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Archival research on audit partners: Assessing the research field and recommendations for future research

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Archival research on audit partners: Assessing the research field and recommendations for future research

1. Introduction

This paper assesses the existing archival research on audit partners to provide recommendations for future research. Specifically, we provide explanatory analyses to determine which audit partner characteristics are the most important for future research to take into account.[1] Additionally, we provide recommendations for future research as to improve existing research practices and the reporting of audit partner level studies.

The body of research that examines whether individual audit partner characteristics affect audit quality has been rapidly growing over the last decade (see Lennox and Wu, 2018) and presents a mixed picture on the effects of these characteristics on audit quality. Researchers have, for example, examined whether age (e.g., Sundgren and Svanström, 2014), gender (e.g., Ittonen and Peni, 2011; Hardies *et al*., 2016; Hossain *et al*., 2018), industry specialization (e.g., Ittonen *et al*., 2015), tenure (e.g., Carey and Simnett, 2006; Monroe and Hossain, 2013), and client importance (e.g., Chen *et al*., 2010; Hossain *et al*., 2016) have an effect on audit quality.

We identify four main limitations within the extant literature on audit partner characteristics and audit quality (see also Lennox and Wu 2018, pp. 23-26). First, many studies in this field have considered a single audit partner characteristic in isolation, not controlling for other potentially relevant audit partner characteristics. These studies may suffer from omitted variable bias (Peel, 2014). Second, few prior studies have comprehensively addressed endogeneity stemming from the fact that audit partners and their clients are not randomly matched (i.e., simultaneity) (Gippel *et al*., 2015). As a result, it remains unclear whether

[1] We use the term "audit partner characteristic(s)" as a shorthand for all variables that are measured at the audit partner level. This includes actual audit partner characteristics such as gender or experience, but also client or engagement characteristics such as client importance or tenure that are merely measured at the audit partner level.

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reported results are driven by audit partner characteristics or by client characteristics. Third, most audit partner studies fail to use cluster-robust standard errors (SE) to properly adjust for dependence in their data (Conley *et al*., 2018; Gow *et al*., 2010). At least some of the mixed findings reported in prior literature may stem from such variation in design choices. Finally, we note that few audit partner studies have sufficiently "contextualized" their results, although this is exactly one of the strengths of archival research (Bloomfield *et al*., 2016). For example, descriptive information is typically provided on the client-year level, rather than on the audit partner (or partner-year) level.

In the current study, we explore to what extent results of prior audit partner studies are sensitive to unaddressed endogeneity (omitted variable bias, simultaneity) or insufficient adjusting for dependence in the data. By providing detailed descriptive information at the audit partner level, we demonstrate how researchers could better contextualize their results. Ideally, when examining whether a specific audit partner characteristic is associated with higher audit quality, one would include fixed effects (FE) both at the audit partner level and the company level. Audit partner FE control for unobservable time-invariant partner attributes (e.g., generic ability) and thus eliminate concerns about potential omitted variable bias. Unfortunately, this is often not feasible in audit partner studies as variables of interest often change little over time (e.g., industry specialization, tenure) or are entirely time-invariant (e.g., gender, general auditing experience).[2] Company FE control for unobservable time-invariant client attributes reduces the likelihood that observed audit partner effects are driven by client characteristics. However, where there is relatively little within-company variation in the audit partner variable of interest, such FE regressions have little power. Variation for many audit partner variables is likely to be largely cross-sectional (i.e., between companies).[3]

[2] See §4.2 for a more detailed discussion and empirical evidence.
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Other approaches to address endogeneity (e.g., instrumental variables estimation) are often not feasible in audit partner studies.[4] An interesting alternative in such cases is to look at instances of audit partner changes. Ultimately, partner level effects are best tested by examining whether audit quality increases (decreases) after the appointment of a new audit partner if the incumbent and new audit partner differ from each other in terms of the partner characteristic that is of interest (e.g., cases where there is a change from a female to a male audit partner). A key feature of such a research design is that it holds both the client firm and the audit firm constant, which enables better isolation (identification) of audit partner effects (Chen *et al.*, 2008; Hardies *et al.*, 2015; Ittonen *et al.*, 2013). Focussing on audit partner changes alleviates many important concerns about endogeneity (simultaneity and correlated omitted variables) because each client serves as its own control (Bedard and Johnstone, 2010; Che *et al.*, 2020).

Our empirical analyses are based on data from Australian listed firms from 2003–2018. In our main analyses, we focus on audit fees in order to evaluate the relative importance of various audit partner characteristics (i.e., gender, general auditing experience, industry specialization, tenure, client importance, and portfolio size) for audit quality. In additional analyses, we report results for discretionary accruals and going-concern reporting. Following prior studies, we first run regressions for our six variables of interests separately. Subsequently, we include them simultaneously in our regression models. We report results with different FE structures (e.g., industry and year, audit partner, company fixed effects) and a variety of clustering schemes (e.g., client, client-year).[5] In addition to running cross-sectional analyses, we run analyses that focus on audit partner changes (e.g., cases where there is a change from a female to a male

[4] Instrumental variables estimation is the "textbook" solution to endogeneity (e.g., Wooldridge, 2002). Such estimation requires, however, a suitable instrument, which most often is not available in audit partner settings as there are few variables that would influence the auditor selection process (first-stage regression) but not the audit quality proxy (second-stage regression) (Larcker and Rusticus, 2010; Lennox *et al.*, 2014).

[5] Including FE and clustering SE address two separate problems. That is, FE reduce bias (due to correlated omitted variables) in the estimated regression coefficients, while clustering SE aims to reduce underestimation of the standard errors. Even with FE included in the regression, clustering SE may matter (Arellano, 1987).

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audit partner). We focus specifically on auditor partner changes that are due to mandatory rotation requirements as such changes can be considered reasonably exogenous (Lennox *et al.*, 2014).[6] Mandatory audit partner rotation was introduced in Australia in 2006 (effective for financial years on or after July 1, 2006) and prior research suggests that partner tenure significantly reduced when this regulatory requirement was introduced (Chapple and Koh, 2007; Chapple and Hossain, 2011; Rykin *et al*., 2007).

When we include each audit partner characteristic separately, we find that gender, industry specialization, tenure, and client importance are all positively associated with audit fees, while general auditing experience and portfolio size are negatively associated with audit fees. When controlled for simultaneously, however, gender and general auditing experience are no longer statistically significantly associated with audit fees. Moreover, the estimated magnitude of industry specialization and portfolio size differ substantially when all six partner characteristics are controlled for simultaneously. Furthermore, the estimated magnitudes for all partner characteristics appear to be highly sensitive to the included fixed effects structure, as is the direction of the association between tenure and audit fees. Surprisingly, using different clustering schemes has very little effect on any of our inferences. Looking at audit partner changes, we find results that are consistent with our cross-sectional analyses for industry experience and client importance. That is, we find that audit fees increase (decrease) when there is a change from a partner who is a non-specialist to an industry specialist (from a specialist to a non-specialist) and when client importance increases (decreases). We also find

[6] While mandatory audit partner changes can be considered reasonably exogenous, they are not perfectly exogenous as mandatory rotation can be anticipated. Audit partner rotation can thus be planned in advance and audit partner characteristics can potentially be taken into account to achieve an appropriate "fit" between the incoming partner and the client (Sanders *et al*., 2009). Furthermore, changes in audit partner characteristics resulting from mandatory rotation may reflect supply constraints (although to a lesser extent than in cases of voluntary rotations) as the number of available partners varies across audit offices (Ferguson *et al*., 2019; Litt, *et al.,* 2014).

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that audit fees decrease when there is a change from a female partner to a male partner. Results are largely similar for analyses with discretionary accruals and going-concern reporting.

This study contributes to the auditing literature in a number of ways by exploring limitations of the existing archival research on audit partners and by providing recommendations for future research. First, results of the current study suggest that the audit partner characteristics with the biggest impact are industry specialization and client importance. Second, we contribute to the literature on individual audit partner characteristics by demonstrating that audit partner studies may suffer from omitted variable bias if they study audit partner characteristics in isolation. Third, we show that for most audit partner characteristics there is little within-company and within-partner variation. We therefore caution against routinely including company FE and audit partner FE in audit partner studies. Fourth, we examine the importance of properly adjusting for dependence in the data in audit partner studies and suggest to cluster SE at the client firm level. Finally, we provide detailed descriptive information at the audit partner level in order to demonstrate how researchers could improve the reporting of audit partner level data.

2. Prior literature on audit partner characteristics and audit quality

To identify archival studies examining audit quality at the partner level, we searched through a selected number of accounting journals during the first week of January 2020. We included all A*-ranked journals (according to the 2019 Australian Business Deans Council (ABDC) Journal Quality List) in the general area of accounting that publish auditing research. These are *Accounting, Auditing & Accountability Journal (AAAJ)*, *Accounting, Organizations and Society (AOS)*, *Auditing: A Journal of Practice and Theory (AJPT)*, *Contemporary Accounting Research (CAR)*, *European Accounting Review (EAR)*, *Journal of Accounting and Economics (JAE)*, *Journal of Accounting Research (JAR)*, *Journal of Business Finance & Accounting (JBFA)*, *The British Accounting Review (BAR)*, *Review of Accounting Studies*

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(RAST), and *The Accounting Review (TAR)*. Additionally, we included *Accounting and Finance (AF),* and two international journals that specialize in auditing research, namely, *International Journal of Auditing* and *Managerial Auditing Journal*. We identified articles by searching for audit* *and* partner or individual in the title, abstract, or keywords of the published paper. To be included, we considered studies that examined the effect of (a) a partner level characteristic (e.g., gender, audit partner industry specialization) on (b) a measure of audit quality (audit fees, material misstatements, auditor communication, financial reporting quality).[7] As a result, we identified 42 archival studies that have examined whether specific audit partner characteristics affect audit quality (see Appendix A).

Table 1 provides an overview of all identified studies, depicting for each study the audit partner characteristics considered, the design choices in terms of FE and SE, the way by which endogeneity was addressed, and the extent to which descriptive statistics at the partner level were provided. Audit fees (17 studies), discretionary accruals (20 studies), and audit opinions (19 studies) have all been studied frequently in audit partner studies. Only three studies ([4], [21], [40]) to date have considered accounting restatements as their measure for audit quality. Prior research has largely focused on the following six partner characteristics when examining potential audit partner effects on audit quality: (1) gender, (2) general experience, (3) industry expertise, (4) tenure, (5) client importance, and (6) portfolio size. Appendix B provides an overview of definitions and measurement. A limited number of studies have also considered other characteristics such as public-firm experience (Hardies *et al.*, 2015; Ittonen *et al.*, 2015; Nekhili *et al.*, 2018; Zerni, 2012), criminal convictions (Amir *et al.*, 2014), and IQ (Kalluniki *et al.*, 2019).

[INSERT TABLE 1 HERE]

[7] We disregarded studies looking at the mere effect of audit partner rotation on audit quality (e.g., Litt *et al.*, 2014; Stewart *et al.*, 2016), studies employing a fixed effects approach to test for audit partner effects (e.g., Gul *et al.*, 2013; Taylor, 2011), or studies looking at capital market consequences (e.g., Aobdia *et al.*, 2015).

