Do Clients Get What They Pay For? Evidence from Auditor and Engagement Fee Premiums*

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ABSTRACT

Despite the intuitive appeal, prior research finds mixed evidence on whether higher audit fees translate to superior audit quality. Under the assumption that product differentiation between auditors is based, in large part, on the level of financial statement assurance, we propose more refined measures of excess audit fees that separate auditor premiums from other fee premiums. Consistent with our conjecture, we identify significant variation in audit pricing across auditors (i.e., auditor premiums) that relates positively to audit quality. Conversely, we find no evidence that higher engagement-specific fee premiums (i.e., fee model residuals) are positively related to proxies for audit quality. Additional tests indicate that our results do not simply reflect premiums attributable to auditor characteristics evaluated in prior research (e.g., Big 4 membership, office size, and industry expertise). In fact, our findings suggest that the positive association between auditor premiums and audit quality is better captured at the auditor level than it is at the auditor "tier," office, auditor-industry, or engagement levels. In sum, our results suggest that auditors charging higher fees, on average, deliver superior levels of financial statement assurance, but engagement-specific fee premiums do not reflect quality-enhancing audit effort. These contrasting results provide a possible explanation for the mixed findings in prior research.

Les clients obtiennent-ils ce pour quoi ils paient ? Données relatives aux majorations d'honoraires d'audit et de mission

RÉSUMÉ

Malgré l'intérêt spontané qu'ils suscitent, les résultats des précédentes études ne sont pas concluants en ce qui concerne l'association entre honoraires d'audit plus élevés et qualité d'audit supérieure. En posant l'hypothèse que la différenciation du produit offert par les auditeurs repose, en grande partie, sur le niveau de certification des états financiers, les auteurs proposent des mesures plus raffinées des honoraires d'audit excédentaires établissant la distinction entre les majorations des honoraires versés aux différents auditeurs et les majorations d'autres honoraires.

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Conformément à leurs prédictions, les auteurs relèvent un écart important dans les prix des services d'audit pratiqués par les auditeurs (soit les majorations d'honoraires d'audit), écart qui affiche un lien positif avec la qualité de l'audit. Inversement, ils ne relèvent aucune donnée permettant d'affirmer que les majorations d'honoraires plus importantes afférentes à d'autres travaux propres à la mission (c'est-à-dire les honoraires résiduels du modèle) ont un lien positif avec les indicateurs de la qualité de l'audit. Des tests supplémentaires révèlent que les résultats obtenus ne reflètent pas simplement les majorations attribuables aux caractéristiques de l'auditeur évaluées dans de précédentes études (par exemple, l'appartenance aux Quatre Grands, la taille du bureau et l'expérience sectorielle). En fait, les constatations des auteurs semblent indiquer que le lien positif entre les majorations des honoraires d'audit et la qualité de l'audit est mieux saisi au niveau de l'auditeur qu'il ne l'est aux niveaux du « rang » auquel il appartient, du bureau, du secteur de spécialisation ou de la mission. En résumé, les résultats de l'étude laissent croire que les auditeurs qui demandent des honoraires plus élevés procurent, en moyenne, des niveaux supérieurs d'assurance à l'égard des états financiers, mais que les majorations d'honoraires afférentes à d'autres travaux propres à la mission ne reflètent pas le déploiement d'un effort propre à accroître la qualité du travail. Ces différences de résultats fournissent une explication possible des constatations mitigées des études antérieures.

The bitterness of poor quality remains long after the sweetness of low price is forgotten.
(Anonymous)

1. Introduction

In markets for differentiable products, the price a buyer is willing to pay should increase with quality. In audit markets, the level of financial statement assurance, or "audit quality," an auditor provides is arguably the most important dimension of product quality. Investors and audit committees demand audit quality since reliable financial statements reduce information risk, lower costs of capital, and minimize shareholder litigation (Akerlof 1970; Jensen and Meckling 1976). High-quality audits also benefit auditors since clients' financial reporting failures can impair auditor reputation (Skinner and Srinivasan 2012; Weber et al. 2008; Swanquist and Whited 2015) and lead to auditor litigation losses (DeFond and Zhang 2014; Heninger 2001). Building on this premise, an extensive line of literature investigates the relation between excess audit fees, or the residual premium "customers" (clients) pay for a service (audit), and audit quality. However, the evidence from this research is mixed. To illustrate, Lobo and Zhao (2013) show that, after considering ex ante misstatement risk, fee premiums relate negatively to restatements, consistent with the view that audit fee residuals reflect restatement reducing audit effort. However, Hribar et al. (2014) provide evidence that fee premiums are positively related to restatements and suggest that these fees represent underlying client misstatement risk.[1]

Research on audit quality and audit fees typically focuses on "fee premiums" or "abnormal fees" that are approximated by the residual from an audit fee prediction model. Doogar et al. (2015) find that fee premiums persist, even when clients change auditors, and suggest that these premiums largely capture unobservable audit production costs relating to the client and common to all auditors. We posit that production costs are a function of both the client and the auditor. In other words, fee premiums reflect both auditors' heterogeneous pricing structures and engagement idiosyncrasies. We expect that each component of fee premiums (auditor- and engagement-specific) relates differently to reporting quality. Namely, auditor fee premiums likely increase with auditor reputation, resources, and competence, all of which should translate to greater audit quality. Conversely, engagement fee premiums likely capture a combination of unobservable risk, production costs, and negotiation idiosyncrasies. As such, comingling the auditor- and engagement-specific components likely obfuscates the relation between audit fees

1. These two examples serve to illustrate discordant results using similar measures, but we recognize the intent and design of each study are quite different. Appendix 1 supplements these examples with a more comprehensive list of studies examining the relation between audit fees and audit quality.

and audit quality. Thus, we decompose the total fee premium into auditor- and engagement-specific components and examine how each component relates to audit quality.

To disentangle auditor premiums from other components of audit fee residuals, we modify the fees prediction model to distinguish an auditor-specific fee component, which we refer to as the auditor premium, from the remaining residual client and audit idiosyncrasies, which we refer to as the engagement premium.[2] We then validate that the auditor premium captures *auditor-driven* differences in audit pricing rather than *client-driven* differences by showing that past auditor premiums strongly predict the level of and change in audit fees charged to *new* audit clients. Additionally, the predictive ability of the auditor premium is incremental to the predictive ability of residual fees demonstrated by Doogar et al. (2015). In sum, these analyses indicate that audit fees include a significant auditor-driven fee component.

We next examine the association between fee premiums and restatements, our primary proxy for audit quality. We fail to observe a significant association between a fee residual variable that does not distinguish between engagement and auditor-specific premiums (similar to approaches in prior literature) and restatements. However, using our decomposed premiums, we find a robust, highly significant, negative relation between auditor premiums and restatements and either an insignificant or a significantly *positive* association between engagement fee premiums and restatements, depending on the specification. Economically, a one standard deviation increase in the auditor fee premium reduces the likelihood of a material misstatement by 16 to 26 percent relative to the unconditional restatement rate. Additionally, these findings are robust to including client fixed effects in the estimation of fee premiums indicating that the results are not a product of differences in auditor portfolios and to using alternative windows to estimate the fee premium variables.

In our primary tests, we focus on premiums at the auditor level since we expect the most basic level of product differentiation is the auditor's "brand name". However, prior research also links auditor traits like office size, industry expertise, and auditor "tier" to both quality and fees. For instance, research suggests that auditors from larger offices and industry specialists deliver higher-quality audits (e.g., Francis and Yu 2009 and Reichelt and Wang 2010) and receive a fee premium (e.g., Francis et al. 2005 and Craswell et al. 1995). Similarly, a long line of research investigates the "Big 4 effect", or the increase in audit quality provided by Big 4 auditors (e.g., DeFond et al. 2017, Lawrence et al. 2011, and Lennox and Pittman 2010). Our initial findings suggest that audit firms are heterogeneous in their pricing and quality, but it is possible that these the effects are better captured using a different unit of measurement. Therefore, we next re-perform our primary tests using premiums estimated at more granular (audit-office and audit-industry) and coarser (auditor-tier) levels.

Consistent with our main tests, both office and auditor-industry premiums relate negatively to restatements. However, our evidence suggests that the auditor-level premium more strongly relates to restatements than either the office or auditor-industry premium. Furthermore, we find no evidence that within-auditor variation in pricing at the office or industry level relates to audit quality.

