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The Effect of Auditor Style on Reporting Quality: Evidence from Germany

This paper examines whether the 'style' of individual auditors influences financial reporting quality in Germany. Audit quality in Germany should be uniformly high, because of strong reputational needs, strict controls on operating procedures, and quality enforcement mechanisms. An audit partner's style should not affect this quality level. However, our results do not support this expectation. Exploiting a unique dataset comprising the names of the audit engagement and review partners of listed German companies, we find that audit engagement partners in Germany have a significant influence on audit quality, beyond firm- and office-level factors. In contrast, audit review partners do not have a consistent significant influence on audit quality. We measure audit quality by the level of a firm's abnormal accruals and its propensity to meet or beat an earnings target. We also find that the 2005 adoption of a new audit quality enforcement system that includes 'naming and shaming' does not reduce the influence of audit partner style on financial reporting quality.

Key words: Audit quality; Auditor style; Engagement partner; Germany; Reputation; Review partner.

Auditors are economic agents who shape financial reporting (Kothari *et al.*, 2010), and whose compensation often relates to their performance (Knechel *et al.*, 2013). An emerging stream of literature highlights the importance of assessing audit quality at the individual partner level (DeFond and Francis, 2005; Church *et al.*, 2008; Carcello and Li, 2013; Goodwin and Wu, 2014). Notably, Gul *et al.* (2013) and Aobdia *et al.* (2015), drawing on samples from China and Taiwan, respectively, find that the level of abnormal accruals reported by clients varies according to the individual auditor. However, given the institutional characteristics specific to China, such as lax regulations, poor enforcement, and a relatively weak accounting profession (DeFond *et al.*, 1999; Francis *et al.*, 2003), these prior findings may not generalize to more developed economies (Gul *et al.*, 2013;

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Cameran *et al.*, 2018; Lennox and Wu, 2017). In this paper, we assess whether individual auditor style has an impact on audit quality in the context of the German auditing market. This is important because features of the German audit setting, which are different from those studied thus far, mean that we cannot rely on prior work.

Our analysis of the German setting is motivated by its similarity to those of other developed economies, and the special requirement of listed companies to disclose the identity of external auditors (Ernstberger *et al.*, 2015). This allows us to measure the drivers of audit quality by distinguishing three levels of influence: audit partners, audit offices, and audit firms. According to Lennox *et al.* (2018), this type of analysis is scarce in the prior literature because of the difficulties in identifying the individual engagement and review partners. In Germany, however, two auditors, namely, the engagement partner and the review partner, must jointly sign the audit report (§ 322 Handelsgesetzbuch (HGB), the German Commercial Code). The former has an operating role, while the latter has a quality-review role and engages with the client to a lesser extent (Epps and Messier, 2007). This provides for clear identification of specific auditors. As an empirical strategy, the signatures of the two partners allow us to investigate the engagement and review partners' systematic or 'style' effects on audit quality. We define a style effect as a significant impact of an audit firm, audit office, or audit partner factor on a proxy for audit quality. We capture this in a regression analysis as a fixed effect representing the audit firm, audit office, or audit partner. Also unique to Germany, the audit partner holds equity shares in their audit firms, which makes them particularly sensitive to the reputational risk faced by their audit firms. We expect engagement partners to impact audit quality more than review partners, because the former are involved throughout the audit process, have direct contact with the client, and make important decisions that directly influence the level of abnormal accruals. By contrast, the role of the review partner is to confirm the judgement of the engagement partner, with little interaction with the client, making a style effect on audit quality less likely.

For each company, we hand-collected data on the characteristics of the signing partners to obtain a unique dataset that allowed us to assess whether individual auditors have an impact on audit quality, beyond firm- and office-level factors (and other controls for audit quality). Consistent with Gul *et al.* (2013) and Aobdia *et al.* (2015), we proxied for audit quality by measuring the level of an audit client's abnormal accruals and the propensity of the firm to meet or beat an earnings target. Building on Bertrand and Schoar (2003), we estimated the explanatory power of fixed effects in regression models to assess the impact of the style of audit firms, offices, and engagement and review partners on our measures of audit quality.

Initially, we found significant effects on audit quality for the engagement partner, the review partner, the audit firm, and the audit office, when the effects were included without controlling for combinations of fixed effects. Next, we analyzed to what extent firm, office, and audit partner effects overlap. Specifically, we tested the impact on audit quality of combinations of audit firm, office, and individual partners' fixed effects. In these tests the effects of engagement partners, audit firms, and audit offices remained consistently significant. Thus, the engagement partner style effects we report are not driven by firm-level or office-level factors. However, the review partner effects are insignificant in most specifications. This result is in line with our expectation that engagement partners impact audit quality more than review partners.

Our findings are particularly valuable, given that prior work on the characteristics of the German auditing market suggests that strong audit firm style effects should dominate office and individual auditor style effects in explaining audit quality. Specifically, previous research finds that, despite limited liability for auditors, the German setting renders reputational concerns a powerful incentive to perform high-quality audits. For example, Weber *et al.* (2008) report that in 2002, after a high-profile audit failure, KPMG-Germany lost a significant share of its clients, and the stock price of its remaining clients decreased significantly. To emphasize reputational concerns, we exploited the establishment of a two-tier 'naming and shaming' provision to enforce audit quality uniformity for listed firms, set up in 2005 as part of the Financial Reporting Enforcement Panel (FREP). Specifically, we used the 2005 FREP adoption as a 'shock' to determine if these new regulations constrained individual auditor style effects (see also Brocard *et al.*, 2018). Despite regulators' aims to increase audit quality and uniformity, we did not find a significant reduction in engagement or review partner style effects in the post-2005 period.

Our study adds to several strands of literature. First, we contribute to studies of the impact of auditor style on audit quality (DeFond and Francis, 2005; Gul *et al.*, 2013; Francis *et al.*, 2014; Goodwin and Wu, 2014; Aobdia *et al.*, 2015; Cameran *et al.*, 2018) by documenting results in the German auditing setting, which is unique in that it identifies both the engagement and the review partner. Our contribution is the documentation of both review and engagement partner effects. We document that the engagement partner effects are the strongest. This finding contributes to our understanding of the German setting and is consistent with the dominant role of engagement partners in the audit process. Second, we contribute by assessing the importance of reputational risk as an influencing factor on audit quality (Gao *et al.*, 2011; Skinner and Srinivasan, 2012; Francis *et al.*, 2017). We show that reputational concerns do not constrain office and engagement partner style effects in the German setting. Third, our findings contribute to the literature on the effect of external enforcement of audit quality (Carson *et al.*, 2017; Dowling *et al.*, 2018). In this regard, we also complement the findings of Ernstberger *et al.* (2012) and Hitz *et al.* (2012) by documenting that the two-tier enforcement mechanism does not seem to mitigate the variation in audit quality at the level of audit offices and individual partners.

Our findings are also relevant in the context of the efforts of EU regulators, such as the European Securities and Markets Authority (ESMA), to develop efficient enforcement tools for all EU countries. Lastly, our paper contributes to the ongoing debate on the mandatory disclosure of audit partners' names in US firms' audit reports (PCAOB, 2009, 2015). Our evidence suggests that the

PCAOB disclosures will likely contain relevant information for market participants (Gul *et al.*, 2013; Knechel *et al.*, 2015; Cameran *et al.*, 2018).