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As shown in Table 1, for most audit partner characteristics, the evidence on their association with audit quality is mixed. For example, focusing on studies that examined audit fees (Table 1, Panel A), general experience was negatively associated with audit fees in Belgium ([26]), but positively in France ([35]) and the U.S. ([40]), while no effect was found in Australia ([42]) and Sweden ([38]). Most studies show industry specialization to be associated with higher audit fees (e.g., in Belgium [26], in China [22], in France [35], in the U.S. [16]), but the evidence from Australia (positive in [17], but negative in [30], and not significant in [18] and [42]) and Sweden (positive in [9], but negative in [38]) is mixed. These latter results highlight that mixed findings across studies are not just stemming from institutional differences. Results are also mixed across different audit quality measures. For example, all six audit fee studies that report results for gender show female auditors to be associated with higher audit fees (i.e., higher audit quality), but studies often fail to find an association with discretionary accruals (e.g., [14], [12], [39]) or audit opinions ([14], [29], [32]). Hossain *et al.* (2018) even report female auditors to be associated with lower audit quality (measured by audit opinions).

To address potential model misspecification (omitted variable bias), it is common practice in audit partner studies to include industry and, if applicable, year FE (in line with empirical accounting research more generally: Amir *et al.*, 2016).[8] Only two studies did not include at least industry FE and, if applicable, year FE. In terms of research design choices to account for dependence in the data (inter-temporal and/or cross sectional), we observe much more variation in the use of clustered SE. Clustering SE seems to have become common after 2011, but even more recent studies do not always use clustered SE (e.g., [27], [28], [33], [35]) or cluster at the audit partner level (e.g., [15], [26], [36]) rather than at the audit firm or client firm level.[9] Also

[8] According to Amir *et al.* (2016), panel data estimations should include both time and company FE (rather than industry FE). While this is theoretically true, this might not always be feasible in practice as company FE will absorb all variation if the time period is short (i.e., the number of observations per client is low).

[9] As a general rule, SE should be clustered at the most aggregate level of clustering (Cameron and Miller, 2011). Due to its nested structure (i.e., audit partners are nested within audit offices, which in turn are nested within audit firms), SE should thus never be clustered at the audit partner level. As clustering is only appropriate when there

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clustering at both the client and year level is not uncommon (6 out of 32 studies that have time series data did so), even though the time series is often not very long (31 studies [74%] used data from 10 years or less, with 10 studies using data from just a single year).[10] Finally, most studies (24 out of 42) did not specifically address concerns about endogeneity. To address endogeneity, 6 studies used 2SLS estimation and 11 studies used comparison group selection (e.g., propensity score matching).[11] Five studies also indicate that they address endogeneity by either including client fixed effects or audit partner fixed effects. Only two studies ([2] and [12]) have exploited audit partner changes.

In terms of "contextualizing" their results, it is remarkable that only 13 out of 42 studies even mention the number of audit partners that their sample contains. Few studies actually provide detailed descriptive statistics at the audit partner level (in addition to descriptive statistics at the client-year level) (for good examples, see, e.g., Amir *et al.*, 2014; Che *et al.*, 2018; Hardies *et al.*, 2016; Kalluniki *et al.*, 2019). Even less helpfully, some studies appear to aggregate and hence potentially mislead by describing inferences drawn from the sample (i.e., client-year level) *as if* they were individual partner descriptions. For example, Knechel *et al.* (2015, p. 1453) report that 'the mean number of clients per partner is 53.47', but this number is calculated based upon their entire sample of 22,971 client-year observations and is thus overweighting audit partners that appear more often in their sample.

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are a large number of approximately independent clusters (Petersen, 2009; Conley *et al.*, 2018), we also advise against clustering at the audit firm level because of the limited number of audit firms (estimators based on clustered SE become more variable as the number of clusters decreases).

[10] Clustering SE on both client and year is consistent with the advice by Gow *et al.* (2010), which explains its popularity in accounting research. Clustering on year is however unnecessary if the time series is relatively short.

[11] As noted earlier, instrumental variables estimation is the textbook solution to endogeneity, but finding strong instruments is hard in audit partner studies. The most widely used instrument in audit partner studies has been the overall percentage of women employed in the client's industry in studies on audit partner gender. Despite its popularity, propensity score matching (PSM) is not an appropriate approach to address endogeneity when relevant variables are unobserved (or difficult to measure) (Shipman *et al.*, 2017). Hence, PSM is not a substitute for instrumental variables estimation.

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3. Research design and sample description

3.1 Research design

In our main analyses, we use audit fees as a measure of audit quality. We focus on six audit partner characteristics that have featured prominently in research to date: gender, general auditing experience, industry specialization, tenure, client importance, and portfolio size. We estimate Equation (1) to examine the effect of these six audit partner characteristics, both individually (i.e., one at a time) and simultaneously.

$$LAF_{it} = \alpha_0 + ß_1 GENDER_{it} + ß_2 EXPERIENCE_{it} + ß_3 SPEC_{it} + ß_4 TENURE_{it} + ß_5 CI_{it} + ß_6 PORTFOLIO_{it} + \sum \text{control variables} + \varepsilon_{it} \quad (1)$$

LAF is the natural logarithm of audit fees. To test for the effects of audit partner characteristics, we include *GENDER*, *EXPERIENCE*, *SPEC*, *TENURE*, *CI*, and *PORTFOLIO*. *GENDER* is a dummy variable that equals 1 in case of a female audit partner, and 0 otherwise. *EXPERIENCE* is the number of years since the audit partner qualified as a professional accountant (i.e., CPA or CA).[12] *SPEC* indicates whether an audit partner is an industry specialist (two-digit GICS industry classification) and is operationalized as a dummy variable that equals 1 in case the audit partner is the first-ranked by market share of audit fees for the city-industry, 0 otherwise (Goodwin and Wu, 2014a).[13] *TENURE* is the number of years an audit partner is engaged with the current client.[14] *CI* is the ratio of a client's audit fee to an audit partner's total audit fees from all clients. *PORTFOLIO* is the natural log of number of clients audited by a partner during the current year.

[12] We collected data on professional qualification from the ASIC register, Linkedin, and audit firms' websites.
[13] Our results are consistent if we classify both the first-ranked and second-ranked partner as industry specialists or if we require partners to have the largest market share whereby that share also needs to be at least 10% higher than that of the second-ranked partner (Minutti-Meza, 2013; Reichelt and Wang, 2010).
[14] In the absence of audit partner date of engagement, we tracked back annual reports available from MorningStar DatAnalysis Premium to identify when an audit partner has first signed an annual report for the client.

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We include control variables in our audit fee model based on prior studies (e.g., Reichelt and Wang, 2010; Minutti-Meza, 2013; Choi *et al.,* 2010; Asthana and Boone, 2012; Eshleman and Guo, 2014). We include the natural log of total assets (*SIZE*) as a measure of client size and expect a positive association with *LAF*. We include a number of control variables that capture client risk as auditors charge higher audit fees for risky clients. We include leverage (*LEVERAGE*), performance (*ROA*), firm reported loss in the current year (*LOSS*), bankruptcy score (*PBANK*), cash from operations (*CASHFLOW*), current assets divided by current liabilities (*LIQUID*), account receivable plus inventory divided by total assets (*ARINV*), and current assets divided by total assets (*CATA*). We also include market-to-book ratio (*BM*) and whether the client is listed on overseas stock exchanges (*CROSSLIST*) to capture client complexity as auditors charge higher audit fees for complex clients. We also include type of auditor (*BIG4* and *SECONDTIER*) as Big 4 and second-tier auditors charge higher audit fees. Consistent with Choi *et al*. (2010), we include the total number of clients at the office level (*OFFSIZE*) because larger local offices are associated with higher audit fees. We include busy season (*YEAREND*) as 1 if financial year-end is June, 0 otherwise, as auditors may charge higher fees during the busy season. We also include the natural log of fees for non-audit services (*LNNAF*) as such services are not banned in Australia and auditors may compensate lower audit fees with higher non-audit fees. All variables are defined in Appendix C. All continuous variables are winsorized at the 1 and 99 percent.

3.2 Sample

We use data from Australian-domiciled companies listed on the Australian Securities Exchange (ASX) during 2003–2018. The sample selection process is described in Table 2. The

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initial sample was 34,977 firm-year observations from MorningStar direct.[15] After excluding firms from the financial industry (GICS 40) and observations with missing data, the final sample is 23,492 firm-year observations from 2,563 unique firms.

[INSERT TABLE 2 HERE]

4. Primary results

4.1 Client and audit partner descriptive statistics

Table 3 reports descriptive statistics for the sample, both at the client-year level (Panel A) and at the audit partner level (Panel B). Table 3, Panel A shows that clients, on average, paid 285,614 AUD audit fees. Clients were audited by a female partner 7.3% of the time (*GENDER*) and by an industry specialist partner 5.7% of the time (*SPEC*). On average, clients had an audit partner with 14.9 years of experience (*EXPERIENCE*). For 96.3% of client engagements, audit partner tenure was less than 5 years, with an average of 2.7 years (*TENURE*). Client importance at the partner level is substantial, with client firms representing on average 27.8% of the overall portfolio of the audit partner (*CI*). On average, clients were audited by an audit partner with 9 clients (*PORTFOLIO#*).

Table 3, Panel B reports descriptive statistics at the audit partner level. In total, there were 1,428 unique audit partners during our sample period. More than half of the audit partners (54.6%) were affiliated with a Big 4 audit firm and only 178 (12.5%) of them were women.[16] Audit partners had on average 13.8 years of experience, audited 3.2 clients (representing around 5.8 billion of total assets and about 589 thousand of audit fees), and were industry specialists 6% of the time. There is little variation in audit partner characteristics over time,

[15] Our sample is based on the MorningStar direct database. We also use Connect4 for audit firm, audit partner, and industry data. In order to minimize measurement error, we calculated our six variables of interest based on all observations that have required data in estimating those variables (rather than on the final sample).

[16] These numbers clearly illustrate how descriptive statistics at the client level can be misleading in terms of audit partner characteristics. While, for example, women made up 12.5% of all audit partners, they only audited 7.3% of all clients during our sample period.

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except for an increase in the number of female audit partners (from 5% in 2003 to 16% in 2018), a decline in audit partner tenure (from 3.8 years in 2003 to 2.3 years in 2018), and an increase in the size of audit partners' portfolio (representing about 2.9 billion of total assets and 435 thousand of audit fees in 2003 vs. 7.5 billion of total assets and 669 thousand of audit fees in 2018).

[INSERT TABLE 3 AROUND HERE]

4.2 Correlations and variation in audit partner variables

Table 4, Panel A reports correlation coefficients for the full sample for all variables used to estimate Equation (1). *LAF* is significantly and positively associated with *GENDER*, *EXPERIENCE, SPEC*, *TENURE*, and *CI*, and negatively associated with *PORTFOLIO.* Also, most of the control variables are significantly associated with *LAF*. Correlations between the different audit partner characteristics are low, except for the correlation between *CI* and *PORTFOLIO* (r = -0.741).[17] Table 4, Panel B reports correlations at the partner level between our different audit partner characteristics. Correlations between different partner characteristics are low, with the highest being between *CI* and *PORTFOLIO* (r = -0.368).

In order to assess the extent to which audit partner variables remain stable over time, we computed year-by-year correlations at the partner level for each of our partner level variables. Unsurprisingly, these analyses (untabulated) show that *GENDER* is perfectly stable over time (i.e., is time-invariant), while *EXPERIENCE* also correlates perfectly over time. More interestingly, these analyses reveal that *PORTFOLIO* is highly stable over time with an average year-by-year correlation of 0.83. This correlation only marginally decreases to 0.82 (0.72) if we consider 5 years (10 years) of audit partner data. Conversely, while *SPEC* is somewhat stable in the short run (i.e., on average, the year-by-year correlation is 0.60), this rapidly

[17] The maximum variance inflation factor (VIF) value (untabulated) is 4.28 (with most VIFs less than 2), indicating that multicollinearity is not a significant concern in our study.