We then evaluate the performance of premiums estimated at the coarser "tier" level. This method treats all auditors within each tier (Big 4, Second Tier, Small Auditor) as homogenous. We find that tier premiums are positively associated with audit quality. In other words, the higher prices charged by larger audit firm tiers (Big 4 and Second Tier) are associated with superior quality relative to Small Auditors. However, we find that the tier level of measurement does not fully capture the relation between fees and quality as within-tier variation in auditor premiums is also positively and significantly associated with quality. When we evaluate the relation between auditor premiums and quality within each tier, we find a significant positive relation within the

2. We label the residual from our fee model as the "engagement premium" for consistency with our auditor premium variable. However, we acknowledge that engagement premiums reflect all aspects of the engagement not captured by our model and are not a "fee premium" in the traditional sense. As such, the engagement premiums are not a primary focus of our study.

Small Auditor tier, but *not* Big 4 and Second Tier auditors. Further analysis suggests that the lack of a relation within the larger auditor tiers may be attributable to homogeneity in pricing and quality within these tiers.[3] Taken together, these results indicate that our measure of auditor premium captures both between- and within-tier variations in quality. Our results also suggest that future research should avoid simple Big 4/non-Big 4 dichotomies and allow for heterogeneity across auditors, particularly Small Auditors.

We conclude with several additional analyses. We begin by exploring the association between auditor premiums and alternative measures of audit quality. While restatements imply egregious and salient audit failures that clients and auditors have incentives to avoid, other measures of financial reporting quality can provide additional insights into the relative quality of an audit. We supplement our tests using two alternative measures of quality. First, we use outcomes of SEC filing reviews. We expect that high-quality audits improve financial reporting quality, thereby reducing the "costs" of the comment letter process (Cassell, Dreher, et al. 2013). Using a listing of comment letter reviews obtained through a Freedom of Information Act (FOIA) request from the SEC combined with Audit Analytics comment letter data, we find that the number of comment letters issued for each audited 10-K decreases with the auditor premium and is unrelated to the engagement premium. Second, estimates of abnormal accruals frequently serve as a proxy for audit quality (DeFond and Zhang 2014). Consistent with our initial results, we find a significantly negative association between auditor premiums and absolute abnormal accruals. Conversely, engagement premiums relate *positively* to absolute abnormal accruals.

In light of the shifting audit landscape (DeFond and Lennox 2011), we next consider over-time trends in fee premiums, audit quality, and clients' willingness to pay for fee premiums. Since its inception, the PCAOB has conducted in-depth inspections of auditors with the goal of improving and converging audit quality, and prior research suggests this inspection effort has caused poor-quality auditors to exit the market (DeFond and Lennox 2011). This change in the audit landscape has likely altered the nature of audit pricing and audit quality. Therefore, we supplement our primary tests by examining whether the relations noted above vary over time. First, we find that auditor premiums have remained relatively steady in our sample period, but, consistent with prior research, we observe convergence in audit quality over this same period. Consistent with this pattern, we find that the relation between auditor premiums and restatements has diminished over time. Because the quality benefits of auditor premiums have decreased over time, we also examine the relation between auditor premiums and dismissals and find that clients have become less willing to pay auditor premiums (i.e., a positive relation between auditor premiums and dismissals) in recent years. In sum, our evidence suggests that although auditors have maintained significant pricing differences across time, these differences do not consistently relate to quality in more recent years.

Finally, we perform a falsification test using interim (i.e., unaudited) financial reports and find a *positive* relation between auditor premiums and interim restatements. These tests suggest that clients with inherently riskier reporting (i.e., lower-quality *unaudited* reports) seek out high-quality auditors and that unobservable or unmodeled characteristics related to inherent reporting quality are likely to bias *against* the findings in our study. In sum, these tests significantly alleviate concerns that prior results are driven by clients with high-quality financial reporting enlisting premium-priced auditors.

Our study contributes to several streams of audit literature. First, we contribute to the literature on the fundamental relation between audit fees and reporting quality. We address a call by Doogar et al. (2015, 1249) suggesting that "elucidating the factors that drive fee residuals is a promising avenue for future research". Specifically, we demonstrate that the audit firm itself, beyond simple

3. In untabulated analysis, we also find that the auditor premium subsumes the significance on a Big 4 indicator variable, indicating that it is a better measure to differentiate between auditors than naïve Big 4/non-Big 4 designations. We also note that our findings are not driven solely by variation within Small Auditors. If this were the case, the tier premium would not be significant since Small Auditors are treated as a uniform group in this analysis. We discuss this further in section 5.

large/small auditor designations, represents an important determinant of audit fees and that separating auditor premiums from engagement premiums reveals the expected positive relation between price and quality. By doing so, our study provides a reconciliation for conflicting findings in prior literature on the relation between "abnormal fees" and audit quality. Furthermore, our evidence indicates that audit firm identity, rather than office, auditor-industry, or tier, most parsimoniously identifies quality-related pricing for the full spectrum of auditors, suggesting that researchers should use caution when classifying auditors into homogenous groups and that substantial variation in audit quality and pricing exists in the "Small Auditor" market segment. Along these lines, we propose that the measure developed in this study, *Auditor Premium*, may be useful in future research as a market-driven and flexible proxy for (expected) auditor quality. We also contribute to the literature on changes in the audit market landscape by documenting a convergence in audit quality that has not been accompanied by a convergence in price. This finding provides a potential explanation as to why the relation between auditor premiums and audit quality has diminished over time. Finally, we contribute to the ongoing debate in the literature on the "Big 4 effect" (DeFond et al. 2017; Lawrence et al. 2011). Our evidence suggests that premiums charged by the Big 4 and Second Tier translate to superior audit quality relative to Small Auditors.

The remainder of the study is organized as follows. Section 2 discusses the relevant literature and motivation, and section 3 discusses the sample, methodology, and descriptive statistics. Section 4 presents our primary analyses, section 5 presents analyses using alternative auditor premiums, and section 6 presents additional analyses and robustness tests. Section 7 concludes.

2. Prior literature and motivation

Identifying predictable sources of cross-sectional variation in audit quality continues to be the focus of an extensive stream of accounting research (see DeFond and Zhang 2014 for a review). Examples of characteristics corresponding to improved quality include auditor size (DeAngelo 1981), office size (Francis et al. 2013; Francis and Yu 2009), or industry expertise (Balsam et al. 2003; Krishnan 2003; Reichelt and Wang 2010). More recently, Beck et al. (2017) documented a positive association between audit quality and the average education level in the MSA of the engagement office, and Hoopes et al. (2018) linked auditor salaries to audit quality.

Beginning in the early 2000s, clients were required to disclose fees paid to auditors, providing more insight into the auditing process and leading to a substantial increase in auditing research. Unlike basic auditor traits such as office size, audit fees provide a measure from which researchers may approximate audit "inputs" for a specific engagement. While audit fees have a strong theoretical relation with audit effort (i.e., hours), they may also potentially compromise independence if they represent economic bonding. This interesting dynamic has fostered academic and regulatory interests in the relation between audit pricing and audit quality. Due to the heterogeneous and complex nature of audits, evaluating the association between audit pricing and quality requires researchers to develop client-specific fee benchmarks to assess whether actual pricing represents a premium or a discount.[4] A popular technique for empirically implementing this approach is to identify "abnormal" audit fees (premiums or discounts) as the residual from a fee expectation model. Extensive prior research draws inferences about which factors contribute to the fee residual (e.g., auditor effort/quality, audit costs, auditor rents, and audit risks) based on how the residual relates to audit quality. Given the countless factors that are relegated to the fee residual, it is not surprising that prior findings are mixed (see examples in Appendix 1).[5] Studies that find a negative relation between fee residuals and financial reporting quality generally

4. In this vein, several studies investigate the determinants of audit fees (see Hay et al. 2006 for a meta-analysis). These include client disclosures (e.g., Ball et al. 2012), business strategy (e.g., Bentley et al. 2013), and risk (e.g., Badertscher et al. 2014; Pratt and Stice 1994; Seetharaman et al. 2002; Venkataraman et al. 2008).

