04)	0.323*** (3.86)
<i>ACCELERATED</i>	-0.544 (-1.24)	-0.016*** (-2.62)	0.341 (0.78)	0.217*** (5.43)
<i>BIG4</i>	0.012 (0.03)	-0.005 (-0.90)	0.164 (0.39)	0.417*** (11.77)
<i>INDUSTRY-EXPERT</i>	0.078 (0.28)	0.004 (1.22)	-0.455 (-1.42)	0.050** (2.18)
<i>FIRM-AGE</i>	-0.116 (-0.60)	-0.002 (-0.99)	-0.030 (-0.14)	-0.017 (-1.06)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.253*** (-2.68)	0.115** (2.41)	-5.525 (-1.52)	8.519*** (28.41)
<i>Observations</i>	800	1,529	1,314	1,790
<i>Pseudo/Adjusted R²</i>	0.119	0.175	0.203	0.865

TABLE 6 (continued)

Panel C: H3 - Cultural/language barriers – English language proficiency

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>LOW-ENGLISH</i>	0.027** (2.38)	0.000 (1.23)	0.030** (2.54)	0.001 (0.70)
<i>HIGH-ENGLISH</i>	0.018 (1.53)	-0.000 (-0.68)	0.012 (0.87)	-0.000 (-0.15)
<i>SIZE</i>	-0.210 (-1.40)	-0.007*** (-3.95)	-0.441*** (-2.75)	0.345*** (30.98)
<i>BUS-SEG</i>	0.036 (0.34)	0.001 (0.60)	-0.108 (-0.82)	0.021** (2.38)
<i>GEO-SEG</i>	0.056 (0.88)	-0.001 (-1.39)	0.066 (0.94)	-0.002 (-0.37)
<i>FOREIGN-OPERATIONS</i>	-0.605 (-1.33)	-0.007 (-1.11)	-1.140*** (-2.80)	0.062 (1.53)
<i>COUNTRY-MENTIONS-10K</i>	-0.018 (-0.20)	-0.002* (-1.78)	0.020 (0.23)	0.007 (0.80)
<i>FOREIGN-SALES</i>	-0.011 (-0.11)	0.003** (2.39)	-0.044 (-0.42)	0.062*** (8.45)
<i>ARC</i>	1.840*** (2.93)	-0.003 (-0.41)	0.889 (1.31)	0.464*** (9.45)
<i>NEGATIVE-INCOME</i>	0.208 (0.67)	0.018*** (4.61)	0.492 (1.58)	0.129*** (4.89)
<i>LEVERAGE</i>	0.086 (0.15)	-0.011 (-1.44)	2.008*** (4.19)	0.045 (0.90)
<i>EXTERNAL-FINANCING</i>	-0.237 (-0.52)	0.014** (2.55)	0.093 (0.24)	0.046 (1.25)
<i>EXTREME-GROWTH</i>	-0.199 (-0.48)	0.030*** (6.09)	0.081 (0.22)	-0.028 (-0.85)
<i>CAP-INTENSITY</i>	-1.391 (-1.34)	-0.024** (-2.07)	-2.605** (-2.50)	-0.490*** (-6.54)
<i>INV-REC</i>	0.004 (0.00)	-0.064*** (-4.90)	-0.107 (-0.11)	0.306*** (3.65)
<i>ACCELERATED</i>	-0.550 (-1.26)	-0.016** (-2.56)	0.354 (0.81)	0.213*** (5.31)
<i>BIG4</i>	0.010 (0.02)	-0.005 (-0.89)	0.169 (0.41)	0.417*** (11.71)
<i>INDUSTRY-EXPERT</i>	0.059 (0.21)	0.004 (1.25)	-0.404 (-1.28)	0.052** (2.26)
<i>FIRM-AGE</i>	-0.115 (-0.59)	-0.003 (-1.07)	-0.044 (-0.21)	-0.020 (-1.21)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.421*** (-2.72)	0.121** (2.53)	-5.077 (-1.40)	8.576*** (28.50)
<i>Observations</i>	801	1,530	1,315	1,791
<i>Pseudo/Adjusted R²</i>	0.117	0.182	0.202	0.864

This table tests H3 and reports results of regressions of several sets of variables that capture work conducted by component auditors with more and less cultural/language barriers on several dependent variables, with Panel A examining cultural distance, Panel B rule of law, and Panel C English language proficiency. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 7