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decreases over time. If we consider 5 years (10 years) of audit partner data, year-by-year correlations for *SPEC* drop to 0.49 (0.37). Likewise, *CI* is relatively stable in the short run (i.e., on average, the year-by-year correlation is 0.53), but much less so over longer time periods. If we consider 5 years (10 years) of audit partner data, year-by-year correlations for *CI* drop to 0.44 (0.34). Further, *TENURE* is relatively stable in the very short run (i.e., the average year-by-year correlation is 0.45), but this rapidly declines due to mandatory audit partner rotation requirements. If we consider 5 years (10 years) of audit partner data, year-by-year correlations for *TENURE* drop to 0.26 (0.11). Overall, these results suggest that, in studying audit partners, one should be careful in including audit partner FE as many partner characteristics are relatively time-invariant (especially in short time series). It seems reasonable to include audit partner FE if one wants to estimate effects of audit partner industry specialization, audit partner tenure, or audit partner client importance, if one has data available from a sufficiently long time series.[18]

We also examine the extent of variation in audit partner characteristics between and within client companies. In our sample, there is reasonable between-company variation in all our partner characteristics (see Table 3, Panel A). Within-company variation in audit partner characteristics is, however, much more limited. In our sample (untabulated), only 3% of clients experienced a change from a female to a male audit partner (or vice versa), only 1% of clients experienced a change from an industry specialist to a non-specialist (or vice versa), and only 6% of clients experienced a change in client importance (i.e., the relative importance of the client within the audit partner's portfolio). Overall, for all audit partner characteristics, there is much more variation between companies (i.e., cross-sectional) than within companies. These results suggest that one should be careful in including company FE when estimating audit partner effects because including company FE removes this important cross-sectional variation

[18] How long a time series needs to be in order to be "sufficiently long" to allow the inclusion of audit partner FE will depend on the structure of the data and the audit partner characteristic that one is interested in.

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(Zhou, 2001). Such analyses would thus have little power, especially when the time series is short (Nickell, 1981).[19]

[INSERT TABLE 4 HERE]

4.3 Regression results

Table 5 presents the results of estimating Equation (1). Table 5, Panel A reports the results for each audit partner characteristic when estimated on at a time (columns (1)-(6)) and when estimated simultaneously (column (7)). As this is common in audit partner studies, we include year and industry FE and cluster SE at the company level.[20]

Results in Columns (1)-(6) show that audit fees are higher when the audit partner is female (*GENDER*: $ß_1 = 0.044$, $p < 0.10$) or an industry specialist (*SPEC*: $ß_2 = 0.391$, $p < 0.01$). Audit fees are also higher when audit partner tenure is longer (*TENURE*: $ß_4 = 0.011$, $p < 0.01$) and when client importance is higher (*CI*: $ß_5 = 0.612$, $p < 0.01$). Audit fees are lower when the audit partner has more clients (*PORTFOLIO*: $ß_4 = -0.090$, $p < 0.01$). Column (7) shows that all results are in the same direction when we estimate all audit partner characteristics simultaneously, except for *GENDER* (which is no longer statistically different from zero) and for and *PORTFOLIO* (which is now positively associated with audit fees). Moreover, the *magnitudes* of the estimates effects differ significantly compared to when such partner characteristics are estimated without controlling for other relevant audit partner characteristics. For example, results in Column (2) estimate that audit fees are higher by about 4.4% when the audit partner is a woman, but results in Column (7) suggest that this is about 0% once other audit partner characteristics are accounted for. These results suggest that estimates of audit partner effects

[19] This problem is exacerbated in going-concern analyses because of the binary nature of the dependent variable.
[20] As we discuss in the next section, such design choices can have large effects on the estimated coefficients and standard errors. Our inferences about the extent to which insufficient controls for other partner characteristics can affect conclusions about the effects of a partner characteristic on audit quality are, however, unaffected by this.

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suffer from omitted variable bias if audit partner characteristics are considered in isolation (i.e., if other audit partner characteristics are not accounted for).

[INSERT TABLE 5 AROUND HERE]

Table 5, Panel B presents the results of estimating Equation (1) with different FE structures and a variety of clustering schemes. Specifically, we report results for (1) a baseline model without FE and without clustering, (2) a model without FE with SE clustered at company level, (3) a model with industry and year FE without clustering, (4) a model with industry and year FE with SE clustered at company level, (5) a model with year and company FE and clustering at company level, (6) a model with year, industry, and audit partner FE and clustering at company level and (7) a model with year, company, and audit partner FE and clustering at company level.[21] In all these models, we include all audit partner characteristics simultaneously.

Results in Table 5, Panel B show that results differ substantially depending on the included FE structures. *GENDER* and *EXPERIENCE* are positively associated with audit fees if no FE are included (1), but not if year and industry FE are included (3) or if client FE are included (5). Further, while *TENURE* is negatively associated with audit fees if no FE are included (1), its association with audit fees is positive if year and industry FE are included (3) or if client FE are included (5). Consistent with our descriptive analyses that suggested reasonable within-partner variation in *SPEC*, *TENURE*, and *CI*, results for these variables are similar when audit partner FE are included or not. Conversely, estimates of *PORTFOLIO* are strongly impacted by the inclusion of audit partner FE as the estimated coefficient changes from 0.103 to 0.442 after the inclusion of audit partner FE. The result for *PORTFOLIO* when audit partner FE are

[21] Although Gow *et al*. (2010) suggest that SE should be clustered on client and on year, we do not report results with SE clustered on year because our time series is relatively short (Conley *et al*., 2018; Petersen, 2009). Clustering on both client and year yields similar results in all our analyses as clustering on client only.

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included is however unlikely to be reliable because *PORTFOLIO* is highly stable over time as discussed earlier. While the effects of including company FE are less dramatic, doing so does substantially affect the estimated magnitudes of some audit partner characteristics. For example, audit fees are estimated to be higher by about 40% when the audit partner is an industry specialist if company FE are not included, but 35% if company FE are included.

In terms of economic magnitude, the results in Column (4) suggest that there are large effects of *SPEC* and *CI* on audit fees. Audit fees are higher by about 40% for clients audited by an audit partner industry specialist. Audit fees also increase by about 27% as the value of *CI* increases from the 25th percentile value to the 75th percentile. Conversely, *PORTFOLIO* and *TENURE* have only small effects on audit fees (i.e., audit fees are about 12% higher for an audit partner with 6 clients compared to an audit partner with 12 clients, and audit fees are about 5% higher when audit partner tenure is at its maximum compared to when it is at its minimum). The effects of *GENDER* and *EXPERIENCE* are negligible and statistically not significant different from zero. Results of these analyses thus suggest that audit partner industry specialization and client importance are the most important audit partner characteristics to control for in audit partner research.

4.4 Audit partner changes

Table 6 presents results for our audit partner change analyses. We report a change specification of Equation (1) in which changes in firm characteristics are controlled for within the model structure to better isolate audit partner effects from other factors and remove unobserved constant effects. For each of the six audit partner characteristics separately, we estimate how audit fees change after the appointment of a new audit partner if the incumbent and new audit partner differ from each other in terms of the partner characteristic of interest (versus a control sample of observations where the incumbent and new audit partner do not

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differ in terms of that same partner characteristic). For example, Column (1) of Table 6 reports how audit fees, on average, change when a company changes from a female audit partner in year *t* to a male partner in year *t+1* (versus control observations that changed from a female partner in year *t* to another female partner in year *t+1*). For ease of presentation and interpretation, these analyses use dummy values for *EXPERIENCE* (1 in case experience of the audit partner was above the median, 0 otherwise), *TENURE* (1 in case tenure was more than three years, 0 otherwise), *CI* (1 in case client importance was above the median, 0 otherwise), and *PORTFOLIO* (1 in case the number of clients of the audit partner was above the median, 0 otherwise).

In these analyses, we focus specifically on mandatory audit partner rotations as such rotations are exogenously imposed by regulatory policies, alleviating many important concerns about endogeneity (Lennox *et al.*, 2014). Consistent with prior research (Ferguson *et al.*, 2019; Lennox *et al.*, 2014; Stewart *et al.*, 2016), we identify mandatory audit partner rotations as those audit partner changes that occurred at the end of the partner's maximum allowable length of tenure.[22] Additionally, we only consider internal audit partner changes (i.e., cases where the client firm changes audit partners within the same audit firm). This design holds both the client firm and the audit firm constant, which enables a better isolation (identification) of audit partner effects.

Results in Table 6 show that audit fees increase when a non-industry specialist partner is replaced by a specialist partner (*NO_SPEC_TO_SPEC* = 0.269, $p < 0.01$) and when client importance increases (*LOW_TO_HIGH_CI* = 0.130, $p < 0.01$). Consistent herewith, audit fees decrease when an industry specialist partner is replaced by a non-industry specialist (*SPEC_TO_NO_SPEC* = -0.110, $p < 0.05$) and when client importance decreases

[22] As from 2006 onwards, the maximum allowable length of tenure was five years. The 2012 Corporations Legislation Amendment (Audit Enhancement) Act allowed for a further extension of two years subject to audit committee approval, but very few companies in our sample made use of this possibility (i.e., after 2012, tenure was more than five years for only 1% of companies).

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(*HIGH_TO_LOW_CI* = -0.149, $p < 0.01$). Results also suggest that audit fees decrease when there is a change from a female to a male audit partner (*FEMALE_TO_MALE* = -0.219, $p < 0.05$).

[INSERT TABLE AROUND 6 HERE]

4.5 Alternative audit quality measures

Consistent with prior studies, we consider going-concern opinions and discretionary accruals as alternative measures for audit quality. We estimate Equation (2) to examine the effect of our six audit partner characteristics on going-concern opinion reporting for financially distressed companies:

$$GCO = \alpha_0 + ß_1 GENDER_{it} + ß_2 EXPERIENCE_{it} + ß_3 SPEC_{it} + ß_4 TENURE_{it} + ß_5 CI_{it} + ß_6 PORTFOLIO_{it} + \sum \text{control variables} + \varepsilon_{it} \quad (2)$$

GCO is a dummy variable that equals 1 for companies that received a going-concern opinion and 0 otherwise. Based on prior research (e.g., Carey and Simnett, 2006; Chen *et al.*, 2010; Blay and Geiger, 2013), we include control variables for client characteristics such as size and risk (*SIZE*, *LEVERAGE*, *CLEVERAGE*, *ROA*, *LOSS*, *LIQUID*, *MB, PBANK*, *ARINV*, *CASHFLOW*, *RETURN, VOLATILITY, SD_EARNINGS,* and *LTACC*) and auditor characteristics (*BIG4*, *LNNAF*, *SECONDTIER,* and *OFFSIZE*). All variables are as previously defined (see Appendix C).

We estimate Equation (3) to examine the effect of our six audit partner characteristics on discretionary accruals:

$$DACC = \alpha_0 + ß_1 GENDER_{it} + ß_2 EXPERIENCE_{it} + ß_3 SPEC_{it} + ß_4 TENURE_{it} + ß_5 CI_{it} + ß_6 PORTFOLIO_{it} + \sum \text{control variables} + \varepsilon_{it} \quad (3)$$

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DACC is the absolute value of discretionary accruals, as estimated by the performance-adjusted modified Jones model (Kothari *et al.*, 2005).[23] Based on prior research (e.g., Carey and Simnett, 2006; Chen *et al.*, 2008; Eshleman and Guo, 2014; Reichelt and Wang, 2010), we include control variables for client characteristics such as size and risk (*SIZE*, *LEVERAGE*, *LROA*, *LOSS*, *LIQUID*, *YEAREND*, *MB, PBANK*, *ARINV*, *CASHFLOW*, *CROSSLIST, LTACC,* and *SD_CASHFLOW*) and auditor characteristics (*BIG4*, *LNNAF*, and *SECONDTIER*). All variables are as previously defined (see Appendix C).