5. See DeFond and Zhang (2014) and Appendix I of Doogar et al. (2015) for additional discussions of research on the interpretation of audit fee residuals.

conclude that residual fees reflect client reporting risk or auditor rent extraction that compromises auditor independence. For example, Choi et al. (2010), Hoitash et al. (2007), and Asthana and Boone (2012) detect a positive relation between audit fee residuals and abnormal accruals and suggest that abnormally high audit fees compromise quality. Conversely, Kinney et al. (2004) attribute their evidence of a positive relation between audit fees and the likelihood of restatement to client misstatement risk. Similarly, Hribar et al. (2014) find a positive relation between abnormal fees and restatements and conclude that audit fee residuals capture the client's accounting quality. Conversely, some studies find the opposite relation between fees and quality. In particular, Lobo and Zhao (2013) detect a negative relation between abnormal audit fees and restatements after controlling for lagged restatements and contend that residual fees capture additional audit effort which enhances audit quality.[6]

Doogar et al. (2015) evaluate audit fee residuals using an alternative approach. They consider whether fee residuals represent costs or economic rents and whether the costs or rents are common to all auditors or idiosyncratic in nature. They provide evidence that audit fee residuals persist from one year to the next. Importantly, they also observe that fee residuals persist for clients that switch auditors and that the relation between fee residuals and future audit fees does not differ between clients that retain their auditor and clients that switch auditors. They conclude that fee residuals largely reflect common, unobserved audit costs. While Doogar et al. (2015) do not directly test the relation between residual fees and quality, they conclude that residual fees capture persistent, unobservable audit production costs, a characterization that is inconsistent with fees capturing quality-enhancing auditor effort. Importantly, none of these prior studies preclude an auditor-specific component of residual fees.

As mentioned earlier, audit firms may charge differential fee premiums for several reasons, such as reputation, technological sophistication, and the quality of the workforce. In the following section, we introduce a measure of auditor-specific premiums and reconsider the relation between price and quality. We begin with auditor premiums (rather than office or auditor-industry premiums) because we expect that the first source of product differentiation occurs at the auditor level. We consider whether alternative premium specifications capture improved audit quality in section 5.

3. Sample, methodology, and descriptive statistics

Sample composition

Our sample consists of client-year observations from 2006 to 2014 for U.S. incorporated companies.[7] We obtain auditor, audit fee, restatement, and auditor dismissal data from Audit Analytics (AA) and financial data from COMPUSTAT. We use the COMPUSTAT fiscal year convention and begin in 2006 (fiscal years ending on or after June 30, 2006) to allow for three-year rolling-estimation windows and to avoid the substantial changes that occurred in both the audit market and the content of audit fee disclosures in the years around SOX (DeFond and Lennox 2011; Landsman et al. 2009). The sample ends in COMPUSTAT fiscal year 2014 (fiscal years ending on or before May 31, 2015) to allow at least two years for the detection and announcement of restatements for all client years included in this study (our restatement data was downloaded from AA in June 2017). Our final sample consists of 29,440 observations consisting of 5,443 unique clients and 378 unique auditors. Descriptive statistics for all variables used in this study are

6. Similarly, Blankley et al. (2012) detect a negative relation between abnormal audit fees and future restatement announcements for a subsample of SOX 404(b)-compliant, Big 4 clients from 2004 to 2007, and Zhao et al. (2017) detect a negative relation between abnormal fees and restatements that is confined to SOX 404(b)-compliant clients. We note that neither of these studies investigate auditor-specific premiums.

7. We eliminate any observations with less than one million in total assets and auditors with only one client year in the sample. Inferences are unchanged if we include all client years with sufficient data. Also, since we estimate an auditor component of audit fees, we limit the sample to auditors with at least 10 client-year observations as a sensitivity test. Inferences throughout this study are similar.

presented in panel A of Table 1. Continuous variables are winsorized at the 1st and 99th percentiles (see Appendix 2 for definitions). Our variable distributions generally conform to prior research. For instance, we observe mean values for *ln(Audit Fees)*, *Assets,* and *Book to Market* of 13.5, 5.7, and 0.44, similar to the 12.9, 5.1, and 0.39 reported in Lobo and Zhao (2013) for an earlier sample period. Pearson correlation coefficients for each of the variables are presented in panel B of Table 1. We observe a negative correlation between *Restate* and *ln(Audit Fees)* and between *Restate* and *Auditor Premium* (defined shortly), consistent with audit firms likely differentiating themselves on the basis of quality.

TABLE 1
Descriptive statistics

Panel A: Descriptive statistics

Variables	*N*	Mean	SD	25%	Median	75%
ln(Audit Fees)	29,440	13.506	1.362	12.557	13.602	14.435
Restate	29,440	0.034	0.181	0.000	0.000	0.000
Assets	29,440	5.722	2.334	4.051	5.774	7.400
Sales	29,440	5.447	2.579	3.829	5.703	7.291
Market	29,440	5.739	2.349	4.051	5.848	7.399
New Auditor	29,440	0.070	0.256	0.000	0.000	0.000
Segments	29,440	1.088	0.459	0.693	0.693	1.386
Acquisitions	29,440	0.022	0.058	0.000	0.000	0.009
Foreign Income	29,440	0.344	0.475	0.000	0.000	1.000
Finance	29,440	0.585	0.493	0.000	1.000	1.000
SOX 404	29,440	0.686	0.464	0.000	1.000	1.000
Weak 404	29,440	0.172	0.641	0.000	0.000	0.000
Busy FYE	29,440	0.742	0.438	0.000	1.000	1.000
Pension	29,440	0.735	0.441	0.000	1.000	1.000
Inventory	29,440	0.105	0.129	0.001	0.057	0.165
Receivables	29,440	0.141	0.117	0.051	0.115	0.196
Book to Market	29,440	0.439	1.049	0.206	0.428	0.738
Growth	29,440	0.204	0.783	−0.040	0.068	0.208
CFO	29,440	0.014	0.252	−0.005	0.074	0.131
Loss	29,440	0.385	0.487	0.000	0.000	1.000
Distress	29,440	0.662	5.573	0.633	1.811	2.950
ROA	29,440	−0.089	0.392	−0.086	0.027	0.076
Leverage	29,440	0.570	0.463	0.305	0.496	0.690
Abnormal Fees	29,440	0.001	0.467	−0.302	−0.001	0.299
Auditor Premium	29,440	0.000	0.322	−0.098	0.163	0.204
Engagement Premium	29,440	0.000	0.397	−0.267	−0.003	0.261
Office Premium	29,218	0.000	0.382	−0.206	0.100	0.278
Auditor-Industry Premium	28,495	0.000	0.367	−0.159	0.086	0.271
Tier Premium	29,440	0.000	0.259	−0.099	0.162	0.175
Dismiss	29,440	0.041	0.197	0.000	0.000	0.000
Mismatch	29,440	0.171	0.377	0.000	0.000	0.000
Restate Announce	29,440	0.029	0.167	0.000	0.000	0.000
Restate Announce Quarter	29,440	0.013	0.112	0.000	0.000	0.000
Abnormal Accruals	25,620	0.059	0.061	0.017	0.040	0.078
Comment Letters	7,607	1.217	0.332	1.099	1.099	1.386

(The table is continued on the next page.)

TABLE 1 (continued)