Panel A: H4 – Competence - Number of CPAs

	(1) <i>MISSTATEMENT</i>	(2) <i>DISC-ACCRUALS</i>	(3) <i>NON-TIMELY</i>	(4) <i>AUDIT-FEES</i>
<i>HIGH-CPAS</i>	0.018 (1.36)	0.000 (0.23)	0.014 (0.99)	0.001 (0.65)
<i>LOW-CPAS</i>	0.027** (2.51)	0.000 (0.80)	0.033*** (2.92)	0.000 (0.46)
<i>SIZE</i>	-0.219 (-1.46)	-0.007*** (-3.88)	-0.454*** (-2.84)	0.346*** (31.22)
<i>BUS-SEG</i>	0.034 (0.32)	0.001 (0.53)	-0.102 (-0.78)	0.021** (2.36)
<i>GEO-SEG</i>	0.052 (0.83)	-0.001 (-1.41)	0.058 (0.83)	-0.002 (-0.43)
<i>FOREIGN-OPERATIONS</i>	-0.610 (-1.35)	-0.006 (-0.87)	-1.102*** (-2.68)	0.069* (1.71)
<i>COUNTRY-MENTIONS-10K</i>	-0.023 (-0.25)	-0.002* (-1.70)	0.030 (0.34)	0.007 (0.90)
<i>FOREIGN-SALES</i>	-0.003 (-0.02)	0.003** (2.32)	-0.052 (-0.50)	0.061*** (8.37)
<i>ARC</i>	1.830*** (2.91)	-0.002 (-0.32)	1.032 (1.51)	0.469*** (9.56)
<i>NEGATIVE-INCOME</i>	0.165 (0.53)	0.018*** (4.52)	0.428 (1.37)	0.127*** (4.83)
<i>LEVERAGE</i>	0.059 (0.10)	-0.010 (-1.39)	2.082*** (4.35)	0.051 (1.02)
<i>EXTERNAL-FINANCING</i>	-0.217 (-0.48)	0.013** (2.40)	-0.022 (-0.06)	0.040 (1.08)
<i>EXTREME-GROWTH</i>	-0.201 (-0.49)	0.031*** (6.26)	0.173 (0.47)	-0.023 (-0.70)
<i>CAP-INTENSITY</i>	-1.334 (-1.28)	-0.026** (-2.25)	-3.112*** (-2.85)	-0.506*** (-6.78)
<i>INV-REC</i>	-0.057 (-0.06)	-0.060*** (-4.58)	0.085 (0.09)	0.329*** (3.92)
<i>ACCELERATED</i>	-0.597 (-1.37)	-0.017*** (-2.73)	0.318 (0.73)	0.211*** (5.31)
<i>BIG4</i>	0.055 (0.13)	-0.004 (-0.82)	0.295 (0.68)	0.414*** (11.46)
<i>INDUSTRY-EXPERT</i>	0.090 (0.32)	0.004 (1.22)	-0.443 (-1.38)	0.049** (2.13)
<i>FIRM-AGE</i>	-0.112 (-0.58)	-0.003 (-1.06)	-0.072 (-0.34)	-0.019 (-1.14)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.389*** (-2.71)	0.114** (2.39)	-5.691 (-1.56)	8.540*** (28.32)
<i>Observations</i>	800	1,529	1,314	1,790
<i>Pseudo/Adjusted R²</i>	0.119	0.175	0.205	0.865

TABLE 7 (continued)