INSTITUTIONAL SETTING, PRIOR LITERATURE, AND HYPOTHESES

Auditing in Germany

From 1986 onwards, German listed companies were mandated to disclose the identity of the engagement and review partners signing audit reports. This disclosure requirement is mandated in § 322 HGB of the German Commercial Code. The requirement for the signature of the review partner is specific to German legislation: the 8th EU Directive on auditing and audit reports requires only the signature of one audit partner responsible for the audit. The provision of both signatures in the audit report represents a generic characteristic of the dual control principle that is common in German business law (Gold *et al.*, 2012). The aim of having an additional partner review the engagement and publicly disclose its name is to increase audit quality by assuring the quality of the engagement partner's judgement. Moreover, the review partner is deliberately less engaged with the client in order to avoid violating auditor independence. Given the different roles and responsibilities of engagement and review partners, their influence on audit quality may differ. For example, Lennox *et al.* (2018) find that the differing responsibilities of engagement and review partners in the auditing process may result in variations in the number and magnitude of adjustments to the reported earnings of their clients.

The objective and scope of an audit, according to the German Commercial Code, is to determine whether a company's financial statements comply with legal requirements and the company's articles of incorporation. A distinctive characteristic of the audit output is that its purpose is to inform the supervisory board, not the shareholders. According to Baker *et al.* (2001), a longstanding characteristic of the governance system in Germany is that auditors are appointed by the supervisory board, to a large extent eliminating the risk of forming personal bonds with the management of the company. Given that the output of the audit assignment is mainly targeted at the supervisory board, German auditors are not liable to external parties to the company in case of financial misstatements.

The German Commercial Code limits audit firms' liabilities to their audit clients, and the German legal environment does not support class action suits. Around 1997, the German Commercial Code limited the liability of auditors who are found to be negligent to DM 500,000 for each audit and imposed imprisonment (not to exceed three years) or a fine (not to exceed DM 50,000) if an auditor has knowingly prepared a false report. In an attempt to close the expectation gap, particularly for listed companies, auditor litigation was extended to DM 8,000,000 as opposed to DM 2,000,000 for other corporations in 1999. Internal auditor rotation was also introduced at that time (§ 319 II, HGB).

Overall, German laws limit audit liabilities (Weber *et al.*, 2008), which leaves reputation as the main driver of audit quality.

According to Baker *et al.* (2001), for the most part, the auditing profession in Germany is regulated by the state. This results in highly standardized requirements for becoming a qualified professional. As a prerequisite to obtaining the right to practice, a German auditor needs to hold a university degree in a relevant subject (e.g., economics, business administration, or law). Further, the applicant must have at least four years of practical experience, of which at least two need to be in external auditing.

More recently, following European-wide efforts to increase financial reporting enforcement in order to harmonize financial reporting practices, the German Government, unlike most other European enforcement systems, as well as the US and Australian systems, implemented a two-tier structure to enforce audit quality for publicly listed firms. This structure consists of both a private and public oversight body. The FREP is the private German governance body, and forms the first layer of enforcement. The FREP is in charge of investigating financial statements and management reports of firms listed on a German stock exchange. These investigations are both reactive and proactive. The FREP conducts investigations based on concrete indications, or on request, and by random as well as risk-based (proactive) selection of financial statements.

The second layer of enforcement is the German securities regulator, the Federal Financial Supervisory Authority (BaFin). Unlike the FREP, BaFin has formal executive power (Hitz *et al.*, 2012). If a firm refuses to cooperate with the FREP or disagrees with its findings, BaFin takes over the investigation. Furthermore, BaFin enforces disclosure of erroneous accounting practices. Firms that have been found to have infringed financial reporting rules are required to disclose their reporting error in detail in a specified press release (via the electronic platform of the federal registry, the German Electronic Federal Gazette) and in at least three daily financial newspapers (or an electronic financial information provider).

The mandated public disclosure of financial reporting errors via announcements is a crucial part of the German enforcement system (see Hitz *et al.*, 2012; Böcking *et al.*, 2015). Its intended goal is to impose stock market penalties and negative publicity ('naming and shaming') on noncompliant firms. Böcking *et al.* (2015) report that, over the period 2005–2012, of a total of 848 enforcement investigations, around 25%, resulted in the identification by the FREP of financial reporting errors. This percentage is indicative of the rigour of the German enforcement system.

In regard to its effectiveness, the German enforcement system is often considered weaker than that of other countries (La Porta *et al.*, 1998, 2008; Hope, 2003; Leuz *et al.*, 2003). However, Brown *et al.* (2014) report a relatively high ranking of the German system with respect to the enforcement of accounting standards in the period 2002–2008 in particular. In 2008, the last year of the research period, Germany scored 44 points out of a maximum of 54 points; in comparison, the median (mean) score of all 51 countries in the sample was 28 (30.84). Further, compared with the other countries in the sample, Germany experienced one of the largest changes in its total scores from 2002–2008 (26 points). Based on Brown *et al.*'s (2014) index, we can conclude that the accounting enforcement system in Germany functions relatively well, certainly as of 2005, albeit not as effectively as the Anglo-Saxon systems. The German system not only punishes firms with reporting failures through reputational loss, but also penalizes the audit firm involved. Given the significance of reputational loss in the German setting for audit firms, the two-tier enforcement mechanism also induces high-quality auditing across the entire population of publicly listed firms.

Prior Literature on Audit Quality

Audits are one of many institutional features that are instrumental in companies' corporate governance, and that support transparent financial reporting (Sloan, 2001; Francis *et al.*, 2003). Regulators acknowledge that auditing is an important element of efficient equity markets because it enhances the credibility of financial information, which ultimately influences the allocation of resources (Securities and Exchange Commission (SEC), 2000). However, the objective of credible financial information can be met only if audit services are of sufficient quality and their quality is trusted by the market (Quick, 2005).

Given that audit firm quality is difficult and costly to evaluate for the 'consumers' of audit reports, surrogates for audit quality have been developed. DeAngelo (1981) argues that audit firm size is a surrogate, and provides an economic rationale for size as a determinant of audit quality. Analyzing the Japanese and Chinese audit markets, Skinner and Srinivasan (2012) and Gao *et al.* (2011) assert that, in the absence of litigation risk, reputational loss is highly detrimental to audit firms. Additional studies adopt a more granular approach, analyzing the importance of audit office characteristics for audit outcomes (Francis *et al.*, 2005; Vera-Munoz *et al.*, 2006; Choi *et al.*, 2010). Francis *et al.* (2017) show that in the period following the loss of major clients, audit offices experience a decline in reputation. Furthermore, Francis and Yu (2009) find that Big 4 local offices are semi-autonomous, and that reputation is more likely to be office-specific than uniform across offices or cities for a given audit firm.

Multiple calls for a more detailed analysis emphasize the importance of assessing audit quality at the individual partner level (DeFond and Francis, 2005; Church *et al.*, 2008). Despite the difficulty of obtaining data about the identity of audit partners, Gul *et al.* (2013) find that individual auditor characteristics contribute to explaining the level of audit quality, while Chin and Chi (2009) find that auditor expertise is negatively associated with the likelihood of accounting restatements. Gul *et al.* (2016) further find that individual partners suffer increased turnover and reduced market shares after reputational losses. Chen *et al.* (2009) find that the connections between partners and their clients are dependent on investor protection. Zerni (2012) focuses on the Swedish setting and finds significant differences in the size and structure of the clientele of individual partners, suggesting that these are due to auditor specialization. Most recently, Cameran *et al.* (2018) find significant partner effects for UK firms, even after controlling for the effect of office and firm effects.

Hypotheses

Audit quality is a construct that is likely to be determined at multiple levels within the auditing process. In accordance with the view that it is mainly determined by the quality of audit firms and their power vis-à-vis firm management, previous research has analyzed how audit quality varies at the firm level, depending on size or industry specialization (DeFond *et al.*, 2000). According to Kothari *et al.* (2010), audit practice provides significant discretion to accounting firms in developing specific in-house rules that shape financial reporting outcomes. For example, Acito *et al.* (2009) report a high variability in the manner in which different audit firms set up materiality thresholds—this type of decision is bound to have a significant impact on audit quality. Consequently, the systematic application of firm-specific rules is consistent with audit firms imposing their style on auditing assignments. Style effects, therefore, consist of different firms that are clients of the same audit firm, office or partner having similar financial reporting traits.