These additional analyses yield results that are largely consistent with our inferences from our audit fee analyses.[24] First, audit partner industry specialization is positively associated with discretionary accruals (*SPEC* = 0.011, t = 2.61) and negatively associated with going-concern reporting (*SPEC* = -0.310, z = -2.09). Audit partner client importance is negatively associated with discretionary accruals (*CI* = -0.012, t = -2.92) and positively associated with going-concern reporting (*CI* = 0.198, z = 1.80). Also portfolio size is positively associated with discretionary accruals (*PORTFOLIO* = 0.012, t = 6.25) and negatively associated with going-concern reporting (*PORTFOLIO* = -0.133, z = -3.20). Second, estimates of individual audit partner characteristics are sensitive to whether they are considered in isolation or simultaneously with other partner characteristics, suggesting that such estimates suffer from omitted variable bias if other audit partner characteristics are not sufficiently accounted for. Third, results are substantially different depending on the included FE structures (e.g., there is a negative association between *TENURE* and *GCO* when no FE are included in the model, but there is no such effect when year and industry FE are included). Finally, the use of different clustering schemes has very little effect on any of our inferences, both in the going-concern analyses and the discretionary accruals analyses.

[23] Inferences are similar if we estimate discretionary accruals by means of the Ball and Shivakumar (2005) model or the modified Jones model of Dechow *et al.* (1995).

[24] Results reported here are based upon estimating all audit partner characteristics simultaneously, while controlling for year and industry FE, with SE clustered at company level.

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5. Conclusion

In recent years, a substantial archival literature on audit partners has developed. In this study, we have identified four main limitations within the extant literature. We show that audit partner studies may suffer from omitted variable bias if they study audit partner characteristics in isolation. The estimated magnitudes of partner effects differ substantially when various audit partner characteristics are controlled for simultaneously. This is important because wrong coefficient estimates can seriously impair the validity of the economic interpretation of audit partner effects. We also show that for most audit partner characteristics there is little within-company and within-partner variation. We therefore caution against routinely including company FE and audit partner FE in audit partner studies.

Our study also provides explanatory analyses to determine which audit partner characteristics are the most important for future research to take into account. We have used a large panel of Australian listed firms to investigate the impact of different FE structures and a variety of clustering schemes on the estimates of audit partner characteristics. Our results show that the estimated magnitudes for all partner characteristics appear to be highly sensitive to the included fixed effects structure, as is the direction of the association between tenure and audit fees. Surprisingly, using different clustering schemes has very little effect on any of our inferences. At least some of the mixed findings reported in prior literature may stem from different design choices in terms of FE and SE. Taking these findings into consideration, we find that audit partner industry specialization and client importance are the audit partner characteristics with the largest impact on audit quality. Our results are corroborated by additional analyses in which we specifically focus on (mandatory) audit partner changes and analyses of going-concern reporting and discretionary accruals.

Finally, we suggest that researchers pay much more attention to carefully examining and describing their data in order to determine the most appropriate approach to examine audit

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partner characteristics. To support archival researchers interested in audit partner studies, we also provide a "toolbox" which summarises the main implications of our findings (see Appendix D).

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APPENDIX A
Studies examining the effects of audit partner characteristics on audit quality

Authors (year of publication)	Journal [a]	Sample size (time period) [b]
[1] Carey and Simnett (2006)	*TAR*	1,021 (1995)
[2] Chen *et al.*, (2008)	*CAR*	5,213 (1990-2001)
[3] Fargher *et al.*, (2008)	*MAJ*	2,495 (1990-2004)
[4] Chin and Chi (2009)	*CAR*	35,008 (1990-2004)
[5] Chen *et al.*, (2010)	*TAR*	8,917 (1995-2004)
[6] Chin and Chi (2011)	*AJPT*	8,863 (1983-2004)
[7] Ye *et al.*, (2011)	*AJPT*	626 (2002)
[8] Niskanen *et al.*, (2011)	*MAJ*	13,908 (1999-2006)
[9] Zerni, (2012)	*CAR*	862 (2003-2007)
[10] Nagy, (2012)	*MAJ*	180 (2002)
[11] Ittonen & Peni (2012)	*IJA*	715 (2005-2006)
[12] Ittonen *et al.*, (2013)	*AH*	770 (2005-2007)
[13] Amir *et al.*, (2014)	*RAST*	1,588 (1999-2007)
[14] Goodwin and Wu (2014)	*CAR*	8,902 (1999-2010)
[15] Sundgren and Svanström (2014)	*CAR*	1,145 (2008)
[16] Nagy, (2014)	*MAJ*	171 (2002)
[17] Goodwin and Wu, (2014)	*RAST*	6,368 (2003-2010)
[18] Ferguson *et al.*, (2014)	*AJPT*	551 (2009)
[19] Knechel *et al.*, (2015)	*CAR*	22,971 (2001-2008)
[20] Ittonen *et al.*, (2015)	*EAR*	420 (2006-2010)
[21] Wang *et al.*, (2015)	*AJPT*	6,429 (2004-2009)
[22] Huang *et al.*, (2015)	*TAR*	9,684 (2002-2011)
[23] Hardies *et al.*, (2016)	*EAR*	7,105 (2008)
[24] Hossain *et al.*, (2016)	*AJPT*	4,533 (2003-2011)
[25] Liu *et al.*, (2017)	*IJA*	39,439 (1990-2013)
[26] Hardies *et al.*, (2015)	*AJPT*	57,723 (2008-2011)
[27] Chi *et al.*, (2017)	*RAST*	2,591 (1990-2001)
[28] Chen *et al.*, (2017)	*JBFA*	1,032 (2001-2012)
[29] Reheul *et al.*, (2017)	*MAJ*	468 (2006)
[30] Arnold *et al.*, (2017)	*AJPT*	99,668 (2008-2010)
[31] Hossain *et al.*, (2018)	*AF*	7,361 (2003-2011)
[32] Karjalainen *et al.*, (2018)	*IJA*	79,817 (2003-2012)
[33] Garcia-Blandon and Argiles-Bosch, (2018)	*IJA*	855 (2005-2013)
[34] Che *et al.*, (2018)	*AJPT*	88,849 (2006-2010)
[35] Nekhill *et al.*, (2018)	*IJA*	870 (2002-2010)
[36] Kwon and Yi, (2018)	*AJPT*	662 (2009)
[37] Bae *et al.*, (2019)	*AJPT*	5,225 (2002-2014)
[38] Kallunki *et al.*, (2019)	*CAR*	122,012 (2000-2009)
[39] Burke *et al.*, (2019)	*AJPT*	1,814 (2017)
[40] Lee *et al.*, (2019)	*TAR*	744 (2004-2015)
[41] Berglund and Eshleman, (2019)	*MAJ*	94,017 (1999-2013)
[42] Ferguson *et al.*, (2019)	*AF*	6,191 (2007-2011)

a AF = Accounting & Finance, AJPT = Auditing: A Journal of Practice and Theory, CAR = Contemporary Accounting Research, EAR = European Accounting Review, IJA = International Journal of Auditing, JBFA = Journal of Business Finance & Accounting, MAJ = Managerial Auditing Journal, RAST = Review of Accounting Studies, TAR = The Accounting Review

b Studies often use different samples for different analyses. Sample size is the largest sample used for any audit quality analysis in the study.

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APPENDIX B
Individual audit partner characteristics: Definitions and measurement

GENDER	A dummy variable indicating whether the audit partner is a man or a woman.
GENERAL EXPERIENCE	General audit experience of the audit partner. Most often measured as the (natural logarithm of) number of years since the audit partner's certification date; occasionally also measured by the audit partner's age.
INDUSTRY EXPERIENCE	Indicator of whether the audit partner is an industry specialist. Dummy variable based upon the audit partner's market share within a particular industry within year *t*.
TENURE	Length of relationship (in years) between audit partner and client. Long tenure is usually defined as *TENURE* > 3 years.
CLIENT IMPORTANCE	Economic importance of a client for the audit partner. Ratio of the client's (audit) fees to the auditor's total (audit) fees from all clients in year *t*.
PORTFOLIO	Size of the audit partner's specific client portfolio. Measured as either the (natural logarithm of) total number of clients an auditor serves or as the sum of audited total assets from all clients in year *t*.

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APPENDIX C
Variable definitions

Dependent variables	
LAF	natural logarithm of audit fees;
DACC	absolute value of discretionary accruals;
GCO	1 in case of going-concern opinion, 0 otherwise;
Test variables	
GENDER	1 if audit partner is female, 0 otherwise;
SPEC	1 in case the audit partner is an industry specialist based on market share in the city-industry, 0 otherwise;
EXPERIENCE	natural logarithm of the number of years an audit partner has been qualified as a professional accountant;
TENURE	number of years an audit partner is engaged with the current auditee;
CI	ratio of a client's audit fee to the audit partner's total audit fees from all clients in the partner's portfolio;
PORTFOLIO	natural logarithm of an audit partner's number of clients;
FEMALE_TO_MALE	1 when a company changes from a female audit partner in year *t* to a male partner in year *t+1*, 0 otherwise;
MALE_TO_FEMALE	1 when a company changes from a male audit partner in year *t* to a female partner in year *t+1*, 0 otherwise;
NO_SPEC_TO_SPEC	1 when a company changes from a non-industry specialist audit partner in year *t* to an industry specialist partner in year *t+1*, 0 otherwise;
SPEC_TO_NO_SPEC	1 when a company changes from an industry specialist audit partner in year *t* to a non-industry specialist partner in year *t+1*, 0 otherwise;
LOW_TO_HIGH_EXPERIENCE	1 when a company changes from an audit partner with below the median experience in year *t* to a partner with above the median experience in year *t+1*, 0 otherwise;
HIGH_TO_LOW_EXPERIENCE	1 when a company changes from an audit partner with above the median experience in year *t* to a partner with below the median experience in year *t+1*, 0 otherwise;
HIGH_TO_LOW_TENURE	1 when a company changes from an audit partner with long tenure (> 3 years) in year *t* to an partner with short tenure in year *t+1,* 0 otherwise;
LOW_TO_HIGH_CI	1 when a company changes from an audit partner for which client importance is below the median in year *t* to a partner for which client importance is above the median in year *t+1*, 0 otherwise;
HIGH_TO_LOW_CI	1 when a company changes from an audit partner for which client importance is above the median in year *t* to a partner for which client importance is below the median in year *t+1*, 0 otherwise;
LOW_TO_HIGH_PORTFOLIO	1 when a company changes from an audit partner with number of clients below the median in year *t* to an audit partner with number of clients above the median in year *t+1*, 0 otherwise.