Panel B: H4 - Competence - Industry experience

	(1)	(2)	(3)	(4)
	<i>MISSTATEMENT</i>	<i>DISC-ACCRUALS</i>	<i>NON-TIMELY</i>	<i>AUDIT-FEES</i>
<i>IND-EXPERIENCE</i>	0.019 (1.48)	0.000 (0.46)	0.015 (1.01)	0.002 (1.52)
<i>NO-IND-EXPERIENCE</i>	0.026** (2.42)	0.000 (0.59)	0.034*** (2.92)	-0.000 (-0.28)
<i>SIZE</i>	-0.220 (-1.46)	-0.007*** (-3.88)	-0.427*** (-2.68)	0.346*** (31.18)
<i>BUS-SEG</i>	0.031 (0.29)	0.001 (0.51)	-0.120 (-0.91)	0.021** (2.43)
<i>GEO-SEG</i>	0.054 (0.85)	-0.001 (-1.41)	0.067 (0.96)	-0.003 (-0.47)
<i>FOREIGN-OPERATIONS</i>	-0.598 (-1.32)	-0.006 (-0.87)	-1.067*** (-2.59)	0.065 (1.60)
<i>COUNTRY-MENTIONS-10K</i>	-0.024 (-0.27)	-0.002* (-1.70)	0.019 (0.21)	0.008 (0.95)
<i>FOREIGN-SALES</i>	-0.005 (-0.05)	0.003** (2.33)	-0.056 (-0.54)	0.062*** (8.43)
<i>ARC</i>	1.831*** (2.91)	-0.003 (-0.33)	1.023 (1.50)	0.465*** (9.49)
<i>NEGATIVE-INCOME</i>	0.195 (0.63)	0.018*** (4.51)	0.471 (1.50)	0.128*** (4.86)
<i>LEVERAGE</i>	0.093 (0.16)	-0.010 (-1.39)	2.120*** (4.42)	0.050 (1.00)
<i>EXTERNAL-FINANCING</i>	-0.225 (-0.50)	0.013** (2.40)	0.010 (0.03)	0.039 (1.08)
<i>EXTREME-GROWTH</i>	-0.202 (-0.49)	0.031*** (6.25)	0.130 (0.35)	-0.023 (-0.70)
<i>CAP-INTENSITY</i>	-1.322 (-1.27)	-0.026** (-2.24)	-3.137*** (-2.87)	-0.509*** (-6.82)
<i>INV-REC</i>	0.008 (0.01)	-0.059*** (-4.57)	0.211 (0.22)	0.324*** (3.87)
<i>ACCELERATED</i>	-0.555 (-1.28)	-0.017*** (-2.72)	0.298 (0.69)	0.211*** (5.30)
<i>BIG4</i>	0.055 (0.13)	-0.005 (-0.89)	0.286 (0.66)	0.400*** (10.89)
<i>INDUSTRY-EXPERT</i>	0.084 (0.30)	0.004 (1.20)	-0.439 (-1.37)	0.048** (2.12)
<i>FIRM-AGE</i>	-0.120 (-0.62)	-0.003 (-1.06)	-0.067 (-0.32)	-0.019 (-1.18)
<i>Industry and year fixed effects</i>	Included	Included	Included	Included
<i>Constant</i>	-9.428*** (-2.70)	0.116** (2.41)	-5.908 (-1.62)	8.599*** (28.42)
<i>Observations</i>	800	1,529	1,314	1,790
<i>Pseudo/Adjusted R²</i>	0.118	0.175	0.205	0.865

This table tests H4 and reports results of regressions of several sets of variables that capture work conducted by more and less competent component auditors on several dependent variables, with Panel A examining the number of CPAs and Panel B industry experience. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 8

Additional analysis: Combined role of competence and geographic, cultural, and language barriers

Panel A: Likelihood of misstatement

	(1) <i>MISSTATEMENT</i> Geographic distance	(2) <i>MISSTATEMENT</i> Cultural distance	(3) <i>MISSTATEMENT</i> Rule of law	(4) <i>MISSTATEMENT</i> English
<i>Barrier and low competence</i>	0.033*** (2.76)	0.028** (2.56)	0.024** (2.03)	0.026** (2.03)
<i>Barrier and high competence</i>	0.018 (0.76)	0.024 (1.33)	0.039 (1.58)	0.032 (1.34)
<i>No barrier and low competence</i>	0.014 (1.05)	0.015 (0.90)	0.024* (1.91)	0.021 (1.64)
<i>No barrier and high competence</i>	0.021 (1.12)	0.010 (0.37)	0.005 (0.25)	0.009 (0.49)
<i>Control variables</i>	Included	Included	Included	Included
<i>Constant</i>	-9.905*** (-2.81)	-9.243*** (-2.66)	-9.168*** (-2.63)	-9.414*** (-2.70)
<i>Observations</i>	800	801	800	801
<i>Pseudo/Adjusted R²</i>	0.121	0.119	0.121	0.118