In the German setting, audit firms have a strong incentive to maintain a relatively uniform level of audit quality in order to minimize reputational risk. For example, Weber *et al.* (2008) provide evidence of important losses for KPMG-Germany following a high-level audit scandal. Furthermore, the external two-tier audit quality enforcement system is likely to incentivize firms to avoid being 'named and shamed' as a consequence of failed audits (Hitz *et al.*, 2012; Brocard *et al.*, 2018). In line with these incentives, audit firms are likely to institute strict controls on the audit assignments, together with standardized working procedures and centralized decision making. In line with Francis *et al.* (2014), we conjecture that the procedures put in place by audit firms to ensure consistent application of accounting standards lead to systematic differences in the abnormal accruals reported by audited firms. This process results in the creation of a firm-level style effect that impacts financial reporting. In the institutional setting of Germany, we expect a significant audit firm effect on the level of audit quality. Our first hypothesis is as follows:

H1: Audit firm fixed effects co-determine audited firms' audit quality measures.

Auditors are typically partners in a regional office of larger (inter-)national accounting firms. Previous studies have measured audit quality at levels ranging from groups of accounting firms to regional offices (Francis, 2004). Given the cross-jurisdictional development of the big audit firms, the importance of audit offices for reporting outcomes has steadily increased. A number of studies perform analyses at the audit office level. For example, industry specialization at the level of the audit office has been positively associated with audit quality (Reichelt and Wang, 2010) and audit pricing (Ferguson *et al.*, 2003). In a similar vein, Choi *et al.* (2010) find an association between audit office size and audit quality. Francis and Yu (2009) assess the connection between audit quality and Big 4 office size. They use a US sample and find a positive association between the size of Big 4 offices and audit quality. Swanquist and Whited (2015) report that offices of audit firms lose a significant share of the local market share when they provide low-level audit quality. Audit offices experience high costs due to a decrease in reputation (Francis *et al.*, 2017). Taken together, these findings show that local offices are largely autonomous and aim to maintain an office-specific reputation (Francis and Yu, 2009; Choi *et al.*, 2010).

Given the importance of reputational concerns in the German audit setting, we therefore expect that audit office style impacts reporting outcomes, incremental to the effect of audit firms. For example, according to Kawada (2014), audit offices use their autonomy to develop independent interpretations of the rules, despite the standardization of work procedures imposed at the level of the firm. This effect is likely to result from intensive decision-making activities and constant client interactions that take place within territorial offices (Reynolds and Francis, 2000). Moreover, within the office, audit expertise is transferable from expert to non-expert partners, which makes it likely for audit quality not to vary considerably at the level of an audit firms' territorial offices. Finally, driven by incentives to maintain uniform levels of audit quality, offices deviate from audit firms' guidelines by creating their own interpretations of standardized work procedures. Accordingly, our second hypothesis is as follows:

H2: Audit office fixed effects co-determine audited firms' audit quality measures, incrementally to audit firm fixed effects.

When performing an audit assignment, the key decisions are taken by individual partners who are familiar with the client. Accordingly, recent literature stresses that, in addition to firm and office levels, the output of the audit assignment should be assessed at an individual partner level (Carcello and Li, 2013; Goodwin and Wu, 2014). The scarce empirical evidence documents individual auditor-style effects in the context of the weak institutional setting of China (Gul *et al.*, 2013) and among private firms in Sweden (Knechel *et al.*, 2015). However, the literature has not yet explored whether individual auditor effects exist in settings with strong reputational incentives and external enforcement of audit quality. The German setting presents such a set of characteristics.

First, in Germany, reputational risk is the main incentive for providing high-quality audits. Although previous literature finds that decreases in reputational capital due to a low level of audit quality are associated with severe losses in market share at the audit firm level (Gao *et al.*, 2011; Skinner and Srinivasan, 2012; Swanquist and Whited, 2015), reputational concerns are also likely to manifest at the audit office (Francis and Yu, 2009; Francis *et al.*, 2017) and audit partner levels (Gul *et al.*, 2016). The German setup thus provides for two possible implications in case of failed audits: (i) individual auditors are likely to suffer negative consequences (Gul *et al.*, 2016); or (ii) the damage to reputation accrues at the audit firm and audit office levels. If firms and offices take into consideration differences at the individual auditor level, set up control mechanisms, and use a high degree of standardization in work procedures, this would minimize individual style differences.

Second, the training of auditors represents a particularly rigorous and standardized process that involves extensive practical preparation. The requirements for obtaining the necessary certification and entrance to the profession are stricter in Germany than in both France and the UK (Vieten, 1995; Baker *et al.*, 2001). Also, unlike in other European countries, in Germany, the government, academia, and financial statement preparers have active roles in the training of an aspiring auditor. The relatively uniform levels of audit quality provided by German audit partners could be attributed to the emphasis on professional qualifications and extensive practical preparation as prerequisites to becoming a certified auditor.

Third, the internal governance structure of German public companies requires a two-tier board of directors, comprising a management and a supervisory board. The board consists of representatives of the major stakeholder groups of the company (Vieten, 1995), and is in charge of appointing external auditors. This governance structure entails constant monitoring of managements' activities throughout the fiscal year. Given that auditors are incentivized to maintain high levels of audit quality, it is likely that they will report promptly any accounting misstatements that would significantly influence financial reporting outcomes. Taken together, these characteristics of the German setting make variability in partner styles in relation to audit quality unlikely. In formulating our expectations, we take into consideration the requirement for two auditors to sign German firms' audit reports. In view of the characteristics of the German setting, we formulate the following hypotheses:

H3a: Individual engagement partner fixed effects do not influence audited firms' audit quality measures, after controlling for audit firm and audit office fixed effects.

H3b: Individual review partner fixed effects do not influence audited firms' audit quality measures, after controlling for audit firm and audit office fixed effects.

METHOD

Data

We began by considering all German non-financial firms for which financial reporting data are available in WorldScope and digital annual reports, with audit opinions in Thomson Reuters Research, for 1999–2011. This provided us with 5,712 firm-year observations. From these reports, we hand-collected the surnames and, if available, the first names or initials of engagement and review auditors, as well as the names of the audit offices and audit firms. According to the convention used, the first-mentioned person is the engagement auditor, while the second is the review auditor.

If one auditor was mentioned, we labelled this person the engagement auditor (302 observations). If we observed identical names for the engagement and review partners, we cross-checked their identities. Specifically, we verified the names of auditors using audit firms' websites and the German company register. If we were unable to obtain satisfactory information about the identity of the auditors, we considered auditors with identical names as different auditors. Finally, we screened the database to find additional misspellings in the entries. We thus identified a sample of 253 audit firms, 444 territorial offices, and 2,444 individual signing partners.