Panel B: Correlation matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
(1) *ln(Audit Fees)*	1.00																																		
(2) *Restate*	**-0.04**	1.00																																	
(3) *Assets*	**0.89**	**-0.04**	1.00																																
(4) *Sales*	**0.85**	**-0.04**	**0.92**	1.00																															
(5) *Market*	**0.82**	**-0.05**	**0.90**	**0.80**	1.00																														
(6) *New Auditor*	**-0.17**	**0.02**	**-0.17**	**-0.16**	**-0.17**	1.00																													
(7) *Segments*	**0.44**	**-0.01**	**0.44**	**0.44**	**0.35**	**-0.05**	1.00																												
(8) *Acquisitions*	**0.13**	**0.01**	**0.12**	**0.11**	**0.12**	-0.01	**0.08**	1.00																											
(9) *Foreign Income*	**0.47**	**-0.04**	**0.40**	**0.41**	**0.42**	**-0.08**	**0.24**	**0.08**	1.00																										
(10) *Finance*	**0.12**	**0.02**	**0.11**	**0.04**	**0.16**	0.00	**0.03**	**0.16**	0.00	1.00																									
(11) *SOX 404*	**0.67**	**-0.02**	**0.69**	**0.62**	**0.70**	**-0.17**	**0.26**	**0.11**	**0.32**	**0.05**	1.00																								
(12) *Weak 404*	**-0.15**	**0.07**	**-0.21**	**-0.20**	**-0.21**	**0.14**	**-0.06**	**-0.02**	**-0.09**	0.01	**-0.18**	1.00																							
(13) *Busy FYE*	**0.10**	0.01	**0.11**	**0.06**	**0.10**	0.00	**0.02**	0.01	**-0.03**	**0.08**	**0.08**	0.00	1.00																						
(14) *Pension*	**0.39**	**-0.03**	**0.41**	**0.44**	**0.36**	**-0.10**	**0.21**	**0.07**	**0.20**	**-0.04**	**0.37**	**-0.18**	-0.01	1.00																					
(15) *Inventory*	**-0.07**	**-0.01**	**-0.09**	**0.08**	**-0.14**	**0.02**	0.00	**-0.07**	**0.05**	**-0.10**	**-0.09**	**0.01**	**-0.11**	**0.05**	1.00																				
(16) *Receivables*	**-0.06**	**0.02**	**-0.16**	**0.06**	**-0.18**	**0.03**	**0.06**	0.01	**0.10**	**-0.10**	**-0.15**	**0.03**	**-0.09**	**0.02**	**0.13**	1.00																			
(17) *Book to Market*	**0.03**	0.00	**0.10**	**0.09**	**0.05**	-0.01	**0.06**	**0.02**	**0.03**	**-0.09**	**0.06**	**-0.08**	**-0.02**	**0.08**	**0.08**	0.00	1.00																		
(18) *Growth*	**-0.13**	**0.03**	**-0.12**	**-0.16**	**-0.04**	**0.06**	**-0.10**	**0.07**	**-0.08**	**0.12**	**-0.09**	**0.09**	**0.04**	**-0.15**	**-0.08**	**-0.05**	**-0.06**	1.00																	
(19) *CFO*	**0.34**	**-0.02**	**0.46**	**0.56**	**0.37**	**-0.09**	**0.20**	**0.09**	**0.23**	**-0.14**	**0.32**	**-0.16**	**-0.02**	**0.29**	0.01	**0.07**	**0.15**	**-0.16**	1.00																
(20) *Loss*	**-0.31**	**0.03**	**-0.43**	**-0.48**	**-0.45**	**0.10**	**-0.22**	**-0.07**	**-0.30**	**0.05**	**-0.31**	**0.15**	**0.03**	**-0.28**	**-0.05**	**-0.07**	**-0.09**	**0.07**	**-0.50**	1.00															
(21) *Distress*	**0.28**	**-0.02**	**0.41**	**0.46**	**0.33**	**-0.07**	**0.16**	**0.06**	**0.19**	**-0.13**	**0.28**	**-0.16**	**-0.04**	**0.27**	**0.11**	**0.09**	**0.31**	**-0.09**	**0.69**	**-0.40**	1.00														
(22) *ROA*	**0.34**	**-0.02**	**0.46**	**0.53**	**0.37**	**-0.10**	**0.20**	**0.07**	**0.24**	**-0.14**	**0.32**	**-0.20**	**-0.03**	**0.31**	**0.05**	**0.09**	**0.22**	**-0.17**	**0.82**	**-0.56**	**0.73**	1.00													
(23) *Leverage*	**-0.06**	**0.03**	**-0.12**	**-0.09**	**-0.17**	**0.03**	0.00	**-0.03**	**-0.10**	**0.15**	**-0.15**	**0.15**	**0.06**	**-0.13**	**-0.02**	**0.05**	**-0.52**	**0.03**	**-0.34**	**0.21**	**-0.59**	**-0.46**	1.00												
(24) *Abnormal Fees*	**0.33**	**-0.01**	**-0.01**	**-0.01**	**-0.02**	0.00	0.00	-0.01	-0.01	0.00	**-0.03**	**-0.02**	0.00	0.00	0.00	0.01	**-0.02**	0.00	**-0.05**	**0.01**	**-0.07**	**-0.05**	**0.04**	1.00										
(25) *Auditor Premium*	**0.73**	**-0.06**	**0.64**	**0.60**	**0.61**	**-0.19**	**0.22**	**0.10**	**0.30**	**0.05**	**0.61**	**-0.25**	**0.09**	**0.39**	**-0.07**	**-0.12**	**0.04**	**-0.12**	**0.29**	**-0.24**	**0.26**	**0.31**	**-0.15**	**0.30**	1.00									
(26) *Engagement Premium*	**0.29**	0.01	**-0.02**	**-0.01**	**-0.02**	-0.01	0.00	-0.01	**-0.01**	0.00	**-0.03**	**-0.02**	**-0.01**	0.00	0.01	**0.01**	**-0.02**	-0.01	**-0.04**	0.01	**-0.07**	**-0.05**	**0.05**	**0.88**	0.00	1.00								
(27) *Office Premium*	**0.62**	**-0.07**	**0.49**	**0.44**	**0.48**	**-0.14**	**0.14**	**0.06**	**0.28**	**0.03**	**0.45**	**-0.17**	**0.07**	**0.25**	**-0.08**	**-0.10**	**0.04**	**-0.09**	**0.18**	**-0.13**	**0.14**	**0.20**	**-0.10**	**0.30**	**0.72**	**0.08**	1.00							
(28) *Auditor-Industry Premium*	**0.59**	**-0.04**	**0.40**	**0.37**	**0.40**	**-0.07**	**0.14**	**0.10**	**0.30**	0.01	**0.44**	**-0.18**	**0.02**	**0.27**	**-0.11**	**-0.03**	**0.03**	**-0.07**	**0.18**	**-0.12**	**0.15**	**0.18**	**-0.13**	**0.38**	**0.76**	**0.17**	**0.64**	1.00						
(29) *Tier Premium*	**0.73**	**-0.06**	**0.68**	**0.64**	**0.67**	**-0.20**	**0.24**	**0.10**	**0.32**	**0.07**	**0.64**	**-0.22**	**0.10**	**0.38**	**-0.08**	**-0.12**	**0.04**	**-0.11**	**0.30**	**-0.26**	**0.28**	**0.31**	**-0.13**	**0.21**	**0.88**	0.00	**0.69**	**0.67**	1.00					
(30) *Dismiss*	**-0.07**	**0.05**	**-0.10**	**-0.09**	**-0.10**	-0.01	**-0.02**	-0.01	**-0.04**	0.00	**-0.08**	**0.08**	-0.01	**-0.05**	**0.01**	**0.01**	**0.01**	**0.02**	**-0.05**	**0.07**	**-0.04**	**-0.05**	0.00	**0.03**	**-0.06**	**0.03**	**-0.04**	**-0.03**	**-0.06**	1.00				
(31) *Mismatch*	**-0.09**	0.00	**-0.14**	**-0.15**	**-0.13**	**0.01**	**-0.12**	**0.01**	**-0.07**	**-0.03**	**0.01**	**-0.01**	**0.03**	**-0.03**	**-0.03**	-0.01	**0.04**	**0.03**	**-0.06**	**0.11**	0.00	**-0.02**	**-0.10**	**0.06**	**0.01**	**0.03**	**0.02**	**0.02**	0.00	**0.05**	1.00			
(32) *Restate Announce*	**-0.02**	**0.09**	**-0.05**	**-0.06**	**-0.06**	**0.09**	**-0.02**	0.00	**-0.03**	**0.01**	**-0.04**	**0.21**	0.00	**-0.04**	-0.01	0.01	**-0.02**	**0.03**	**-0.03**	**0.05**	**-0.03**	**-0.04**	**0.04**	**0.03**	**-0.05**	**0.04**	**-0.08**	**-0.04**	**-0.06**	**0.05**	-0.01	1.00		
(33) *Restate Announce Quarter*	**-0.03**	**0.03**	**-0.05**	**-0.05**	**-0.05**	**0.05**	**-0.01**	**0.01**	**-0.03**	**0.02**	**-0.05**	**0.12**	0.00	**-0.04**	**-0.01**	**0.01**	**-0.01**	**0.03**	**-0.05**	**0.05**	**-0.04**	**-0.06**	**0.02**	**0.03**	**-0.04**	**0.03**	**-0.04**	**-0.03**	**-0.04**	**0.03**	0.00	**0.02**	1.00	
(34) *Abnormal Accruals*	**-0.25**	**0.03**	**-0.31**	**-0.33**	**-0.25**	**0.07**	**-0.19**	**-0.02**	**-0.16**	**0.05**	**-0.22**	**0.08**	**0.02**	**-0.19**	**-0.02**	**0.03**	**-0.06**	**0.16**	**-0.24**	**0.23**	**-0.21**	**-0.28**	0.01	**0.03**	**-0.19**	**0.03**	**-0.13**	**-0.08**	**-0.21**	**0.04**	**0.08**	**0.02**	**0.04**	1.00
(35) *Comment Letters*	**0.05**	-0.01	**0.05**	**0.05**	**0.05**	-0.02	0.01	0.00	**0.04**	0.01	**0.07**	**-0.04**	-0.01	**0.03**	**-0.02**	-0.01	0.02	-0.02	**0.03**	-0.01	**0.03**	**0.05**	**-0.02**	-0.02	0.01	0.00	**0.03**	**0.04**	0.01	-0.02	0.01	**-0.03**	0.01	0.00	1.00

Notes: Panel A of this table presents descriptive statistics for our sample of client-year observations from 2006 to 2014, while panel B presents Pearson correlation coefficients (bolded correlations are significant at $p < 0.10$ or better). All variables are defined in Appendix 2.