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HIGH_TO_LOW_PORTOFLIO	1 when a company changes from an audit partner with number of clients above the median in year *t* to an audit partner with number of clients below the median in year *t+1*, 0 otherwise.
Control variables	
SIZE	natural logarithm of total assets;
BIG4	1 in case of a Big 4 audit firm, 0 otherwise;
LEVERAGE	total liabilities divided by total assets;
CLEVERAGE	change in *LEVERAGE* during the year;
ROA	return on assets;
LOSS	1 in case the firm reported loss in the current year, 0 otherwise;
CASHFLOW	net operating cash flow deflated by total assets;
MB	market-to-book ratio, that is the market value of equity divided by book value of equity;
PBANK	probability of bankruptcy as measured by adjusted Zmijeswski score;
LIQUID	current assets divided by current liabilities;
ARINV	account receivable plus inventory divided by total assets;
CATA	current assets divided by total assets;
RETURN	market adjusted return over the fiscal year;
VOLATILITY	variance of the residual from the market model over the fiscal year.
OFFSIZE	audit office size, measured by total number of clients at the office level;
YEAREND	1 if a client's year-end is June, 0 otherwise;
LNNAF	natural log of non-audit fees;
SECONDTIER	1 if auditor is BDO or Grant Thornton, 0 otherwise;
CROSSLIST	1 if client is listed on overseas exchanges, 0 otherwise;
LTACC	lagged total accruals.

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APPENDIX D
Summary of recommendations for audit partner studies

Issue		Suggested approach
1. Client-level descriptive statistics are misleading		Provide detailed descriptive statistics at the partner level
2. Endogeneity		
	2.1 Omitted variable bias due to insufficient controls for other audit partner characteristics	Control for other audit partner characteristics
	2.2 Simultaneity due to non-random matching of audit partners and their clients	If a suitable instrument exists: perform an instrumental variables estimation. If no suitable instrument exists: examine (mandatory) audit partner changes. Acknowledge limitations
3. Fixed effects	Which fixed effects to include?	
	3.1 Year FE	Always include year FE (in case of time series data)
	3.2 Industry FE	Always include industry FE, unless you are able to include company FE (see 3.3)
	3.3 Company FE	Include company FE if possible. The extent of within-company variation will be insufficient in many audit partner studies to do this. Never include company FE if the time period is short
	3.4 Audit partner FE	Include audit partner FE if possible. Many partner characteristics are (relatively) time-invariant, so the extent of within-partner variation will be insufficient in many audit partner studies to do so. Never include audit partner FE if the time period is short
4. Clustering	At what level to cluster SE?	Use cluster-robust standard errors
	4.1 One-way clustering at firm	SE should generally be clustered at the firm level as SE errors are more conservative
	4.2. Two-way clustering at firm and year	Do not cluster SE on year unless your time series is long
	4.3 Clustering at auditor	Never cluster SE at the audit partner level. Only cluster SE at the audit firm level if you have a large number of audit firms

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TABLE 1
Studies examining the effects of auditor characteristics on audit quality

	Country	Gender	General experience	Industry experience	Tenure	Client importance	Portfolio size	Partner descriptives (# partners)	Fixed effects / clustering SE	Endogeneity
Panel A: Audit fees										
[17]	Australia	+		+	+				FE: I/Y SE: C/Y	FE: AP/C
[18]	Australia			*NS*					FE*: AF SE: /	
[30]	Australia			–					FE: / SE: /	
[42]	Australia		*NS*	*NS*					FE: I/Y SE: C	
[26]	Belgium	+	–	+			+	Yes (692 partners)	FE: I/Y SE: AP	2SLS / CGS
[22]	China			+					FE: I/Y SE: C/Y	
[28]	China				*NS*	*NS*	*NS*		FE: I/Y SE: /	CGS
[35]	France	+	+	+			+		FE: I/Y SE: /	CGS
[36]	Korea			*NS*		+		Yes (180 partners)	FE*: I SE: AF/AP	
[37]	Korea			+	*NS*			Yes (456 partners)	FE: I/Y SE: C	
[9]	Sweden			+			*NS*	No (171 partners)	FE: I/Y/AF SE: AP/C	2SLS
[11]	Sweden/Finland Denmark	+							FE: I/Y SE: /	
[13]	Sweden							Yes (482 partners)	FE: I/Y SE: C	
[38]	Sweden		*NS*	–	*NS*	*NS*	–	Yes (286 partners)	FE*: I/Y/AF SE: C	FE: C
[16]	U.S.			+					FE*: I SE: /	
[39]	U.S.	+					–	Yes (1,796 partners)	FE: I SE: /	
[40]	U.S.	+	+					Yes (650 partners)	FE: I/Y SE: C	2SLS
Panel B: Accruals										
[1]	Australia				*NS*				FE*: I SE: /	
[3]	Australia				–				FE: I/Y SE: /	
[14]	Australia	*NS*	*NS*	*NS*	*NS*	+	+ (#clients) *NS* (∑client size)		FE: I/Y SE: C/Y	FE: AP
[24]	Australia			–	*NS*	*NS*	– (#clients)		FE: I/Y SE: C	CGS / FE: C
[27]	China		+	*NS*	+	*NS*			FE: I/Y SE: /	2SLS

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[28]	China					*NS*	–	– (∑client size)		FE: I/Y SE: /	CGS
[8]	Finland	+								FE: I/Y SE: C/Y	CGS
[20]	Finland		*NS*	*NS*					No (Avg. 82.5 partners/year)	FE: I/Y/AF SE: C	CGS
[36]	Korea			*NS*			*NS*		Yes (180 partners)	FE*: I SE: AF/AP	
[37]	Korea			–		*NS*			Yes (456 partners)	FE: I/Y/AP SE: C	
[33]	Spain			*NS*						FE: I/Y SE: /	
[12]	Sweden, Finland	+	*NS*	+						FE: I/Y SE:	AP changes
[13]	Sweden								Yes (482 partners)	FE: I/Y SE: C	
[38]	Sweden		*NS*	+		+	–	– (#clients)	Yes (406 partners)	FE: I/Y SE: C	FE: C
[2]	Taiwan					+				FE: I/Y SE: /	AP changes
[6]	Taiwan			+						FE: / SE: /	
[25]	Taiwan		+	*NS*		+	*NS*			FE: I/Y SE: C/Y	
[10]	U.S.			+						FE*: I SE: /	
[39]	U.S.	*NS*						*NS* (#clients)	Yes (1,796 partners)	FE*: I SE: /	
[40]	U.S.	+	*NS*						Yes (650 partners)	FE: I/Y SE: C	2SLS
Panel C: Audit opinions											
[1]	Australia					–				FE*: I SE:/	
[7]	Australia					–	–			FE*: / SE: /	
[14]	Australia	*NS*	*NS*	*NS*		*NS*	+	*NS* (#clients) *NS* (∑client size)		FE: I/Y SE: C/Y	FE: AP
[24]	Australia			*NS*		–	+	+ (#clients)		FE: I/Y SE: C	CGS
[31]	Australia	–		*NS*		*NS*	+	+/– (#clients)		FE: I/Y SE: C	2SLS / CGS
[23]	Belgium	+	–	+			–	– (#clients) + (∑client size)		FE: I* SE: /	2SLS
[29]	Belgium	*NS*	*NS*	+					Yes (186 partners)	FE*: I SE: /	CGS
[5]	China			*NS*			– (pre 2001) + (post 2001)	– (pre 2001) *NS* (post 2001)		FE: I/Y SE: /	
[22]	China			*NS*						FE: I/Y SE: C/Y	
[27]	China		+	*NS*		*NS*	*NS*			FE: / SE: /	
[28]	China					*NS*	*NS*	– (∑client size)		FE: I/Y SE: /	CGS

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[32]	Finland	+	–	*NS*		–	– (∑client size)		FE: I/Y SE: C	CGS
[34]	Norway		+	+			– (#clients)	Yes (1,738 partners)	FE: I/Y SE: C	
[33]	Spain			*NS*					FE: I/Y SE: /	
[15]	Sweden		–	*NS*		–	– (#clients)	No (801 partners)	FE*: I SE: AP	
[19]	Sweden		*NS*		+		*NS* (#clients)		FE: I/Y SE: C/AP	
[38]	Sweden		*NS*	*NS*	+	+	*NS* (#clients)	Yes (407 partners)	FE: I/Y/AF SE: C	
[6]	Taiwan			+					FE: Y/I SE: /	
[41]	U.S.				–				FE: I/Y SE: C	

Notes:

See Appendix A for references of the studies included in this overview. Studies [4] and [21] are not included in the overview here because they used restatements as their dependent variable (study [21] also analyzed accruals and audit opinions as their dependent variable, but did not tabulate the results of these analyses or report them in sufficient detail to be included in the overview here).

See Appendix B for an overview of definitions and measurement of variables.

NS = no statistical relationship; + = study found a positive effect on audit quality; – = study found a negative effect on audit quality.

CGS = Comparison Group Selection, either by means of propensity score matching, entropy balancing, or any technique to create matched samples.

FE = fixed effects, SE = Standard errors, I = Industry, Y = Year, AF = Audit firm, AP = Audit partner, C = Client. Some studies also included FE that were relevant in the specific context of their study (e.g., country), but we do not include them in this overview.

* Study used data from a single year, so evidently did not include year FE.

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TABLE 2
Sample description

	Firm-year observations
Initial sample for the period 2003-2018	34,977
Less: observations with missing audit partner identity	5,844
Less: observations in financial industry [a]	3,690
Less: observations with missing data	1,951
Final sample	**23,492**

[a] Financial institutions are excluded because of their specific accounting requirements, which differ substantially from those of industrial and commercial firms.

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TABLE 3

Panel A: Firm-year descriptive statistics (*N* = 23,492)

	Mean	Median	Std. dev.	p25	p75	Min.	Max.
AF ('000)	285.614	64.146	1,469.22	32.558	170.332	2.000	78,400.00
LAF	11.309	11.069	1.267	10.391	12.046	8.700	15.509
GENDER	0.073	0.000	0.260	0.000	0.000	0.000	1.000
SPEC	0.057	0.000	0.232	0.000	0.000	0.000	1.000
EXPERIENCE (years)	14.876	14.000	7.372	9.000	20.000	2.000	50.000
EXPERIENCE	2.554	2.639	0.579	2.197	2.996	0.693	3.912
TENURE	2.735	2.000	1.763	1.000	4.000	1.000	20.000
CI	0.278	0.140	0.309	0.052	0.392	0.000	1.000
PORTFOLIO (#)	8.979	6.000	8.941	3.000	12.000	1.000	58.000
PORTFOLIO	1.972	1.946	0.800	1.386	2.565	0.693	4.078
SIZE	17.198	16.877	2.327	15.629	18.602	11.752	24.449
BIG4	0.434	0.000	0.496	0.000	1.000	0.000	1.000
LEVERAGE	0.382	0.272	0.462	0.075	0.514	0.006	2.590
ROA	-0.319	-0.082	0.754	-0.345	0.062	-3.795	0.356
LOSS	0.651	1.000	0.477	0.000	1.000	0.000	1.000
LIQUID	7.195	2.185	14.140	1.110	6.493	0.065	95.750
CATA	0.449	0.401	0.299	0.193	0.679	0.006	1.000
OFFSIZE (#)	42.992	38.000	32.555	16.000	68.000	1.000	130.000
OFFSIZE	0.908	0.994	0.229	0.961	0.999	0.000	1.000
YEAREND	0.839	1.000	0.367	1.000	1.000	0.000	1.000
MB	2.662	1.452	5.206	0.714	3.012	-12.913	35.838
PBANK	-0.345	-2.045	6.173	-3.223	-0.428	-4.761	30.668
ARINV	0.149	0.058	0.193	0.012	0.225	0.000	0.855
CASHFLOW	-0.195	-0.044	0.645	-0.204	0.057	-4.594	3.358
LNNAF	6.776	9.105	5.232	0.000	10.914	0.000	15.130
SECONDTIER	0.182	0.000	0.386	0.000	0.000	0.000	1.000
CROSSLIST	0.110	0.000	0.313	0.000	0.000	0.000	1.000

All variables are defined in Appendix C.