Descriptive Statistics

In Table 1, we present descriptive statistics of the audit firm characteristics, which offer an interesting insight into the German audit market. For example, in Panel A, we show that, in our sample, 164 audit firms have only one client, while 22 firms have over five clients. The distribution of audit partners in our sample is equally skewed, with 101 partners with five clients or more. In Panel B, this translates to the distribution of the number of observations, that is, client years. In total, 65.6% of the observations are reports audited by audit firms that have over

TABLE 1

DESCRIPTIVE STATISTICS OF AUDIT FIRMS, OFFICES, AND AUDIT PARTNERS

	Audit firms	Audit offices	Audit partners
Panel A: Number of auditors grouped by clients			
1 client	164 (64.8%)	250 (56.7%)	1,623 (66.4%)
2 clients	44 (17.4%)	73 (16.6%)	457 (18.7%)
3 clients	13 (5.1%)	33 (7.5%)	177 (7.2%)
4 clients	5 (2.0%)	15 (3.4%)	86 (3.5%)
5 clients	5 (2.0%)	12 (2.7%)	51 (2.1%)
Over 5 clients	22 (8.7%)	58 (13.2%)	50 (2.0%)
Total	253 (100%)	444 (100%)	2,444 (100%)
Panel B: Number of auditors grouped by client-year observations			
1–5 client-years	408 (7.1%)	677 (11.9%)	4,346 (39.2%)
6–10 client-years	341 (6.0%)	582 (10.2%)	3,269 (29.5%)
11–15 client-years	208 (3.6%)	452 (7.9%)	1,731 (15.6%)
16–20 client-years	287 (5.0%)	316 (5.5%)	637 (5.8%)
21–25 client-years	23 (0.4%)	180 (3.2%)	626 (5.7%)
26–50 client-years	259 (4.5%)	1,007 (17.6%)	392 (3.5%)
51–100 client-years	441 (7.7%)	1,130 (19.8%)	77 (0.7%)
Over 100 client-years	3,745 (65.6%)	1,368 (23.9%)	0 (0%)
Total	5,712 (100%)	5,712 (100%)	11,078 (100%)

This table presents the composition of our data about audit firms, audit offices, and individual audit partners grouped by client and client-year observations.

100 client-years. For the offices, 43.7% of the client-years are audited by offices with over 50 reports. Although these numbers appear to be lower for individual partners, 1,732 (16.2%) reports are still audited by partners with 16 or more observations.

Models

We measure the drivers of audit quality by distinguishing three levels of influence: individual audit partners, audit offices, and audit firms. We follow Bertrand and Schoar (2003) and Gul *et al.* (2013) to determine our auditor sample and estimate individual auditor effects. We thus regress each of our audit quality measures on firm, office, and partner characteristics, after controlling for time-varying audit quality determinants. In line with Bertrand and Schoar (2003), we require a minimum of 10 observations and three clients for each fixed effect. We require 10 observations in total to ensure a sufficiently large set of firm-years, and three different clients to ensure that we do not estimate a firm-specific effect. These selection requirements lead to measurable fixed effects for 37 audit firms, 96 regional offices, and 215 partners. We cannot test fixed effects for firms, offices, or partners that do not have sufficient observations and variation in clients. To determine whether each set of fixed effects has a significant impact on our audit quality proxies, we perform partial *F*-tests to show if the change in the model R-squared is significant when we remove, in a sequential manner, the firm, office, and individual partner fixed effects.

Measures of Audit Quality

To construct our audit quality proxies, we measure firms' abnormal accruals and identify firms with small positive earnings. We use these measures to estimate regression models with fixed effects for audit partners, audit offices, and audit firms. By describing the fit and explanatory power of groups of variables to the overall R-squared, we can distinguish the drivers of audit quality.

We use the Jones model to estimate abnormal accruals, in both the short- and long-term versions. This estimation method was introduced by Jones (1991) and enriched by Dechow *et al.* (1995). We estimate our accrual models per industry and per period. For the former, we build on Barth *et al.* (2012) and use the industry classification developed by Barth *et al.* (1998). Specifically, we identify in our data, companies from 14 industry groups, in line with Armstrong *et al.* (2015). We perform our analysis over two periods: observations for the pre-IFRS (1999–2004) and the post-IFRS (2006–2011) introduction in Germany. Because managers can pursue opportunistic objectives by managing earnings upwards (income-increasing accruals) as well as downwards (income-decreasing accruals), we use the absolute value of our abnormal accruals measures.

In line with previous literature, we compute the propensity to meet or beat earnings thresholds as an alternative to our abnormal accruals measure. We do this in view of multiple concerns regarding the reliability of abnormal accruals to capture actual earnings management (Jackson, 2018; McNichols and Stubben, 2018; Christodoulou *et al.*, 2018). A recent study by Aobdia *et al.* (2019) shows that abnormal accruals are associated with erroneous reporting detected by PCAOB internal inspections. The study also finds that the propensity to meet or beat earnings thresholds may represent a better alternative measure. Following Aobdia (2019), we define firms as having small positive earnings if their ratio of income before extraordinary items to opening assets is between 0 and 5%.

Table 2 presents the descriptive statistics of our audit quality measures and control variables. Absolute abnormal working capital accruals and absolute abnormal total accruals are absolute values of the residuals of the accruals model. The values of all our variables are in line with previous literature (Chen *et al.*, 2009; Gul *et al.*, 2013). We discuss an interesting statistic regarding the adopters of IFRS (65.2%), German GAAP (28.1%), and US GAAP (6.7%) in

TABLE 2

DESCRIPTIVE STATISTICS OF FINANCIAL DATA OF CLIENT FIRMS

Variable name	Average	25th %-tile	Median	75th %-tile	Std. dev.
Accruals (no model assumptions)					
Total accruals	–0.058	–0.115	–0.053	–0.004	0.136
Working capital accruals	0.005	–0.048	0.005	0.056	0.124
Absolute total accruals	0.114	0.035	0.076	0.136	0.188
Absolute working capital accruals	0.091	0.022	0.051	0.107	0.179
Small profits <5%	0.199	0	0	0	0.399
Abnormal accruals (Modified Jones model, Barth industries)					
Abnormal total accruals	–0.002	–0.053	0.002	0.056	0.128
Abnormal working capital accruals	0.004	–0.050	–0.001	0.048	0.121
Absolute abnormal total accruals	0.086	0.025	0.055	0.108	0.095
Absolute abnormal working capital accruals	0.080	0.022	0.049	0.102	0.091
Variables for accruals calculations (all scaled by lagged total assets)					
Net income before extraordinary items	0.001	–0.022	0.026	0.066	0.199
Cash flow from operations	0.059	–0.002	0.075	0.142	0.235
Depreciation	0.062	0.032	0.050	0.075	0.056
Current assets	0.605	0.394	0.572	0.756	0.427
Cash	0.168	0.033	0.090	0.219	0.223
Current liabilities	0.384	0.207	0.329	0.470	0.533
Current portion of long-term debt	0.099	0.007	0.048	0.133	0.288
Income tax payable	0.012	0	0.005	0.016	0.021
Sales	1.355	0.780	1.179	1.687	0.978
Receivables	0.243	0.125	0.207	0.310	0.225
Gross property, plant, and equipment	0.743	0.249	0.579	1.056	0.646
Control variables					
ROA	0.041	0.002	0.059	0.113	0.202
Sales growth	0.109	–0.063	0.073	0.232	0.682
Size	12.096	10.642	11.806	13.256	2.142
Leverage	0.219	0.029	0.171	0.321	0.755
IFRS	0.652	0	1	1	0.476
German GAAP	0.281	0	0	1	0.450
US GAAP	0.067	0	0	0	0.250

This table reports descriptive statistics of the firm-level variables used in our empirical models (accruals and fixed effects tests). Please see Appendix 1 for variable definitions.

our sample. Out of the total client observations, 3,721 pertain to clients using IFRS, 1,605 to German GAAP, and 383 to US GAAP clients. This suggests that the majority of companies in our sample report according to IFRS.