Measurement and validation of auditor premiums

We posit that individual audit firms should command auditor-level premiums for several reasons. First, the auditor's name is the most salient differentiator of audit services (Causholli et al. 2010) and demand for an auditor's brand should drive audit pricing. Second, U.S. auditors have substantial litigation and regulatory risk in the event of an audit failure at any of the auditor's clients (Badertscher et al. 2014) incentivizing the auditor to promote a consistent level of quality across engagements. As such, auditors devote significant time and resources to technology, talent acquisition and retention, development of audit methodology, audit firm-wide training, and other quality control initiatives to promote and maintain their practice. Audit pricing should reflect any differences in these investments across audit firms.[8] Third, standard audit programs vary by audit firm and affect the amount of audit effort expended on engagements. Thus, we expect a positive relation between the average cost of providing an audit and the quality of an audit. Finally, clients should demand high-quality audits to improve information quality and reduce the cost of capital, so the price a client is willing to pay for an audit should also be increasing with auditor quality.

Building on this conjecture, we decompose residual fee premiums into auditor- and engagement-specific components, where the auditor-specific component reflects the average premium charged by the auditor and the engagement-specific component reflects all other unmodeled engagement and client factors contributing to audit fees that are not common to an auditor's clientele. Unlike the auditor component, the engagement component has no clear expected relation with audit quality, as it likely reflects a combination of auditor effort, auditor rents, risk premiums, and idiosyncratic audit costs. To develop these measures, we estimate the following model annually, using rolling three-year estimation windows:

$$ln(Audit\ Fees_{it}) = \beta_0 + \beta X_{it} + \gamma Auditor_{it} + \varepsilon_{it}, \quad (1)$$

where *Audit Fees* equals total audit fees for client *i* in year *t*. The vector of control variables (X_{it}) includes client-specific variables that we expect to relate to the cost of performing an audit following prior literature (e.g., Hay et al. 2006). Specifically, we include client size (*Assets, Sales, Market*), first-year audit engagements (*New Auditor*), complexity (*Segments*, *Acquisitions, Foreign Income*), financing (*Finance*), internal control reporting (*SOX 404*, *Weak 404*), busy season fiscal year-end (*Busy FYE*), and other company fundamentals (*Pension, Inventory, Receivables, Book to Market, Growth, CFO, Loss, Distress, ROA, Leverage*).[9] We also include industry, year, and metropolitan statistical area (MSA) fixed effects.[10] *Auditor* represents a vector of indicator variables for the auditors in our sample. As such, γ (the vector of coefficients for *Auditor*) quantifies the fee premium for each auditor in each rolling three-year window (*Auditor Premium*), and ε_{it} estimates the engagement-specific fee premium (*Engagement Premium*).[11] We purposefully exclude

8. Consistent with these arguments, Hoopes et al. (2018) find evidence that audit firms pass higher costs associated with auditor salaries to clients.

9. Although we use management's SOX 404(a) opinions to identify weak internal controls, we note that auditors may influence the detection of internal control weaknesses and, as such, *Weak 404* may be more likely for high-quality auditors and might be outcomes of restatements. If we exclude *Weak 404* from our analyses, inferences are similar, with one exception. The relation between *Engagement Premium* and restatements is positive and significant across all specifications. This is similar to Hribar et al. (2014) who intentionally excluded controls for internal control environment so that the fee residual captures risk-related fee premiums associated with poor accounting quality and find a positive relation between fee residuals and restatements.

10. MSA classifications for audit office cities are defined using core based statistical areas (CBSAs) listed in the U.S. Census Bureau's Principal Cities file at http://www.census.gov/population/metro/data/def.html. Cities that are not listed in the file are classified by hand using Google Maps.

11. As with any fixed effect, one group is relegated to the intercept (PricewaterhouseCoopers in this study). The variable is only meaningful in relative terms and results are identical regardless of which audit firm serves as the intercept. Furthermore, because we include MSA fixed effects, we require two auditors to operate in each MSA to be included in the sample. If we exclude MSA fixed effects and relax this restriction, all inferences are unchanged.

three auditor characteristics—Big N membership, office size, and industry expertise—often included in prior literature from the model so that we capture all auditor characteristics in the fixed effects coefficients. In other words, if premiums related to Big N membership, office size, or industry expertise reflect value-enhancing audit pricing, controlling for these measures in fee prediction models removes this important variation from the residual. Note that we revisit these characteristics in section 5.

By construction, the average residual (i.e., *Engagement Premium*) equals zero for each auditor such that *Auditor Premium* and *Engagement Premium* are orthogonal. Thus, *Engagement Premium* captures within-auditor variation in residual fees. The rolling windows ensure that the fee variables are calculated using current and historical fees data. For example, we calculate *Auditor Premium* and *Engagement Premium* for a 2008 client year by estimating equation (1) for client years 2006–2008. Since the dependent variable is in log form, each variable can be interpreted as an approximate percent premium or discount associated with a particular engagement (*Engagement Premium*) or audit firm (*Auditor Premium*) relative to the predicted fees based on client characteristics (*X*).

To illustrate the underlying concept, consider two auditors A and B and four identical clients (two for each auditor) A1, A2, B1, and B2. *Auditor Premium* captures the difference in average fees charged to clients A1 and A2 relative to clients B1 and B2 (the "average premium" charged by each auditor). If the premium estimate for Auditor A is 0.10 greater than Auditor B (i.e., $\gamma_A - \gamma_B = 0.10$), then we estimate that Auditor A charges approximately 10 percent more than Auditor B. *Engagement Premium* reflects "within-auditor" pricing, or the degree to which audit fees for a particular engagement of a given auditor are above or below the predicted rate based on client characteristics. Specifically, *Engagement Premium* captures the residual audit fees charged to each client (A1, A2, B1, and B2). To facilitate interpretation, we demean *Auditor Premium* by year such that the overall mean for *Auditor Premium* is approximately zero; as mentioned, *Engagement Premium* is a residual and is naturally centered about zero.

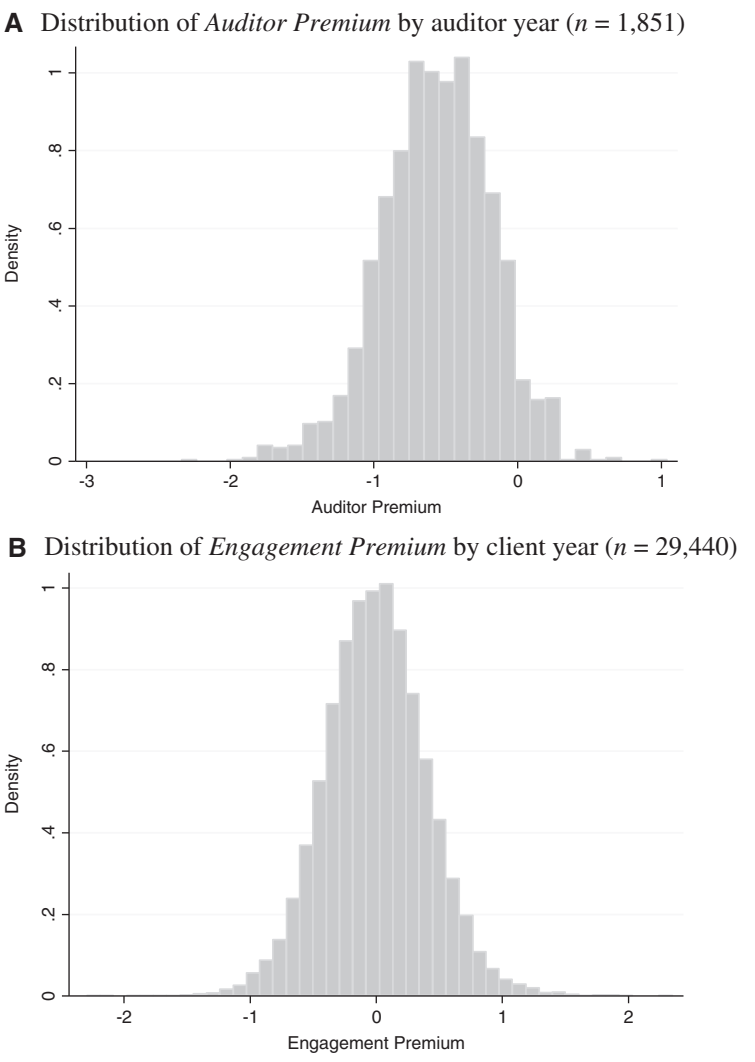
Figure 1 displays the distributions of *Auditor Premium* and *Engagement Premium.* Panel A displays the distribution of the *Auditor Premium* for each auditor year in our sample. The distribution is approximately normal at the auditor level. Importantly, we observe considerable variation in the *Auditor Premium* variable suggesting that auditors charge differentiable prices. For example, the difference between the 25th and 75th percentile of *Auditor Premium* for the 1,851 auditor years is 0.51 (or approximately 66 percent: $e^{0.51}$–1), a sizable premium gap considering the broad array of fee determinants included in equation (1). While *Auditor Premium* has a mean of zero across all client years, the mean *Auditor Premium* at the auditor-year level is negative because there are many small auditors that tend to charge lower fees. Panel B displays the distribution of *Engagement Premium* (the residual from equation (1)). As expected, it is normally distributed with a mean and median of approximately zero.