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Panel B: Audit partner descriptive statistics (*N* = 1,428)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	Total
#partners	428	467	476	502	527	534	540	543	547	535	538	543	528	535	550	572	1,428
#female partners	21	29	32	39	40	53	65	70	73	73	69	68	75	72	78	94	178
#Big4 partners	238	257	260	285	299	298	291	298	300	293	292	292	293	299	305	314	780
EXPERIENCE	12.00	12.39	12.83	13.38	13.20	13.70	13.90	14.45	14.85	14.97	15.36	15.60	16.25	16.84	16.96	17.23	13.78
#clients	3.18	3.17	3.31	3.38	3.58	3.60	3.54	3.51	3.58	3.63	3.50	3.50	3.68	3.61	3.61	3.56	3.17
Audited assets (m)	2,88	2,49	3,25	3,83	5,21	5,29	5,43	5,6	6,61	5,22	6,27	7,11	9,14	8,22	7,04	7,46	5,79
AF ('000)	435	417	450	650	563	545	633	502	547	709	702	646	682	603	599	669	589
SPEC	0.07	0.08	0.07	0.07	0.05	0.06	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.08	0.07	0.08	0.06
TENURE	3.81	3.44	3.72	3.46	2.62	2.18	2.29	2.51	2.54	2.40	2.42	2.46	2.49	2.44	2.38	2.29	2.63
CI	0.736	0.745	0.739	0.727	0.732	0.71	0.723	0.732	0.735	0.727	0.716	0.718	0.734	0.736	0.745	0.739	0.715

#partners, #female partners, and #Big4 partners are respectively the number of partners, female partners, and Big4 partners in year *t*. #clients is the number of clients per partner. Audited assets (m) is partners' yearly total of audited assets. AF ('000) is partners' yearly total of audit fees (in thousands AUD).
All other variables are defined in Appendix C.

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TABLE 4

Panel A: Correlation matrix firm-year level (*N* = 23,492)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	*LAF*	1.000														
2	*GENDER*	0.106***	1.000													
		(0.000)														
3	*SPEC*	0.326***	0.033***	1.000												
		(0.000)	(0.000)													
4	*EXPERIENCE*	0.074***	-0.095***	0.052***	1.000											
		(0.000)	(0.000)	(0.000)												
5	*TENURE*	0.026***	-0.029***	0.034***	0.066***	1.000										
		(0.000)	(0.000)	(0.000)	(0.000)											
6	*CI*	0.461***	0.123***	0.118***	-0.031***	0.013*	1.000									
		(0.000)	(0.000)	(0.000)	(0.000)	(0.052)										
7	*PORTFOLIO*	-0.373***	-0.175***	-0.066***	0.056***	0.002	-0.741***	1.000								
		(0.000)	(0.000)	(0.000)	(0.000)	(0.775)	(0.000)									
8	*SIZE*	0.811***	0.086***	0.283***	0.078***	0.042***	0.378***	-0.320***	1.000							
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)								
9	*BIG4*	0.532***	0.158***	0.200***	0.001	0.052***	0.187***	-0.327***	0.503***	1.000						
		(0.000)	(0.000)	(0.000)	(0.911)	(0.000)	(0.000)	(0.000)	(0.000)							
10	*LEVERAGE*	0.160***	-0.009	0.048***	0.012*	0.015**	0.110***	-0.110***	-0.079***	0.029***	1.000					
		(0.000)	(0.148)	(0.000)	(0.070)	(0.018)	(0.000)	(0.000)	(0.000)	(0.000)						
11	*ROA*	0.300***	0.060***	0.092***	0.016**	0.037***	0.184***	-0.180***	0.555***	0.210***	-0.373***	1.000				
		(0.000)	(0.000)	(0.000)	(0.015)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)					
12	*LOSS*	-0.485***	-0.061***	-0.157***	-0.035***	-0.067***	-0.299***	0.288***	-0.536***	-0.295***	-0.074***	-0.397***	1.000			
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
13	*LIQUID*	-0.291***	-0.021***	-0.067***	-0.012*	-0.042***	-0.166***	0.163***	-0.174***	-0.117***	-0.304***	0.032***	0.167***	1.000		
		(0.000)	(0.002)	(0.000)	(0.073)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
14	*CATA*	-0.196***	-0.006	-0.068***	-0.016**	-0.027***	-0.072***	0.060***	-0.386***	-0.117***	0.113***	-0.281***	0.069***	0.304***	1.000	
		(0.000)	(0.347)	(0.000)	(0.014)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)		
15	*OFFSIZE*	0.244***	0.014**	-0.014**	0.020***	-0.008	-0.123***	0.218***	0.208***	0.378***	-0.014**	0.045***	-0.069***	-0.021***	-0.075***	1.000
		(0.000)	(0.036)	(0.033)	(0.002)	(0.214)	(0.000)	(0.000)	(0.000)	(0.000)	(0.027)	(0.000)	(0.000)	(0.001)	(0.000)	

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Panel A: Correlation matrix firm-year level (*N* = 23,492) (contd.)

		1	2	3	4	5	6	7	16	17	18	19	20	21	22	23
1	*LAF*	1.000														
2	*GENDER*	0.106***	1.000													
		(0.000)														
3	*SPEC*	0.326***	0.033***	1.000												
		(0.000)	(0.000)													
4	*EXPERIENCE*	0.074***	-0.095***	0.052***	1.000											
		(0.000)	(0.000)	(0.000)												
5	*TENURE*	0.026***	-0.029***	0.034***	0.066***	1.000										
		(0.000)	(0.000)	(0.000)	(0.000)											
6	*CI*	0.461***	0.123***	0.118***	-0.031***	0.013*	1.000									
		(0.000)	(0.000)	(0.000)	(0.000)	(0.052)										
7	*PORTFOLIO*	-0.373***	-0.175***	-0.066***	0.056***	0.002	-0.741***	1.000								
		(0.000)	(0.000)	(0.000)	(0.000)	(0.775)	(0.000)									
16	*YEAREND*	-0.177***	-0.015**	-0.097***	-0.015**	0.010	-0.094***	0.088***	1.000							
		(0.000)	(0.018)	(0.000)	(0.021)	(0.116)	(0.000)	(0.000)								
17	*MB*	-0.044***	-0.001	-0.014**	0.007	-0.001	-0.028***	0.030***	0.001	1.000						
		(0.000)	(0.874)	(0.031)	(0.296)	(0.905)	(0.000)	(0.000)	(0.916)							
18	*PBANK*	-0.106***	-0.042***	-0.035***	-0.002	-0.016**	-0.060***	0.057***	0.020***	0.001	1.000					
		(0.000)	(0.000)	(0.000)	(0.799)	(0.015)	(0.000)	(0.000)	(0.003)	(0.852)						
19	*ARINV*	0.246***	0.028***	0.044***	0.004	0.048***	0.208***	-0.212***	-0.026***	-0.019***	0.162***	1.000				
		(0.000)	(0.000)	(0.000)	(0.516)	(0.000)	(0.000)	(0.000)	(0.000)	(0.003)	(0.000)					
20	*CASHFLOW*	0.257***	0.046***	0.074***	0.011*	0.030***	0.141***	-0.131***	-0.047***	-0.068***	-0.660***	-0.035***	1.000			
		(0.000)	(0.000)	(0.000)	(0.099)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)				
21	*LNNAF*	0.534***	0.046***	0.159***	0.035***	0.037***	0.261***	-0.252***	-0.112***	-0.003	-0.124***	0.174***	0.203***	1.000		
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.619)	(0.000)	(0.000)	(0.000)			
22	*SECONDTIER*	-0.146***	-0.034***	-0.073***	-0.050***	-0.066***	-0.175***	0.268***	0.044***	0.011*	0.022***	-0.050***	-0.035***	-0.085***	1.000	
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.084)	(0.001)	(0.000)	(0.000)	(0.000)		
23	*CROSSLIST*	0.063***	-0.015**	0.051***	0.019***	0.016**	-0.020***	0.061***	-0.033***	0.018***	0.012*	-0.077***	-0.028***	0.023***	0.003	1.000
		(0.000)	(0.022)	(0.000)	(0.004)	(0.015)	(0.003)	(0.000)	(0.000)	(0.005)	(0.066)	(0.000)	(0.000)	(0.000)	(0.660)	

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Panel B: Correlation matrix partner level (*N* = 1,428)

	GENDER	*SPEC*	*EXPERIENCE*	*TENURE*	*CI*	*PORTFOLIO*
GENDER	1.000					
SPEC	0.017	1.000				
	(0.528)					
EXPERIENCE	-0.032	0.045*	1.000			
	(0.229)	(0.088)				
TENURE	-0.090***	0.012	0.144***	1.000		
	(0.001)	(0.641)	(0.000)			
CI	-0.040	0.063**	-0.077***	-0.052*	1.000	
	(0.132)	(0.018)	(0.004)	(0.051)		
PORTFOLIO	-0.062**	0.008	0.066**	0.067**	-0.368***	1.000
	(0.019)	(0.753)	(0.013)	(0.011)	(0.000)	

All variables are defined in Appendix C.
*, **, *** $p < .10, .05, .01$, respectively.

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TABLE 5

Panel A: Regression analyses for the impact of individual audit partner characteristics on audit fees

Variables	(1) coefficient (t-stat.)	(2) coefficient (t-stat.)	(3) coefficient (t-stat.)	(4) coefficient (t-stat.)	(5) coefficient (t-stat.)	(6) coefficient (t-stat.)	(7) coefficient (t-stat.)
GENDER	0.044*						0.001
	(1.92)						(0.04)
SPEC		0.391***					0.398***
		(9.00)					(10.31)
EXPERIENCE			-0.012				-0.004
			(-1.13)				(-0.36)
TENURE				0.011***			0.013***
				(4.47)			(5.28)
CI					0.612***		0.805***
					(19.90)		(21.15)
PORTFOLIO						-0.090***	0.103***
						(-9.09)	(8.45)
SIZE	0.417***	0.406***	0.417***	0.416***	0.395***	0.416***	0.378***
	(52.54)	(53.08)	(52.58)	(52.47)	(54.45)	(53.12)	(53.59)
BIG4	0.327***	0.313***	0.330***	0.332***	0.309***	0.294***	0.325***
	(16.14)	(15.28)	(16.28)	(16.39)	(16.32)	(14.36)	(16.92)
LEVERAGE	0.214***	0.206***	0.214***	0.214***	0.193***	0.208***	0.186***
	(8.95)	(8.82)	(8.96)	(8.95)	(8.40)	(8.73)	(8.33)
ROA	-0.124***	-0.118***	-0.124***	-0.123***	-0.120***	-0.128***	-0.108***
	(-8.25)	(-7.88)	(-8.22)	(-8.21)	(-8.12)	(-8.47)	(-7.42)
LOSS	-0.029*	-0.029*	-0.030*	-0.028*	-0.021	-0.025	-0.022
	(-1.80)	(-1.84)	(-1.83)	(-1.75)	(-1.35)	(-1.56)	(-1.46)
LIQUID	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***	-0.005***
	(-12.49)	(-12.53)	(-12.49)	(-12.49)	(-12.33)	(-12.39)	(-12.41)
CATA	0.186***	0.175***	0.186***	0.188***	0.180***	0.196***	0.158***
	(6.15)	(5.91)	(6.18)	(6.21)	(6.36)	(6.52)	(5.75)
OFFSIZE	0.166***	0.204***	0.164***	0.165***	0.439***	0.251***	0.469***
	(4.147)	(4.98)	(4.10)	(4.11)	(10.48)	(6.10)	(11.38)
YEAREND	-0.071***	-0.064**	-0.071***	-0.072***	-0.063**	-0.068***	-0.057**
	(-2.772)	(-2.519)	(-2.76)	(-2.81)	(-2.56)	(-2.66)	(-2.43)
MB	0.004***	0.004***	0.004***	0.004***	0.003***	0.004***	0.003***
	(3.36)	(3.37)	(3.39)	(3.36)	(3.28)	(3.46)	(3.16)