Regression Model

To estimate incremental audit partner effects on our earnings management proxies, similar to Francis *et al.* (2014) and Cameran *et al.* (2018), we add to the control variables audit firm, audit office, and audit partner dummies as well as year dummies. This leads to the following panel regression model:

$$\begin{aligned} AQ_{i,t} = {} & \delta_0 + \Sigma\,\delta_{1,y}\,DY_t + \Sigma\,\delta_{2,\mathrm{y}}\,DAF_t + \Sigma\,\delta_{3,\mathrm{p}}\,DAO_{i,t} + \Sigma\,\delta_{4,p}\,DAP_{i,t} + \delta_5\,DS_{i,t} \\ & + \delta_6\,ROA_{i,t} + \theta_7\,SG_{i,t} + \delta_8\,SIZE_{i,t} + \delta_9 LEV_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{1}$$

where $AQ_{i,t}$ represents one of our three audit quality proxies, that is, either *AbsATACC*, *AbsAWCACC*, and *Small_pos*. *AbsATACC* is defined as the absolute value of abnormal total accruals, while *AbsAWCACC* is the absolute value of working capital accruals and *Small_pos* is a dummy variable that takes the value one for firms with ROA (income before extraordinary items to opening assets) between 0 and 5%, and zero otherwise. DY_t represents a year dummy for year *t* (year fixed effects). $DAF_{i,t}$ is an audit firm dummy variable for client *i* in period *t*; $DAO_{i,t}$ is an audit office dummy variable for client *i* in period *t*; while $DAP_{i,t}$ is an audit partner dummy variable for client *i* in period *t*. In regard to the control variables, $DS_{i,t}$ is an accounting standard dummy for client *i* in period *t* (IFRS/US GAAP vs. German GAAP); $ROA_{i,t}$ represents earnings before interest and taxes on beginning of year total assets; $SG_{i,t}$ represents sales growth; $SIZE_{i,t}$ is the natural logarithm of total assets; and $LEV_{i,t}$ is the ratio of total debt to total assets.

RESULTS

Fixed Effects

In Table 3, we present the results of regressing our two audit quality measures on their determinants. Specifically, column (1) analyzes the absolute abnormal total accruals, column (2) uses the absolute abnormal working capital accruals, and column (3) examines firms with small positive earnings. To determine the incremental effect of audit firm, office, and partner on audit quality, we compute the increase and the relative percentage change in R-squared when we remove each set of fixed effects from our model, similar to Bertrand and Schoar (2003) and Gul *et al.* (2013). Specifically, we assess if removing, in a stepwise manner, the firm, office, and partner fixed effects from our model significantly changes the R-squared. Following Bertrand and Schoar (2003), we assess the significance of firm, office, and individual auditor fixed effects with a partial *F*-test. A lack of significance is consistent with no detectable effects of style on audit quality. Table 4 presents our results for the variance decomposition model, with audit firm, office, and partner fixed effects (model equation (1)). Panel A presents our findings using the absolute abnormal total accruals (*AbsATACC*) as the dependent variable. Panel B uses absolute abnormal working capital accruals (*AbsAWCACC*) as the dependent variable. Panel C considers the propensity to meet or beat positive earnings thresholds (*Small_pos*) as an outcome variable. Similar to Lemmon *et al.*'s (2008) approach, the percentages in the table correspond to the ratio of the partial sum of squares for individual effects to the partial sum of squares for all effects in the model. Therefore, we normalize each

Table 3

ACCRUAL MODELS, WITHOUT AUDIT FIRM, AUDIT OFFICE, AND INDIVIDUAL AUDIT PARTNER FIXED EFFECTS

	(1)	(2)	(3)
	AbsATACC	*AbsAWCACC*	*Small_pos*
ROA	–0.046***	–0.019***	–0.064**
	(0.007)	(0.006)	(0.028)
SG	0.016***	0.015***	–0.029***
	(0.001)	(0.001)	(0.008)
SIZE	–0.009***	–0.008***	0.008***
	(0.001)	(0.001)	(0.003)
LEV	–0.0004	–0.001	–0.001
	(0.006)	(0.002)	(0.007)
DS	0.014***	0.011***	–0.041**
	(0.004)	(0.004)	(0.016)
Intercept	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Auditor fixed effects	No	No	No
R-squared	0.072	0.058	0.018
Adjusted R-squared	0.069	0.058	0.015
Observations	5,243	5,588	5,656

Columns (1) and (2) report the results of the following regression:

$$AQ_{i,t} = \alpha_0 + \alpha_1 * ROA_{i,t} + \alpha_2 * SG_{i,t} + \alpha_3 * SIZE_{i,t} + \alpha_4 * LEV_{i,t} + \alpha_5 * DS_{i,t} + \Sigma \alpha_{1,y} * DY_t + \varepsilon_{i,t}$$

where *AQ* is one of our three audit quality proxies, alternatively: *AbsATACC*, *AbsAWCACC, and Small_pos*. *AbsATACC* is the absolute value of abnormal total accruals, *AbsAWCACC* is the absolute value of working capital accruals, while *Small_pos* is a dummy variable that takes the value one for firms with ROA (income before extraordinary items on beginning assets) between 0% and 5% and zero otherwise. *ROA* represents earnings before interest and taxes deflated by beginning total assets, *SG* represents sales growth, *SIZE* is the natural logarithm of total assets, *LEV* is total debt deflated by total assets, and *DS* is a dummy variable that takes the value one for firms that apply IFRS or US GAAP and zero otherwise. Standard errors are in parentheses:

***$p < 0.01$,

**$p < 0.05$,

*$p < 0$.

Table 4

RESULTS OF VARIANCE DECOMPOSITION MODELS, WITH AUDITOR FIXED EFFECTS

Variable name	Audit firm effects	Audit office effects	Audit partner effects	Audit partner effects, engagement	Audit partner effects, review	Control variables effects	Year effects	R-squared
Panel A								
AbsATACC						90.0% (5)	10.0% (12)	0.06
AbsATACC	18.9% (0.001, 37)					72.1% (5)	9.0% (12)	0.07
AbsATACC		38.4% (0.001, 96)				54.1% (5)	7.4% (12)	0.09
AbsATACC			58.3% (<0.001, 215)			40.9% (5)	6.2% (12)	0.11
AbsATACC				52.9% (<0.001, 191)		50.2% (5)	8.1% (12)	0.11
AbsATACC					41.7% (0.025, 161)	35.7% (5)	6.0% (12)	0.08
Panel B								
AbsAWCACC						90.4% (5)	9.6% (12)	0.05
AbsAWCACC	23.9% (<0.001, 37)					67.6% (5)	8.4% (12)	0.06
AbsAWCACC		42.9% (<0.001, 96)				49.9% (5)	7.2% (12)	0.08
AbsAWCACC			61.5% (0.001, 215)			32.6% (5)	5.9% (12)	0.09
AbsAWCACC				56.4% (<0.001, 192)		37.6% (5)	6.0% (12)	0.09
AbsAWCACC					45.9% (0.034, 166)	46.0% (5)	8.0% (12)	0.07
Panel C								
Small_pos						37.3% (5)	62.7% (12)	0.05
Small_pos	48.8% (<0.001, 37)					20.3% (5)	30.9% (12)	0.06
Small_pos		71.7% (<0.001, 96)				9.2% (5)	19.1% (12)	0.08
Small_pos			81.6% (0.001, 215)			6.0% (5)	12.4% (12)	0.09
Small_pos				80.5% (<0.001, 192)		5.5% (5)	13.9% (12)	0.09
Small_pos					71.4% (0.034, 166)	13.3% (5)	15.4% (12)	0.07