We present average estimates of *Auditor Premium* for all auditors with more than 100 observations in Table 2. Consistent with Figure 1, we note that *Auditor Premium* exhibits significant variation across these audit firms, again suggesting that auditors have heterogeneous pricing structures. Nonetheless, the relative fee premiums are consistent with intuition and prior literature. Specifically, Big 4 auditors charge significantly higher audit fees, followed by Grant Thornton, BDO, and McGladrey, which prior research typically classifies as "Second Tier" audit firms (e.g., Cassell, Giroux, et al. 2013).[12] Interestingly, *Auditor Premium* is fairly consistent across the Big 4 suggesting that each Big 4 firm charges a similar auditor premium (between 0.17 and 0.23, or approximately 6 percent variation).

Before testing the relations between our fee measures and audit quality, we first validate that *Auditor Premium* captures a distinct auditor component of fees rather than unmodeled differences in client portfolios. Similar to Doogar et al. (2015), we examine the explanatory power of *Auditor Premium* (as well as *Engagement Premium*) for clients changing auditors. Specifically, we

12. We also define Crowe Horwath as Second Tier since it has been annually inspected by the PCAOB since inspections began. Inferences are unchanged if Crowe Horwath is not defined as a Second Tier auditor.

Figure 1 Distribution of fee premium variables



perform two validity tests to support the contention that *Auditor Premium* captures intrinsic differences in auditor pricing. We begin by examining whether estimated auditor premiums are predictive of fees charged to new clients for each auditor. We use lagged auditor premiums (*Auditor Premium*$_{jt-1}$) to predict *ln(Audit Fees*$_{it}$*)* so that new clients do not affect the estimation of *Auditor Premium* (using *Auditor Premium*$_{jt}$ would induce a mechanical association since client *i* affects auditor *j*'s premium in year *t*). The model is specified as follows:

$$\ln(Audit\ Fees_{it}) = \beta_0 + \beta_1 Auditor\ Premium_{jt-1} + \beta_2 Engagement\ Premium_{it-1} + \gamma X_{it} + \varepsilon_{it}, \quad (2)$$

where all variables, including *X* from equation (1), are previously defined.[13]

13. Since all clients in these tests have a new auditor, *New Auditor* is omitted from *X*.

TABLE 2
Estimates of *Auditor Premium*

Auditor name	*Auditor Premium*
1. PricewaterhouseCoopers LLP	0.229
2. Deloitte and Touche LLP	0.210
3. Ernst & Young LLP	0.181
4. KPMG LLP	0.166
5. Grant Thornton LLP	−0.001
6. BDO USA LLP	−0.054
7. McGladrey LLP	−0.121
8. Mayer Hoffman McCann PC	−0.152
9. UHY LLP	−0.169
10. Baker Tilly Virchow Krause LLP	−0.178
11. Marcum LLP	−0.181
12. SingerLewak LLP	−0.240
13. Burr Pilger Mayer	−0.297
14. Hein & Associates LLP	−0.309
15. Moss Adams	−0.318
16. JH Cohn LLP	−0.323
17. EisnerAmper LLP	−0.370
18. EKS&H LLP	−0.396
19. Crowe Horwath LLP	−0.475
20. Friedman LLP	−0.687
21. MaloneBailey LLP	−0.700
All other audit firms	−0.569

Notes: This table presents the average values of *Auditor Premium* for auditors with more than 100 client-year observations in the final sample. These values are estimated following equation (1) and demeaned by year. Auditor names reflect all clients of an auditor over time, including clients of that auditor preceding a name change (where applicable). A list of auditor name changes was obtained from Audit Analytics. For example, BDO Seidman LLP is considered the same audit firm as BDO USA LLP.

Similarly, we also examine whether the difference in *Auditor Premium*$_{t-1}$ between the new and old auditor predicts the *change* in audit fees for switching clients. For example, if a client switches from Auditor A to Auditor B, we would expect the difference in *Auditor Premium*$_{j=A,t-1}$ and *Auditor Premium*$_{j=B,t-1}$ to predict the change in audit fees from year $t-1$ to t. That is, if Auditor B is more expensive than Auditor A, then we predict an increase in audit fees from year $t-1$ to t. Importantly, a changes model differences out fixed unobservable client characteristics, which likely impact *Engagement Premium,* such that the predictive power of *Auditor Premium* can be attributed to the auditor. The changes model is specified as follows:

$$\Delta ln(Audit\ Fees_{it}) = \beta_0 + \beta_1 Auditor\ Premium\ Diff + \gamma \Delta X_{it} + \varepsilon_{it}, \quad (3)$$

where *Auditor Premium Diff* is the difference in *Auditor Premium*$_{t-1}$ between the new and old auditor in the year before the switch, Δ is the first-difference operator, and all other variables, including X from equation (1), are previously defined.

If *Auditor Premium* captures auditor-specific pricing, then we expect estimates of β_1 to be positive in each specification. We present estimations in Table 3. Consistent with our expectation, we observe a positive and highly significant coefficient on the *Auditor Premium* variable in each specification (t-statistics of 11.03 and 11.70). In the levels specification (column 1), even after controlling for *Auditor Premium*, we observe a positive and significant coefficient estimate for

TABLE 3
Validity test of *Auditor Premium* using audit fees for auditor switches

Variables	(1) *ln(Audit Fees)*	Variables	(2) *Δln(Audit Fees)*
***Auditor Premium*$_{jt-1}$**	**0.627*** **	***Auditor Premium Diff***	**0.537*** **
	(11.03)		**(11.70)**
Engagement Premium$_{t-1}$	0.534***		
	(15.65)		
Assets	0.343***	Δ*Assets*	0.192***
	(14.93)		(3.62)
Sales	0.118***	Δ*Sales*	0.081**
	(6.71)		(2.28)
Market	0.006	Δ*Market*	−0.003
	(0.38)		(−0.14)
Segments	0.150***	Δ*Segments*	0.029
	(4.29)		(0.32)
Acquisitions	0.149	Δ*Acquisitions*	0.318
	(0.68)		(1.54)
Foreign Income	0.153***	Δ*Foreign Income*	−0.008
	(4.71)		(−0.18)
Finance	0.016	Δ*Finance*	−0.002
	(0.57)		(−0.08)
SOX 404	0.226***	Δ*SOX 404*	0.173***
	(5.86)		(3.08)
Weak 404	0.132***	Δ*Weak 404*	0.105***
	(6.82)		(5.91)
Busy FYE	0.065**	Δ*Busy FYE*	0.093
	(2.11)		(0.74)
Pension	0.028	Δ*Pension*	−0.007
	(0.94)		(−0.16)
Inventory	0.084	Δ*Inventory*	−0.120
	(0.63)		(−0.37)
Receivables	0.351**	Δ*Receivables*	0.212
	(2.56)		(1.15)
Book to Market	−0.034***	Δ*Book to Market*	−0.011
	(−2.63)		(−0.75)
Growth	−0.080***	Δ*Growth*	−0.027*
	(−4.76)		(−1.90)
CFO	−0.235**	Δ*CFO*	−0.139
	(−2.41)		(−1.57)
Loss	0.194***	Δ*Loss*	0.054*
	(5.64)		(1.68)
Distress	−0.017***	Δ*Distress*	−0.010**
	(−5.33)		(−1.99)
ROA	0.016	Δ*ROA*	−0.069
	(0.25)		(−1.19)
Leverage	−0.029	Δ*Leverage*	−0.031
	(−0.69)		(−0.53)

(The table is continued on the next page.)