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PBANK	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***	0.008***
	(3.97)	(4.01)	(3.97)	(3.93)	(4.01)	(3.94)	(4.06)
ARINV	0.451***	0.458***	0.451***	0.448***	0.385***	0.425***	0.398***
	(8.74)	(9.03)	(8.74)	(8.67)	(7.91)	(8.28)	(8.42)
CASHFLOW	-0.044***	-0.041***	-0.044***	-0.044***	-0.043***	-0.045***	-0.038***
	(-2.83)	(-2.62)	(-2.83)	(-2.83)	(-2.85)	(-2.85)	(-2.61)
LNNAF	0.021***	0.021***	0.021***	0.021***	0.019***	0.020***	0.020***
	(15.14)	(15.18)	(15.16)	(15.19)	(14.24)	(14.65)	(14.75)
SECONDTIER	0.055***	0.050***	0.054***	0.057***	0.080***	0.074***	0.062***
	(2.98)	(2.73)	(2.94)	(3.12)	(4.63)	(4.11)	(3.58)
CROSSLIST	0.108***	0.100***	0.108***	0.107***	0.118***	0.117***	0.103***
	(3.23)	(3.06)	(3.23)	(3.20)	(3.89)	(3.57)	(3.48)
Intercept	3.061***	3.198***	3.087***	3.025***	3.064***	3.204***	3.003***
	(20.10)	(21.64)	(19.99)	(19.88)	(21.76)	(21.40)	(21.65)
Year FE	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included
Adj. R^2	0.80	0.80	0.80	0.80	0.81	0.80	0.82
# Observations	23,492	23,492	23,492	23,492	23,492	23,492	23,492

*, **, *** $p < .10, .05, .01$, respectively.

All *p*-values are two-tailed. Reported *t*-values are based on standard errors adjusted for heteroskedasticity (White, 1980) and clustering by company (Petersen, 2009). All variables are defined in Appendix C.

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Panel B: FE structures and clustering

Variables	(1) coefficient (t-stat.)	(2) coefficient (t-stat.)	(3) coefficient (t-stat.)	(4) coefficient (t-stat.)	(5) coefficient (t-stat.)	(6) coefficient (t-stat.)	(7) coefficient (t-stat.)
GENDER	0.055***	0.055**	0.001	0.001	-0.004		
	(3.75)	(2.36)	(0.06)	(0.04)	(-0.25)		
SPEC	0.396***	0.396***	0.398***	0.398***	0.351***	0.382***	0.347***
	(23.30)	(10.04)	(24.65)	(10.31)	(10.15)	(12.33)	(10.83)
EXPERIENCE	0.044***	0.044***	-0.004	-0.004	-0.009	0.076**	0.052*
	(6.75)	(4.32)	(-0.57)	(-0.36)	(-1.03)	(2.36)	(1.72)
TENURE	-0.011***	-0.011***	0.013***	0.013***	0.012***	0.009***	0.012***
	(-5.02)	(-4.26)	(6.08)	(5.28)	(5.74)	(4.13)	(5.70)
CI	0.807***	0.807***	0.805***	0.805***	0.565***	1.461***	0.969***
	(41.51)	(20.25)	(43.87)	(21.15)	(15.45)	(33.57)	(21.02)
PORTFOLIO	0.065***	0.065***	0.103***	0.103***	0.108***	0.442***	0.302***
	(8.79)	(5.02)	(14.44)	(8.45)	(8.02)	(24.24)	(17.64)
Intercept	3.069***	3.069***	3.003***	3.003***	5.275***	4.399***	4.932***
	(52.32)	(23.04)	(51.78)	(21.65)	(33.00)	(28.36)	(34.99)
Control variables	Included	Included	Included	Included	Included	Included	Included
Year FE	No	No	Included	Included	Included	Included	Included
Industry FE	No	No	Included	Included	No	Included	No
Client FE	No	No	No	No	Included	No	Included
Auditor FE	No	No	No	No	No	Included	Included
SE clustered	No	Client	No	Client	Client	Client	Client
Adj. R^2	0.80	0.80	0.82	0.82	0.91	0.87	0.92
# Observations	23,492	23,492	23,492	23,492	23,492	23,492	23,492

*, **, *** $p < .10, .05, .01$, respectively.

All *p*-values are two-tailed. Reported *t*-values are based on standard errors adjusted for heteroskedasticity (White, 1980) and clustering by company (Petersen, 2009). All variables are defined in Appendix C.

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TABLE 6

Change analyses for the impact of individual audit partner characteristics on audit fees

Variables	(1) coefficient (t-stat.)	(2) coefficient (t-stat.)	(3) coefficient (t-stat.)	(4) coefficient (t-stat.)	(5) coefficient (t-stat.)	(6) coefficient (t-stat.)	(7) coefficient (t-stat.)	(8) coefficient (t-stat.)	(9) coefficient (t-stat.)	(10) coefficient (t-stat.)	(11) coefficient (t-stat.)
FEMALE_TO_MALE	-0.219**										
	(-2.10)										
MALE_TO_FEMALE		0.018									
		(0.67)									
NO_SPEC_TO_SPEC			0.269***								
			(2.37)								
SPEC_TO_NO_SPEC				-0.110**							
				(-2.10)							
LOW_TO_HIGH_EXPERIENCE					0.009						
					(0.34)						
HIGH_TO_LOW_EXPERIENCE						0.036					
						(1.40)					
HIGH_TO_LOW_TENURE							0.114				
							(1.51)				
LOW_TO_HIGH_CI								0.130***			
								(4.31)			
HIGH_TO_LOW_CI									-0.149***		
									(-3.42)		
LOW_TO_HIGH_PORTFOLIO										0.033	
										(1.20)	
HIGH_TO_LOW_PORTOFLIO											0.002
											(0.64)
Intercept	-0.616*	0.056	-0.195	0.035	0.048	-0.015	0.041	0.049	0.011	-0.031	0.037
	(-1.94)	(0.75)	(-0.52)	(0.46)	(0.48)	(-0.15)	(0.44)	(0.53)	(0.94)	(-0.34)	(0.33)
Control variables	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
SE clustered	Client	Client	Client	Client	Client	Client	Client	Client	Client	Client	Client
Adj. R^2	0.51	0.19	0.68	0.17	0.23	0.17	0.18	0.24	0.24	0.25	0.22
# Observations	84	1,369	89	1,364	706	747	1,453	827	626	747	706

*, **, *** $p < .10, .05, .01$, respectively.

All *p*-values are two-tailed. Reported *t*-values are based on standard errors adjusted for heteroskedasticity (White, 1980) and clustering by company (Petersen, 2009).

All variables are defined in Appendix C.

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TABLE 7

Panel A: Regression analyses for the impact of individual audit partner characteristics on going-concern reporting

Variables	coefficient (z-stat.)	coefficient (z-stat.)	coefficient (z-stat.)	coefficient (z-stat.)	coefficient (z-stat.)	coefficient (z-stat.)	coefficient (z-stat.)
GENDER	-0.141						-0.211*
	(-1.284)						(-1.904)
SPEC		-0.310**					-0.252*
		(-2.090)					(-1.721)
EXPERIENCE			-0.051				-0.042
			(-1.092)				(-0.897)
TENURE				-0.006			-0.001
				(-0.386)			(-0.048)
CI					0.198*		-0.113
					(1.795)		(-0.780)
PORTFOLIO						-0.133***	-0.162***
						(-3.200)	(-2.918)
SIZE	-0.304***	-0.299***	-0.303***	-0.303***	-0.308***	-0.305***	-0.299***
	(-13.12)	(-12.76)	(-13.02)	(-13.06)	(-13.22)	(-13.11)	(-12.64)
BIG4	0.316***	0.314***	0.296***	0.301***	0.292***	0.245***	0.265***
	(3.944)	(3.929)	(3.715)	(3.766)	(3.637)	(3.010)	(3.235)
LEVERAGE	0.625***	0.628***	0.624***	0.624***	0.620***	0.619***	0.622***
	(5.766)	(5.794)	(5.753)	(5.757)	(5.714)	(5.691)	(5.725)
CLEVERAGE	-0.026***	-0.026***	-0.026***	-0.026***	-0.025***	-0.025***	-0.025***
	(-4.862)	(-4.891)	(-4.872)	(-4.876)	(-4.770)	(-4.668)	(-4.708)
ROA	0.123**	0.121**	0.124***	0.123**	0.124***	0.121**	0.120**
	(2.572)	(2.536)	(2.582)	(2.572)	(2.579)	(2.514)	(2.483)
LOSS	0.581***	0.581***	0.580***	0.580***	0.581***	0.582***	0.584***
	(5.708)	(5.704)	(5.699)	(5.702)	(5.704)	(5.705)	(5.720)
CASHFLOW	-0.029	-0.032	-0.030	-0.030	-0.032	-0.035	-0.035
	(-0.480)	(-0.522)	(-0.494)	(-0.493)	(-0.522)	(-0.571)	(-0.575)
PBANK	0.012	0.012	0.012	0.012	0.012	0.012	0.012
	(1.154)	(1.156)	(1.184)	(1.169)	(1.171)	(1.168)	(1.160)
CROSS_LIST	0.100	0.101	0.105	0.102	0.108	0.121	0.119
	(0.949)	(0.955)	(0.999)	(0.970)	(1.022)	(1.146)	(1.132)
LNNAF	-0.002	-0.002	-0.002	-0.002	-0.002	-0.003	-0.003
	(-0.337)	(-0.306)	(-0.275)	(-0.299)	(-0.402)	(-0.477)	(-0.480)
LIQUID	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***
	(-8.412)	(-8.412)	(-8.407)	(-8.414)	(-8.350)	(-8.336)	(-8.331)

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ARINV	-0.286	-0.282	-0.282	-0.287	-0.305*	-0.313*	-0.295
	(-1.568)	(-1.547)	(-1.545)	(-1.575)	(-1.675)	(-1.716)	(-1.618)
RETURN	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***	-0.004***
	(-11.56)	(-11.59)	(-11.54)	(-11.56)	(-11.51)	(-11.64)	(-11.66)
VOLATILITY	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***	0.005***
	(7.993)	(8.012)	(8.007)	(8.021)	(7.983)	(8.111)	(8.128)
SECOND_TIER	0.275***	0.276***	0.263***	0.271***	0.277***	0.297***	0.300***
	(3.466)	(3.474)	(3.317)	(3.410)	(3.495)	(3.748)	(3.779)
MB	0.008*	0.008*	0.008*	0.008*	0.008*	0.009*	0.009**
	(1.852)	(1.861)	(1.854)	(1.836)	(1.834)	(1.927)	(1.983)
SD_EARNINGS	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**	0.005**
	(2.357)	(2.354)	(2.319)	(2.352)	(2.331)	(2.292)	(2.262)
LTACC	0.008	0.008	0.008	0.008	0.008	0.009	0.009
	(0.530)	(0.543)	(0.542)	(0.530)	(0.569)	(0.627)	(0.613)
OFFSIZE	-0.406***	-0.424***	-0.401***	-0.401***	-0.304**	-0.255*	-0.304**
	(-2.720)	(-2.821)	(-2.685)	(-2.685)	(-2.055)	(-1.701)	(-2.020)
Intercept	3.024***	2.975***	3.129***	3.036***	2.976***	3.200***	3.337***
	(6.963)	(6.813)	(7.110)	(6.921)	(6.869)	(7.222)	(7.343)
Year FE	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included
SE clustered	Client	Client	Client	Client	Client	Client	Client
Pseudo R^2	0.16	0.16	0.16	0.16	0.16	0.16	0.16
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000	0.000
# Observations	13,434	13,434	13,434	13,434	13,434	13,434	13,434