In this table we present the variance decomposition of various model specifications. In Panels A and B we present the results that audit firm, audit office, and individual partner fixed effects have on our three proxies of audit quality: (1) absolute abnormal total accruals, (2) absolute working capital accruals, and (3) small positive profits. Reported in the table are the partial *F*-tests for the joint-significance of firm, office, and individual partner effects. Following Lemmon *et al.* (2008), the percentages in the table correspond to the ratio of the partial sum of squares for individual effects over the partial sum of squares for all effects in the model. We therefore normalize each row to add to 100%. For example, in Panel A, in the base model, 90.0% of the explained sum of squares through the included covariates is due to control variables and 10.0% to year effects. For each *F*-test we report between brackets the *p*-value and the number of constraints. *AbsATACC* represents the absolute value of abnormal total accruals, *AbsAWCACC* represents the absolute value of abnormal working capital accruals, while *Small_pos* is a dummy variable that takes the value one for firms with ROA (income before extraordinary items on beginning assets) between 0% and 5% and zero otherwise.

row so that the total sum of squares adds up to 100%. First, we assess the contribution of audit firm fixed effects to our model. The explanatory power attributable to firm fixed effects is 18.9% ($p<0.01$), 23.9% ($p<0.01$), and 48.8% ($p<0.01$) in Panels A, B, and C, respectively. We can, therefore, reject the null hypothesis that the audit firm fixed effects are equal to zero. This is consistent with German audit firms showing a significant style effect in regard to their audited companies' quality of accruals, as predicted by Hypothesis 1. Similarly, we analyze whether audit offices have an impact on audit quality. According to the results in Table 4, office fixed effects account for 38.3% ($p<0.01$), 42.9% ($p<0.01$), and 71.7% ($p<0.01$) of the explanatory power of the models in Panels A, B, and C, respectively. As such, audit offices also affect audited firms' earnings quality, in line with the prediction of Hypothesis 2. Next, we assess the contribution of partner fixed effects in our model. As shown in Table 4, we observe the highest explanatory power across all sets of fixed effects. Specifically, the partner effects account for 58.3% ($p<0.01$), 61.5% ($p<0.01$), and 81.6% ($p<0.01$) of the model's R-squared, as shown in Panels A, B, and C, respectively. This result indicates that, in addition to firm and office style, audit partners' style is important in determining the quality of audited firms' accruals. Further, partners' roles in the German setting are separated into engagement and review partners, allowing us to estimate their separate effects on accrual quality. Therefore, in the third and fourth rows of Panels A, B, and C of Table 4 respectively, we also show that 52.9% ($p<0.01$), 56.4% ($p<0.01$), and 80.5% ($p<0.01$) of the explanatory power of the model are attributed to engagement partner effects. Concurrently, review partner effects account for 41.7% ($p<0.05$), 45.9% ($p<0.05$), and 71.4% ($p<0.05$). This result is consistent with the engagement partner having a more important role in the audit assignment relative to the review partner. Overall, we find, in all our model specifications, significant firm, office, and partner effects on audit quality, although the partner effects are dominated by engagement partners.

Cumulative and Overlapping Fixed Effects

One of the main implications of finding significant audit firm, office, and partner style effects on audited companies' earnings quality is that the quality of earnings might be largely driven by only one set of effects. Specifically, it might be that the significant office effects are subdued by a potentially more powerful firm-level style effect. This could be the case, especially in the German setting, where firms are more likely to institute strict control of audit procedures. Offices of the same firm could be uniform in terms of style, and the audited firms' earnings quality would be mainly a reflection of firm effects. Similarly, partner style could be attributable to the effect of the office. Therefore, we further test what the effect on the explanatory power of our model is, when considering the cumulative effects of audit firms, audit offices, and audit partners. If partner effects are driven by distinct styles of firms or offices, the effects should disappear in our cumulative models. In Table 5, we present the results of assessing multiple combinations of firm, office, and partner fixed effects.

According to the results shown in Panel A, the firm effects explain 12.2% ($p < 0.01$), 15.1% ($p < 0.01$), and 11.3% of the variation in earnings quality, while office effects explain 33.5% ($p < 0.01$), 36.3% ($p < 0.01$), and 58% ($p < 0.01$). Although the impact of firm effects is smaller than in previous estimations, the p-values and the F-statistics show that the separate impact of firm and office on earnings quality continues to be significant. Taken together, these results are consistent with the predictions of Hypotheses 1 and 2. Further, we cumulate firm effects and partner effects. According to the new estimation, firm effects explain up to 10.5% ($p < 0.01$) and 10.9% ($p < 0.01$), and 14.6% ($p < 0.01$) of the variation in accrual quality, while the partner effects explain 49.3% ($p < 0.01$), 56.2% ($p < 0.01$), and 69.7% ($p < 0.01$), respectively. Lastly, we assess the cumulative effect of office and individual partners. According to the results in Panels A, B, and C of Table 5, office effects explain 18.1% ($p < 0.01$), 19.7% ($p < 0.01$), and 31.6% ($p < 0.01$) of the R-squared, while partners effects explain 48.4% ($p < 0.01$), 50.4% ($p < 0.01$), and 55.9% ($p < 0.01$).

In Table 5, we also present the results of our estimations where we cumulate all audit firm, office, and partner effects in different combinations. As our results in Panels A and B show, firm effects explain 9.0% ($p < 0.01$), 10.6% ($p < 0.01$), and 4.4% of the variation in accruals, while office and partner effects represent 16.2% ($p < 0.01$); 18.2% ($p < 0.01$), 24.8% ($p < 0.01$), and 45.2% ($p < 0.01$); 45.6% ($p < 0.01$); and 57.5% ($p < 0.01$), respectively. In additional specifications, we separate engagement and review partner effects. When cumulating firm, office, and engagement partner effects, the impact is 8.9% ($p < 0.01$), 10.5% ($p < 0.01$), and 5.2% ($p = 0.161$) for firms; 19.3% ($p < 0.01$), 20.0% ($p < 0.01$), and 25.2% ($p < 0.01$) for offices; and 40.3% ($p < 0.01$), 41.6% ($p < 0.01$), and 55.4% ($p < 0.01$) for engagement partners. These results show that engagement auditor effects are significant for the audit quality of German firms, after controlling for firm and office effects, thus suggesting that Hypothesis 3a should be rejected. We also cumulate firm, office, and review partner effects. The impact is 11.2% ($p < 0.01$), 13.3% ($p < 0.01$), and 5.5% ($p = 0.350$) for firm effects; 25.1% ($p < 0.01$), 28.3% ($p < 0.01$), and 33.5% ($p < 0.01$) for office; and 25.0% ($p = 0.823$), 26.9% ($p = 0.833$), and 44.1% ($p = 0.005$) for review partners. In this model specification, review partner effects are not significant, aside for the small positive estimation. Given these results, we cannot reject Hypothesis 3b. Taken together with the previous results in Panel A, these cumulative effects suggest that accrual quality is affected by firm, office, and engagement partner effects, but not consistently by review partner effects.