TABLE 3 (continued)

	(1) *ln(Audit Fees)*	(2) *Δln(Audit Fees)*
Industry/Year/MSA FE	Included	Included
Observations	1,444	1,444
Adjusted R^2	0.862	0.289

Notes: This table presents the *Auditor Premium* validity tests from equations (2) and (3). The sample is restricted to clients that switch auditors from $t - 1$ to t. The dependent variable is *ln(Audit Fees)* in column (1) and *Δln(Audit Fees)* in column (2). All specifications include industry, year, and MSA fixed effects. Models are estimated using OLS with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2. Bold denotes variables of interest.

Engagement Premium, consistent with the persistence of fee residuals noted in Doogar et al. (2015). Furthermore, these findings are robust to the changes model in column 2.[14] In sum, these tests suggest that *Auditor Premium* is a strong ex ante predictor of audit fees charged to switching clients and captures a distinct auditor-driven component of audit fees that is incremental to engagement-specific costs noted by Doogar et al. (2015).

4. Primary analyses

We next investigate whether our measures of *Auditor Premium* and *Engagement Premium* are associated with audit quality. The wide variation in auditor-level fee premiums presented in Figure 1 and Table 2 confirms that fees vary significantly between auditors. For the reasons discussed above, we expect a positive relation between *Auditor Premium* and audit quality. However, it is unclear whether engagement-level fee variations (*Engagement Premium*) should be associated with quality after *Auditor Premium* is extracted. If *Engagement Premium* reflects unobservable client-specific misstatement risk that is not mitigated by additional audit work, we may observe a negative relation with quality. Alternatively, if *Engagement Premium* reflects engagement-level audit effort as suggested by prior literature, we may observe a positive relation with quality. Finally, if *Engagement Premium* captures engagement-level rent extraction, client negotiating ability, or unobserved client-specific audit costs, then we may detect no relation with quality. Note that these factors are not mutually exclusive. In fact, we suspect *Engagement Premium* likely captures aspects of each of these factors.

To examine the relation between *Auditor Premium*, *Engagement Premium*, and audit quality, we use client restatements as a proxy for audit quality and estimate the following model[15]:

$$Restate_{it} = \beta_0 + \beta_1 Auditor\ Premium_{jt} + \beta_2 Engagement\ Premium_{it} + \gamma X_{it} + \varepsilon_{it}. \quad (4)$$

$Restate_{it}$ is equal to one if the company eventually restates year t *annual* (i.e., audited) financial statements and discloses the restatement in an 8-K item 4.02 non-reliance filing and zero otherwise. We focus on 8-K restatements since these events correspond to material errors that significantly

14. $Engagement\ Premium_{it}$ is the residual from the estimation of equation (1). As such *ΔEngagement Premium* (the change in the residual) cannot be included in equation (3) because the dependent variable, *Δln(Audit Fees)*, is a function of *ΔEngagement Premium.* We estimate a changes model to remove client-specific (residual) effects.

15. We estimate our restatements models using linear probability models (LPM). Our findings are unchanged if we estimate our model using logistic regression. We present our findings using LPM to facilitate coefficient interpretation and comparison of marginal effects.

affect the reliability of previously issued financial statements (Aobdia 2018; Choudhary et al. 2017), an outcome that is salient and undesirable for both client and auditor. As shown in Table 1, approximately 3.4 percent of observations in our sample announce restated financial statements in a non-reliance 8-K filing. In addition, we estimate specifications that control for the presence of prior-period restatements by including a control variable, *Restate Announce*, if the client announced a restatement during the year or by limiting the sample to clients where $Restate_{t-1} = 0$.[16] We present the results in Table 4.

For comparison, we begin by regressing *Restate* on *Abnormal Fees*, which, similar to prior research, is estimated without "backing out" the auditor component. This allows us to assess the effects of comingling the auditor and engagement components of the fee residual when evaluating the relation between excess audit fees and restatements. Importantly, we retain all design choices from equation (1) when estimating *Abnormal Fees*, except that we exclude auditor fixed effects.[17] As shown in columns 1, 3, and 5, the relation between *Abnormal Fees* and *Restate* is insignificant in each specification (*t*-statistics between −0.08 and −1.16). Conversely, we observe a highly significant, negative coefficient on *Auditor Premium* in columns 2, 4, and 6 (*t*-statistics between −3.34 and −3.67). Furthermore, a one standard deviation increase in *Auditor Premium* (0.322) corresponds to a reduction in misstatement likelihood between 0.5 and 0.9 percent, depending on the specification, or between 16 and 26 percent of the restatement rate in our sample (3.4 percent).[18] These results suggest that an increase in the auditor component of audit fees is associated with economically meaningful levels of increased financial statement assurance. *Engagement Premium* fails to exhibit a significant relation in either column 2 or 4. Interestingly, in column 6 we observe a significantly *positive* coefficient on *Engagement Premium* (*t*-statistic of 2.79) for the sample of clients that did not restate the prior year's financial statements (i.e., first-time restatements). We also perform an *F*-test comparing coefficient estimates on *Auditor Premium* to estimates on *Engagement Premium* and find that *Auditor Premium* is significantly more negative than *Engagement Premium* in all three specifications.

Before moving to our next set of analyses, we conduct several robustness tests to confirm our primary result. We present the results of these tests in Table 5. First, while the validation tests discussed earlier and presented in Table 3 suggest that *Auditor Premium* reflects auditor pricing traits rather than company-specific unobservable or unmodeled traits common to an auditor's client portfolio, we recognize the potentially confounding effects that client portfolio traits could have on the relation between the fee premium and audit quality. Therefore, we add client fixed effects to equation (1), so that any fixed client characteristics that are common to an auditor's clientele are excluded from the estimation of *Auditor Premium.* We do not use this approach in our primary specification since estimates for *Auditor Premium* will be derived only from clients that change auditors in a three-year estimation window, constraining the power of tests and limiting the estimation of *Auditor Premiums* to clients in the first or last years of auditor tenure (where "low-balling" or "overcharging" are most likely, respectively). Despite these limitations, we find a substantial correlation (0.751) between the original *Auditor Premium* measure and the measure estimated with client fixed

16. We do not control for lagged restatements in our models because the presence of a prior year misstatement is often unknown at the year *t* filing; thus, doing so inappropriately "controls" for a future event. Instead, we control for misstatement risk by either conditioning on observations where $Restate_{t-1} = 0$ or by controlling for restatement announcements during year *t.* In untabulated analysis, all inferences related to *Auditor Premium* are unchanged if we control for $Restate_{t-1}$ as in Lobo and Zhao (2013). Our findings are also not sensitive to the inclusion of the *PSCORE* measure from Lobo and Zhao (2013); we exclude this variable from our primary tests because it is data restrictive (i.e., requires stock returns data).

17. As noted in Appendix 1, many studies extract just the Big 4 portion of fee premiums by including a Big 4 control variable. If we follow this design choice when estimating *Abnormal Fees*, the relation between *Abnormal Fees* and *Restate* remains insignificant in all specifications as in Table 4.

18. Economic significance was calculated by multiplying the coefficient estimates on *Auditor Premium* by the standard deviation. Since we use LPM, the coefficients represent average marginal effects.