Panel B: Likelihood of non-timely report

	(1) <i>NON-TIMELY</i> Geographic distance	(2) <i>NON-TIMELY</i> Cultural distance	(3) <i>NON-TIMELY</i> Rule of law	(4) <i>NON-TIMELY</i> English
<i>Barrier and low competence</i>	0.032*** (2.58)	0.028** (2.45)	0.036*** (2.96)	0.032** (2.56)
<i>Barrier and high competence</i>	0.032 (1.42)	0.023 (1.13)	0.005 (0.16)	0.018 (0.64)
<i>No barrier and low competence</i>	0.021 (1.48)	0.011 (0.62)	0.019 (1.30)	0.012 (0.78)
<i>No barrier and high competence</i>	0.008 (0.32)	0.000 (0.00)	0.024 (1.17)	0.015 (0.70)
<i>Control variables</i>	Included	Included	Included	Included
<i>Constant</i>	-5.829 (-1.58)	-4.536 (-1.26)	-5.842 (-1.61)	-5.215 (-1.44)
<i>Observations</i>	1,314	1,315	1,314	1,315
<i>Pseudo/Adjusted R²</i>	0.204	0.203	0.205	0.203

This table reports results of regressions of several sets of variables that capture work conducted by more and less competent component auditors in countries with and without barriers on several dependent variables. Panel A shows these combinations with *MISSTATEMENT* as the dependent variable and Panel B with *NON-TIMELY* as the dependent variable. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.

TABLE 9

Additional analysis: Changes in percentage of component auditor use

	(1) <i>ΔDISC-ACCRUALS</i>	(2) <i>NON-TIMELY</i>	(3) <i>ΔAUDIT-FEES</i>
<i>PCT-INCREASE</i>	-0.000 (-0.16)	0.062** (2.30)	0.004*** (2.77)
<i>PCT-DECREASE</i>	-0.001 (-1.07)	-0.062* (-1.88)	0.000 (0.21)
<i>ΔSIZE</i>	0.015 (1.26)	-0.580 (-0.76)	0.168*** (5.32)
<i>ΔBUS-SEG</i>	0.008 (1.54)	-0.721** (-2.20)	0.015 (1.11)
<i>ΔGEO-SEG</i>	0.004 (1.12)	-0.159 (-0.65)	0.015 (1.58)
<i>ΔFOREIGN-OPERATIONS</i>	0.000 (0.00)	2.161 (1.55)	-0.073 (-1.09)
<i>ΔCOUNTRY-MENTIONS-10K</i>	-0.003 (-1.16)	0.018 (0.10)	0.010 (1.44)
<i>ΔFOREIGN-SALES</i>	-0.001 (-0.23)	0.119 (0.25)	0.009 (0.65)
<i>ΔARC</i>	-0.010 (-0.46)	4.463*** (2.84)	0.195*** (3.04)
<i>ΔNEGATIVE-INCOME</i>	0.013** (2.24)	0.786* (1.86)	0.013 (0.78)
<i>ΔLEVERAGE</i>	-0.024 (-1.01)	2.235 (1.54)	0.080 (1.28)
<i>ΔEXTERNAL-FINANCING</i>	0.009 (1.51)	1.472*** (3.18)	0.033* (1.87)
<i>ΔEXTREME-GROWTH</i>	0.016*** (2.79)	0.482 (1.08)	0.036** (2.21)
<i>ΔCAP-INTENSITY</i>	-0.083 (-1.15)	2.701 (0.52)	-0.019 (-0.10)
<i>ΔINV-REC</i>	-0.069 (-1.25)	5.432 (1.58)	-0.100 (-0.82)
<i>ΔACCELERATED</i>	0.014 (0.86)	1.002 (1.13)	0.230*** (5.64)
<i>ΔBIG4</i>	-0.043 (-0.80)	0.196 (0.06)	0.105 (0.78)
<i>ΔINDUSTRY-EXPERT</i>	0.000 (0.03)	-1.141* (-1.92)	0.035 (1.36)
<i>ΔFIRM-AGE</i>	-0.117** (-2.29)	-2.738 (-0.70)	-0.192 (-1.39)
<i>Industry and year fixed effects</i>	Included	Included	Included
<i>Constant</i>	0.017 (1.32)	-4.709*** (-4.11)	-0.003 (-0.09)
<i>Observations</i>	1,036	853	1,215
<i>Pseudo/Adjusted R²</i>	0.021	0.199	0.093

This table reports results of increases and decreases in the percentage of component auditors used on several dependent variables. The sample is limited to issuers where component auditors are used in both fiscal years. Variables are defined in the Appendix. Regressions include two-digit SIC code industry and fiscal year fixed effects. Numbers in parentheses are *t*-statistics. Two-tailed statistical significance is indicated by ***, **, and * for 1%, 5%, and 10%, respectively.