The Introduction of 'Naming and Shaming'

In this paper, we establish that short- and long-term abnormal accruals and small positive earnings are associated with firm, office, and engagement partner effects. Although these results apply over our entire sample period, in 2005, a new

Table 5

RESULTS OF VARIANCE DECOMPOSITION MODELS, WITH CUMULATED FIXED EFFECTS

Variable name	Audit firm effects	Audit office effects	Audit partner effects	Audit partner effects, engagement	Audit partner effects, review	Control variable effects	Year effects	R-squared
Panel A								
AbsATACC	12.2% (<0.001, 25)	33.5% (<0.001, 84)				47.1% (5)	7.2% (12)	0.10
AbsATACC	10.5% (<0.001, 36)		49.3% (<0.001, 190)			34.3% (5)	5.9% (12)	0.12
AbsATACC		18.1% (<0.001, 94)	48.4% (<0.001, 213)			27.8% (5)	5.7% (12)	0.14
AbsATACC	9.0% (<0.001, 25)	16.2% (<0.001, 83)	45.2% (<0.001, 213)			24.3% (5)	5.2% (12)	0.15
AbsATACC	8.9% (<0.001, 25)	19.3% (<0.001, 84)		40.3% (<0.001, 190)		26.2% (5)	5.2% (12)	0.15
AbsATACC	11.2% (<0.001, 24)	25.1% (<0.001, 84)			25.0% (0.823, 160)	31.7% (5)	7.1% (12)	0.13
Panel B								
AbsAWCACC	15.1% (<0.001, 25)	36.3% (<0.001, 84)				42.0% (5)	6.6% (12)	0.09
AbsAWCACC	10.9% (<0.001, 36)		56.2% (<0.001, 214)			27.5% (5)	5.4% (12)	0.11
AbsAWCACC		19.7% (<0.001, 94)	50.4% (<0.001, 213)			24.1% (5)	5.8% (12)	0.128
AbsAWCACC	10.6% (<0.001, 25)	18.2% (<0.001, 83)	45.6% (<0.001, 213)			20.5% (5)	5.0% (12)	0.136
AbsAWCACC	10.5% (<0.001, 25)	20.0% (<0.001, 84)		41.6% (<0.001, 191)		23.1% (5)	4.9% (12)	0.135
AbsAWCACC	13.3% (<0.001, 25)	28.3% (<0.001, 84)			26.9% (0.833, 165)	24.8% (5)	6.8% (12)	0.119
Panel C								
Small_pos	11.3% (<0.121, 25)	58.0% (<0.001, 84)				10.0% (5)	20.8%(12)	0.09
Small_pos	14.6% (<0.001, 36)		69.7% (<0.001, 214)			5.3% (5)	10.4%(12)	0.11
Small_pos		31.6% (<0.001, 94)	55.9% (<0.001, 213)			3.3% (5)	9.1% (12)	0.128
Small_pos	4.4% (<0.313, 25)	24.8% (<0.001, 83)	57.5% (<0.001, 213)			3.7% (5)	9.6% (12)	0.136
Small_pos	5.2% (<0.161, 25)	25.2% (<0.001, 84)		55.4% (<0.001, 191)		3.7% (5)	10.5%(12)	0.135
Small_pos	5.5% (<0.350, 25)	33.5% (<0.001, 84)			44.1% (0.005, 165)	5.8% (5)	11.0%(12)	0.119

In this table we present the variance decomposition of various model specifications. In Panels A and B we present the results that various combinations of cumulated audit firm, audit office, and individual partner fixed effects have on our three proxies of audit quality: (1) absolute abnormal total accruals, (2) absolute working capital accruals, and (3) small positive profits. Reported in the table are the partial *F*-tests for the joint-significance of firm, office, and individual partner effects. Following Lemmon *et al.* (2008), the percentages in the table correspond to the ratio of the partial sum of squares for individual effects over the partial sum of squares for all effects in the model. We therefore normalize each row to add to 100%. For each *F*-test we report between brackets the *p*-value and the number of constraints. *AbsATACC* represents the absolute value of abnormal total accruals, *AbsAWCACC* represents the absolute value of abnormal working capital accruals, while *Small_pos* is a dummy variable that takes the value one for firms with ROA (income before extraordinary items on beginning assets) between 0% and 5% and zero otherwise.

enforcement system was introduced in Germany, namely the FREP, which increases the risks of reputational costs. Under the FREP, the names of auditors of erroneous reports may be published. The introduction of the FREP is therefore expected to reduce the fixed effects by motivating audit firms to enhance their procedures in order to produce unbiased accounts. The results of examining the impact of the FREP are presented in Table 6, where we distinguish between the years before and after 2005. It should be noted that, in this paper, we estimate the effects over two windows of six years, that is, 1999–2004 and 2006–2011. Because we still require 10 observations for three different clients, the number of fixed effects is reduced by the shorter windows. For brevity, we present results for three sets of fixed effects and leave out the review partner effects (these are insignificant in all specifications).

The audit firm effects are insignificant for total accruals and have much lower significance levels for small positive earnings. It is puzzling that the effects of working capital accruals become somewhat stronger. For the offices, the effects are weaker after the introduction of FREP, for both accrual measures; a similar effect is observed for the small positive earnings. Finally, for the partner effects, the total accrual effect is similar, while the working capital accrual effect becomes much stronger and the effect on small positive earnings somewhat weaker. These results are influenced by the smaller number of fixed effects we can estimate. However, a general trend seems to emerge wherein firms and offices may have improved their procedures, resulting in reductions in the effects, while the partner effects remain significant or become stronger. In all models, for the years after the introduction of the FREP, we do find significant partner effects, which implies that the FREP may have changed the audit firm and office policies, but not the behaviour of individual auditors.

ROBUSTNESS

Alternative Measures of Earnings Quality

First, we employ Dechow and Dichev’s (2002) approach, which, in contrast with previous models, analyzes the relationship between accruals and cash flow from operations. Given that accruals are used to adjust for temporary differences in cash flow, the current non-discretionary accruals should be highly correlated with previous and future cash flows, but uncorrelated with current cash flows. Consequently, Dechow and Dichev (2002) adjust the Jones model to include past, present, and future cash flows in the regression of total accruals on its determinants. All our results are unchanged when using this alternative approach.

Second, we estimate our fixed-effect models, where audit quality is defined as the absolute total accruals (AbsTACCR) and absolute working capital accruals (AbsWACCR), that is, without a model for normal accruals. Because abnormal accruals are the residuals of an accruals model, the accruals measure that is not

Table 6

RESULTS OF VARIANCE DECOMPOSITION MODELS, WITH CUMULATED FIXED EFFECTS: PRE AND POST 2005

Variable name	Audit firm effects	Audit office effects	Audit partner effects	Audit partner effects, engagement	Control variable effects	Year effects	R-squared
Panel A							
Pre-2005							
AbsATACC	7.9% (0.014, 16)	21.7% (0.009, 56)	25.9% (0.013, 71)		41.8% (5)	2.8% (5)	0.15
AbsATACC	8.5% (0.019, 16)	23.9% (0.010, 56)		20.2% (0.305, 66)	44.8% (5)	2.6% (5)	0.15
Post-2005							
AbsATACC	7.6% (0.240, 17)	20.0% (0.406, 53)	29.9% (0.007, 53)		35.7% (5)	6.9% (5)	0.136
AbsATACC	8.3% (0.198, 17)	22.7% (0.264, 53)		26.1% (0.033, 48)	35.2% (5)	11.7%(5)	0.135
Panel B							
Pre-2005							
AbsAWCACC	7.0% (0.117, 16)	24.4% (0.019, 56)	25.0% (0.173, 71)		38.9% (5)	4.8% (5)	0.136
AbsAWCACC	6.7% (0.156, 16)	26.4% (0.009, 56)		21.7% (0.362, 66)	40.4% (5)	4.8% (5)	0.135
Post-2005							
AbsAWCACC	10.4% (0.085, 17)	24.3% (0.253, 53)	31.5% (0.017, 53)		29.3% (5)	4.4% (5)	0.136
AbsAWCACC	11.3% (0.066, 17)	26.8% (0.171, 53)		28.5% (0.038, 48)	28.7% (5)	4.7% (5)	0.135
Panel C							
Pre-2005							
Small_pos	12.3% (0.003, 16)	31.3% (0.002, 56)	48.7% (<0.001, 71)		5.7% (5)	2.2% (5)	0.15
Small_pos	13.5% (0.006, 16)	34.2% (0.006, 56)		43.0% (<0.001, 66)	6.8% (5)	2.5% (5)	0.15
Post-2005							
Small_pos	11.1% (0.057, 17)	33.6% (0.006, 53)	28.5% (0.061, 53)		7.4% (5)	19.3%(5)	0.136
Small_pos	11.7% (0.035, 17)	35.4% (0.002, 53)		26.4% (0.059, 49)	7.0% (5)	19.6%(5)	0.135