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Panel B: Individual audit partner characteristics and going-concern reporting with different FE structures and clustering

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variables	**coefficient (z-stat.)**	**coefficient (z-stat.)**	**coefficient (z-stat.)**	**coefficient (z-stat.)**	**coefficient (z-stat.)**	**coefficient (z-stat.)**
GENDER	-0.157*	-0.157	-0.211**	-0.056	0.577	-0.191
	(-1.703)	(-1.423)	(-2.253)	(-0.313)	(0.751)	(-1.637)
SPEC	-0.308**	-0.308**	-0.252*	-0.177	-0.259	-0.227
	(-2.250)	(-2.073)	(-1.813)	(-0.686)	(-1.581)	(-1.590)
EXPERIENCE	0.026	0.026	-0.042	-0.026	-0.051	0.001
	(0.700)	(0.576)	(-1.101)	(-0.376)	(-0.237)	(0.0265)
TENURE	-0.031**	-0.031**	-0.001	0.008	-0.018	-0.010
	(-2.497)	(-2.255)	(-0.0516)	(0.393)	(-1.073)	(-0.657)
CI	-0.131	-0.131	-0.113	0.271	0.223	-0.174
	(-1.085)	(-0.924)	(-0.923)	(1.182)	(1.062)	(-1.168)
PORTFOLIO	-0.147***	-0.147***	-0.162***	0.019	0.235**	-0.207***
	(-3.515)	(-2.777)	(-3.769)	(0.217)	(2.242)	(-3.232)
Intercept	3.011***	3.011***	3.337***	3.859***	3.360***	2.832***
	(8.656)	(6.894)	(9.006)	(4.659)	(6.119)	(3.741)
Control variables	Included	Included	Included	Included	Included	Included
Year FE			Included	Included	Included	Included
Industry FE			Included		Included	Included
Client FE				Included		
Partner FE					Included	
Audit firm FE						Included
Pseudo R^2	0.15	0.15	0.16	0.25	0.23	0.19
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000
# Observations	14,434	14,434	14,434	9,487	12,177	13,195

Model 1: Baseline model without FE and without clustering. Model 2: Model without FE with SE clustered at client level. Model 3: Model with industry and year FE without clustering. Model 4: Model with year and company FE and clustering at client level. Model 5: Model with year, industry, and audit partner FE and clustering at client level. Model 6: Model with year, industry, and audit firm FE and clustering at client level.

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Panel C: Regression analyses for the impact of individual audit partner characteristics on discretionary accruals (DACC)

	Model 1							Model 2	Model 3
Variables	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**	**coefficient (t-stat.)**
GENDER	-0.004						0.000	0.000	-0.000
	(-0.930)						(0.069)	(0.028)	(-0.067)
SPEC		0.011***					0.008**	0.010**	0.010**
		(2.606)					(2.071)	(2.507)	(2.268)
EXPERIENCE			0.001				0.000	-0.000	0.001
			(0.648)				(0.090)	(-0.211)	(0.231)
TENURE				-0.001			-0.001	-0.001	-0.001
				(-0.973)			(-1.380)	(-1.441)	(-1.644)
CI					-0.012***		0.019***	0.019***	0.020***
					(-2.916)		(3.228)	(3.310)	(3.436)
PORTFOLIO						0.012***	0.017***	0.015***	0.018***
						(6.249)	(6.203)	(5.618)	(6.299)
SIZE	-0.024***	-0.024***	-0.024***	-0.023***	-0.023***	-0.023***	-0.024***	-0.022***	-0.024***
	(-23.98)	(-24.01)	(-23.95)	(-23.89)	(-22.91)	(-23.57)	(-23.33)	(-22.23)	(-23.63)
BIG4	0.004	0.004	0.004	0.004	0.003	0.006*	0.008**	0.006	0.007*
	(1.190)	(1.017)	(1.101)	(1.057)	(0.841)	(1.678)	(2.180)	(1.558)	(1.909)
LEVERAGE	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	-0.001	-0.000	-0.003
	(-0.179)	(-0.208)	(-0.188)	(-0.178)	(-0.113)	(-0.047)	(-0.109)	(-0.002)	(-0.394)
LOSS	-0.004	-0.004	-0.004	-0.004	-0.004	-0.005	-0.005	0.001	-0.008**
	(-1.221)	(-1.208)	(-1.188)	(-1.218)	(-1.286)	(-1.460)	(-1.455)	(0.445)	(-2.249)
LIQUID	0.000	0.000	0.000	0.000	0.000	-0.000	-0.000	0.000	0.000
	(0.269)	(0.249)	(0.251)	(0.259)	(0.160)	(-0.040)	(-0.0212)	(0.298)	(0.298)
YEAREND	-0.006	-0.005	-0.006*	-0.006	-0.006*	-0.007**	-0.006*	-0.007**	-0.007*
	(-1.632)	(-1.538)	(-1.655)	(-1.601)	(-1.808)	(-1.967)	(-1.742)	(-2.140)	(-1.872)
MB	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***	0.002***
	(6.176)	(6.161)	(6.173)	(6.173)	(6.203)	(6.155)	(6.088)	(5.900)	(6.146)
ARINV	-0.002	-0.002	-0.002	-0.002	-0.001	0.001	0.000	0.003	0.001
	(-0.241)	(-0.245)	(-0.260)	(-0.238)	(-0.0693)	(0.118)	(0.0192)	(0.305)	(0.134)
CASHFLOW	0.031***	0.031***	0.031***	0.031***	0.031***	0.032***	0.032***	0.021***	0.034***
	(5.093)	(5.117)	(5.097)	(5.090)	(5.075)	(5.163)	(5.222)	(3.407)	(5.664)
PBANK	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***	0.006***	0.005***	0.006***
	(11.95)	(11.94)	(11.96)	(11.95)	(11.96)	(11.98)	(11.96)	(10.64)	(12.69)
LNNAF	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001**	0.001*	0.001**
	(2.023)	(2.055)	(2.021)	(2.026)	(2.090)	(2.236)	(2.188)	(1.723)	(2.473)

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SECOND_TIER	-0.004	-0.004	-0.004	-0.005	-0.006	-0.009**	-0.009**	-0.008**	-0.009**
	(-1.033)	(-1.046)	(-1.035)	(-1.102)	(-1.361)	(-2.138)	(-2.082)	(-2.003)	(-2.063)
CROSS_LIST	0.007	0.007	0.007	0.007	0.007	0.006	0.006	0.008	0.007
	(1.457)	(1.396)	(1.466)	(1.466)	(1.467)	(1.278)	(1.126)	(1.568)	(1.394)
LTACC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001
	(0.306)	(0.313)	(0.297)	(0.221)	(0.275)	(0.227)	(0.147)	(0.403)	(0.906)
LROA	-0.012***	-0.012***	-0.013***	-0.013***	-0.012***	-0.012***	-0.012***	-0.012***	-0.012***
	(-4.939)	(-4.920)	(-4.963)	(-4.957)	(-4.952)	(-4.920)	(-4.878)	(-4.643)	(-4.344)
SD_CASHFLOW	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.365)	(0.381)	(0.364)	(0.362)	(0.400)	(0.540)	(0.572)	(0.770)	(0.499)
Intercept	0.589***	0.594***	0.586***	0.591***	0.583***	0.556***	0.557***	0.523***	0.567***
	(31.730)	(31.770)	(30.920)	(31.760)	(31.150)	(29.220)	(28.550)	(27.660)	(28.670)
Year FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included	Included
Cluster at the clients	Included	Included	Included	Included	Included	Included	Included	Included	Included
R^2	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.27
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
# Observations	22,036	22,036	22,036	22,036	22,036	22,036	22,036	22,036	22,036

Model 1: Kothari et al. (2005). Model 2: Ball and Shivakumar (2005). Model 3: Dechow et al. (1995).

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Panel D: Individual audit partner characteristics and DACC with different FE structures and clustering

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)	coefficient (t-stat.)
GENDER	-0.000	-0.000	0.000	0.002			-0.001	0.000	0.000
	(-0.038)	(-0.040)	(0.0655)	(0.366)			(-0.189)	(0.063)	(0.0674)
SPEC	0.007	0.007*	0.008*	0.008	0.005	0.005	0.008**	0.008**	0.008**
	(1.523)	(1.738)	(1.805)	(1.477)	(1.200)	(0.769)	(2.021)	(2.082)	(2.329)
EXPERIENCE	0.002	0.002	0.000	0.000	0.003	0.010	-0.001	0.000	0.000
	(1.209)	(1.081)	(0.101)	(0.169)	(0.329)	(0.952)	(-0.414)	(0.083)	(0.111)
TENURE	-0.002***	-0.002***	-0.001	-0.000	-0.001*	-0.000	-0.001	-0.001	-0.001*
	(-3.705)	(-3.572)	(-1.390)	(-0.655)	(-1.780)	(-0.473)	(-1.532)	(-1.469)	(-1.854)
CI	0.019***	0.019***	0.019***	0.018***	0.032***	0.030***	0.020***	0.019***	0.019***
	(3.497)	(3.276)	(3.444)	(2.833)	(4.584)	(3.848)	(3.367)	(3.236)	(3.132)
PORTFOLIO	0.021***	0.021***	0.017***	0.010***	0.017***	0.014***	0.014***	0.017***	0.017***
	(9.548)	(7.388)	(7.931)	(2.666)	(3.797)	(2.700)	(4.587)	(6.110)	(7.622)
Intercept	0.526***	0.526***	0.557***	0.679***	0.617***	0.686***	0.574***	0.531***	0.531***
	(34.64)	(27.00)	(34.43)	(18.23)	(20.83)	(15.23)	(27.86)	(26.00)	(24.62)
Control variables	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year FE			Included	Included	Included	Included	Included	Included	Included
Industry FE			Included		Included		Included	Included	Included
Client FE				Included		Included			
Partner FE					Included	Included			
Audit firm FE							Included		
Adjusted R^2	0.25	0.25	0.26	0.32	0.27	0.32	0.27	0.26	0.26
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
# Observations	22,036	22,036	22,036	21,867	21,860	21,698	22,036	22,036	22,036

Model 1: Baseline model without FE and without clustering. Model 2: Model without FE with SE clustered at client level. Model 3: Model with industry and year FE without clustering. Model 4: Model with year and company FE and clustering at client level. Model 5: Model with year, industry, and audit partner FE and clustering at client level. Model 6: Model with year, company, and audit partner FE and clustering at client level. Model 7: Model with year, industry, and audit firm FE and clustering at client level. Model 8: Model with year, industry FE and clustering at client and partner level. Model 9: Model with year, industry FE and clustering at client and year.

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