In this table we present the variance decomposition of various model specifications. In Panels A and B we present the results that various combinations of cumulated audit firm, audit office, and individual partner fixed effects have on our three proxies of audit quality: (1) absolute abnormal total accruals, (2) absolute working capital accruals, and (3) small positive profits. Reported in the table are the partial *F*-tests for the joint significance of firm, office, and individual partner effects. Following Lemmon *et al.* (2008), the percentages in the table correspond to the ratio of the partial sum of squares for individual effects over the partial sum of squares for all effects in the model. We therefore normalize each row to add to 100%. For each *F*-test we report between brackets the *p*-value and the number of constraints. *AbsATACC* represents the absolute value of abnormal total accruals, *AbsAWCACC* represents the absolute value of abnormal working capital accruals, while *Small_pos* is a dummy variable that takes the value one for firms with ROA (income before extraordinary items on beginning assets) between 0% and 5% and zero otherwise.

corrected for normal accruals should not capture the extent to which a firm manages earnings from discretionary accruals as well as the abnormal accruals would. As such, an uncorrected accruals measure should be an inferior reflection of audit quality. In an untabulated analysis, we find that the effects are very similar when using the uncorrected accrual measures, both for total and working capital accruals, and never stronger when compared with the abnormal accurals. This result does not surprise us, because previous literature has found the correlation between abnormal and uncorrected accruals to be very high (Dechow *et al.*, 2010, p. 358). We also find correlations of 0.961 (total accruals) and 0.978 (working capital accruals) between the uncorrected and abnormal accruals. The high correlation implies that the modelling to remove normal accruals has little effect. It is reassuring to notice that the results are not stronger when omitting the correction. In addition to this robustness check, we also estimate our fixed-effects models with the unadjusted accruals, that is, without correcting for normal accruals or taking absolute values. Our fixed effects are estimated over multiple years of engagement between auditors and clients. We thus expect that adding the direction of the accruals management should lead to weaker results, because the absolute values are superior in longer-term relations. In untabulated results, we indeed document weak fixed effects for these analyses.

Thresholds for Fixed Effects, Auditor–Client Relationship, and Auditor Employment

Further, in line with Cameran *et al.* (2018), we address the concern regarding the use of potentially small samples in determining the fixed effects. A direct consequence of such a bias would be the misestimation of the fixed effects. Therefore, we impose multiple minimum thresholds for estimating fixed effects. In our main tests, we require, in line with Bertrand and Schoar (2003), a minimum of 10 observations and three clients for each fixed effect. To test the sensitivity of our results to different fixed-effects estimations, we vary the stringency of this threshold requirement. We run our tests by alternating between (i) six observations for two clients and (ii) 12 observations for four clients for estimating fixed effects. In an untabulated analysis, we find that estimating our models after imposing two additional threshold requirements does not substantively alter our findings.

Additional to our threshold requirements, we take into consideration the duration of the contact between the audit partner and client, because, in line with prior literature, partners or firms may need time to imprint their style on the client. Specifically, we test for fixed effects that are only measured after one, two, or three years of auditor–client relations. Untabulated results suggest that our results are not affected by the different constraints. We further aim to assess whether our results hold if we consider, in our analysis, only auditors that do not switch between firms and also consider in our analyses only the partners who worked for just one audit firm (as opposed to having worked for multiple audit firms). Untabulated results for all our robustness tests are similar to those of our main analyses.

CONCLUSION

In this paper, we analyze the separate effects of audit partner, office, and firm styles on the level of audit quality in Germany, where the audit environment is characterized by high reputational risk and an external mechanism of enforcing high audit quality. We investigate whether there is a dominant effect of audit firm over audit office and individual audit partners in explaining variation in audit quality. We find that, after controlling for office and firm effects, individual auditors have a significant impact on the audit quality of German companies. We, therefore, conclude that, relative to the previous findings of Gul *et al.* (2013) who find similar results in a less restrictive audit environment, even in the restrictive German audit setting there are style effects of engagement partners that significantly impact audited firms' financial reporting quality.

Our findings are consistent with the notion that German auditors impose their personal style on audit assignments, even if they are deliberately constrained by their firms through standardized work procedures and centralized decisions regarding levels of materiality and audit risk. Our tests are strong evidence of the existence of individual auditor style effects that drive audit quality. Moreover, we determine that none of the identified style effects (firm, office, or partner) is completely subsumed by the others. We find that engagement partners have a consistently significant impact on audit quality, while this does not hold for review partners. This difference between partner effects can be explained by engagement partners being the auditors who are involved directly with the clients throughout the entire audit process and making most of the decisions that influence accruals. By showing that style effects exist even in a setting characterized by high reputational risk and stringent and uniform enforcement of audit quality, we add to the emerging literature on the impact of auditor style on audit quality.

We also obtain our results in an unlikely setting. By using the institutional setting of Germany, we did not expect to observe variability in partner behaviour in relation to audit quality. Nonetheless, we find significant audit-partner style effects in this low-litigation setting, although it is weaker compared with that reported by Cameran *et al.* (2018). This suggests that the constraints on auditors in the German setting are more binding than those in the UK.

Lastly, our study speaks to future regulatory developments in the US by contributing to the ongoing debate regarding the mandatory signing of audit reports by partners in the US (PCAOB, 2015). Because US firms have been required to disclose the identity of the engagement partner since 31 January 2017, our study provides evidence that such disclosures likely contain relevant information for market participants. Future studies should consider extending our analysis by utilizing proprietary databases and performing a more granular analysis of individual partner effects. Specifically, the assessment of how audit quality is determined as a function of auditors' psychological characteristics and/or audit team interactions would represent interesting avenues for research.

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APPENDIX

VARIABLE DEFINITIONS

Variable	Explanation
TA_t	Total assets at t
$SALES_t$	Net sales at time t
REC_t	Accounts receivable at time t
CA_t	Current assets at time t
$CASH_t$	Cash and cash equivalents at time t
CL_t	Current liabilities at time t
$CPLD_t$	Current portion of long-term debt at time t
IT_t	Income taxes payable at time t
$GPPE_t$	Gross property, plant, and equipment at time t
$DEPR_t$	Depreciation and amortization expense at time t
$IBEI_t$	Income before extraordinary items at time t
CFO_t	Cash flow from operations at time t divided by total assets at time t–1
$TACCR_t$	Total accruals at time t, computed as $(IBEI_t\text{-}CFO_t)/TA_{t-1}$
$WCACCR_t$	Working capital accruals at time t
AbsATACC	Absolute value of abnormal total accruals
AbsAWCACC	Absolute value of abnormal working capital accruals
Small_pos	Dummy variable that takes the value one for firms with ROA (income before extraordinary items on beginning assets) between 0% and 5%, and zero otherwise
DS_t	Dummy variable that takes the value one for firms applying IFRS or US GAAP and zero otherwise
ROA_t	Earnings before interest and taxes at time t / total assets at time t–1
SG_t	Sales growth at time t, computed as $(SALES_t - SALES_t)/SALES_{t-1}$
$SIZE_t$	Natural logarithm of total assets at time t
$DEBT_t$	Total debt to total assets, $DEBT_t/TA_t$
LEV_t	Ratio of total debt to total assets, $DEBT_t/TA_{t-1}$

t = specific month of the calendar year at which the fiscal year ends (e.g., if the fiscal year ends at 31 January 2005, the observation is attributed to 2005).