TABLE 4
Auditor Premium, *Engagement Premium*, and client restatements

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Abnormal Fees	**−0.003**		**−0.004**		**−0.000**	
	(−0.87)		**(−1.16)**		**(−0.08)**	
Auditor Premium		**−0.028*** **		**−0.028*** **		**−0.017*** **
		(−3.34)		**(−3.44)**		**(−3.67)**
Engagement Premium		**0.004**		**0.003**		**0.006*** **
		(1.09)		**(0.77)**		**(2.79)**
Restate Announce			0.070***	0.070***		
			(6.14)	(6.10)		
Assets	0.002	0.003	0.002	0.003	0.000	0.001
	(0.87)	(1.09)	(0.84)	(1.07)	(0.17)	(0.40)
Sales	−0.006***	−0.005**	−0.006***	−0.005**	−0.003**	−0.003*
	(−2.73)	(−2.34)	(−2.74)	(−2.34)	(−2.32)	(−1.94)
Market	−0.000	0.000	−0.000	0.000	0.000	0.001
	(−0.09)	(0.03)	(−0.04)	(0.09)	(0.48)	(0.61)
New Auditor	0.003	0.001	−0.000	−0.002	0.006	0.005
	(0.51)	(0.23)	(−0.10)	(−0.39)	(1.45)	(1.22)
Segments	0.003	0.002	0.003	0.002	0.001	0.001
	(0.63)	(0.45)	(0.67)	(0.49)	(0.72)	(0.48)
Acquisitions	0.018	0.019	0.018	0.019	0.041**	0.042**
	(0.81)	(0.89)	(0.82)	(0.90)	(2.38)	(2.45)
Foreign Income	−0.004	−0.004	−0.004	−0.004	−0.002	−0.002
	(−1.15)	(−1.03)	(−1.17)	(−1.05)	(−1.32)	(−1.16)
Finance	0.007***	0.007***	0.007***	0.007***	0.005***	0.005***
	(2.72)	(2.72)	(2.66)	(2.66)	(3.46)	(3.47)
SOX 404	0.009*	0.013***	0.008*	0.013***	−0.002	0.001
	(1.92)	(2.91)	(1.83)	(2.85)	(−0.85)	(0.24)

(The table is continued on the next page.)

TABLE 4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Weak 404	0.016***	0.015***	0.012***	0.011***	0.006***	0.006***
	(5.62)	(5.29)	(4.40)	(4.08)	(3.17)	(2.84)
Busy FYE	0.002	0.003	0.002	0.003	0.002	0.003
	(0.61)	(0.78)	(0.65)	(0.82)	(1.35)	(1.63)
Pension	−0.000	0.001	−0.000	0.001	−0.003	−0.002
	(−0.10)	(0.36)	(−0.13)	(0.35)	(−1.33)	(−0.80)
Inventory	−0.012	−0.014	−0.011	−0.014	−0.008	−0.009
	(−0.69)	(−0.83)	(−0.66)	(−0.80)	(−0.83)	(−1.01)
Receivables	0.043**	0.039**	0.043**	0.040**	0.008	0.006
	(2.46)	(2.27)	(2.55)	(2.36)	(0.85)	(0.64)
Book to Market	0.006***	0.005***	0.005***	0.005***	0.002**	0.002*
	(3.73)	(3.48)	(3.68)	(3.44)	(2.18)	(1.96)
Growth	0.005**	0.005**	0.005**	0.005**	0.004***	0.004**
	(2.47)	(2.38)	(2.48)	(2.38)	(2.60)	(2.52)
CFO	0.009	0.008	0.008	0.007	0.004	0.003
	(0.98)	(0.86)	(0.85)	(0.73)	(0.51)	(0.42)
Loss	0.005	0.007*	0.004	0.006*	−0.000	0.001
	(1.35)	(1.80)	(1.22)	(1.68)	(−0.18)	(0.30)
Distress	0.000	0.000	0.000	0.000	0.000	0.000
	(0.25)	(0.20)	(0.21)	(0.16)	(1.28)	(1.22)
ROA	0.010	0.011	0.010	0.011	0.003	0.003
	(1.31)	(1.43)	(1.30)	(1.42)	(0.44)	(0.56)
Leverage	0.016***	0.015**	0.016**	0.014**	0.008**	0.007**
	(2.61)	(2.38)	(2.56)	(2.32)	(2.34)	(2.08)

(The table is continued on the next page.)

TABLE 4 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Industry/Year/MSA FE	Included	Included	Included	Included	Included	Included
Observations	29,440	29,440	29,440	29,440	28,131	28,131
Adjusted R^2	0.020	0.021	0.024	0.025	0.010	0.012
F-test						
Auditor Premium = Engagement Premium		12.75***		12.35***		20.12***

Notes: This table presents the results from estimations of equation (4) with *Abnormal Fees* or *Auditor Premium* and *Engagement Premium* as regressors. The dependent variable is *Restate.* Columns 1, 2, 3, and 4 include all observations with requisite data and columns 5 and 6 present results on a subsample of clients that do not eventually restate the prior year financial statements. All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2. Bold denotes variables of interest.

TABLE 5
Client fixed effects and alternative estimation window

Panel A: Table 4 with *Auditor Premium* and *Engagement Premium* estimated with client fixed effects			
	(1)	(2)	(3)
			$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*
Auditor Premium	−0.015**	−0.016**	−0.014***
	(−2.00)	(−2.12)	(−2.80)
Engagement Premium	0.014	0.007	0.005
	(1.45)	(0.78)	(0.82)
Controls and fixed effects	Table 4, column 2	Table 4, column 4	Table 4, column 6
Observations	27,644	27,644	26,418
Adjusted R^2	0.022	0.026	0.009
F-test			
Auditor Premium = Engagement Premium	5.61**	3.66*	5.62**
Panel B: Table 4 with client fixed effects			
Auditor Premium	−0.057***	−0.053**	−0.022
	(−2.73)	(−2.48)	(−1.41)
Engagement Premium	−0.012	−0.006	0.004
	(−1.63)	(−0.81)	(0.78)
Controls	Table 4, column 2	Table 4, column 4	Table 4, column 6
Fixed effects	Year and Client	Year and Client	Year and Client
Observations	29,440	29,440	28,131
Adjusted R^2	0.256	0.268	0.168
F-test			
Auditor Premium = Engagement Premium	4.58**	4.76**	2.77*
Panel C: Table 4 with *Auditor Premium* and *Engagement Premium* estimated as a one-year rolling average			
Auditor Premium	−0.019**	−0.019***	−0.015***
	(−2.46)	(−2.60)	(−3.31)
Engagement Premium	0.004	0.002	0.005**
	(0.89)	(0.61)	(2.45)
Controls and fixed effects	Table 4, column 2	Table 4, column 4	Table 4, column 6
Observations	28,717	28,717	27,448
Adjusted R^2	0.021	0.025	0.012
F-test			
Auditor Premium = Engagement Premium	7.20***	7.11***	16.70***

Notes: This table presents the results from Table 4 using alternative estimations of *Auditor Premium* and *Engagement Premium.* Panel A tabulates findings with *Auditor Premium* and *Engagement Premium* estimated with client fixed effects. Panel B uses original *Auditor Premium* and *Engagement Premium* variables, but includes client fixed effects in equation (4). Panel C tabulates findings with *Auditor Premium* and *Engagement Premium* using one-year estimation windows. All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2.

effects, suggesting portfolio effects have a minimal impact on our original *Auditor Premium* estimates. As shown in Table 5, panel A, using this alternative specification, we find very similar results to those reported in Table 4.

Second, we re-perform tests from Table 4 after including client fixed effects in the outcome regression (equation (4)) to further rule out unobserved client reporting quality as an alternative explanation for previous results and report results in panel B of Table 5. Although this specification significantly reduces power, we continue to observe a negative and significant coefficient on *Auditor Premium* ($p < 0.01$ two-tailed in columns 1 and 2 and $p < 0.10$ one-tailed in column 3). This indicates that for a sample of clients that restate during the period, the misstated periods are more likely to occur for *lower cost* auditors.

Third, while the three-year rolling window used in primary analyses increases the precision of the premium estimates, we alternatively estimate the variable using a one-year estimation window. Using a one-year window removes the mechanical "stickiness" in *Auditor Premium* due to overlapping estimation periods. As shown in panel C, our overall conclusions are unaffected.

In sum, these results indicate that the average auditor premium positively relates to auditor quality, consistent with basic economic intuition that higher-quality products command higher prices. This suggests that clients obtain higher-quality assurance, on average, by enlisting a higher-cost auditor (*Auditor Premium*), but engagement-specific premiums from our model (*Engagement Premium*) do not appear to reflect quality-enhancing audit effort. Furthermore, we find some evidence of a positive relation between *Engagement Premium* and first-time restatements. This latter result is consistent with the conclusions in Hribar et al. (2014) and Doogar et al. (2015) that *Engagement Premium* may reflect aspects of client risk not captured in typical audit fee models.

5. Alternatives to *Auditor Premium*

Our primary analyses focus on auditor premiums because we expect that auditor identity represents the most salient signal of product differentiation. However, prior research identifies auditor characteristics such as audit office (Bills et al. 2016; Francis et al. 2013; Francis and Yu 2009) and auditor-industry expertise (Balsam et al. 2003; Casterella et al. 2004; Craswell et al. 1995; Ferguson et al. 2003; Francis et al. 2005; Krishnan 2003; Reichelt and Wang 2010) as important signals of quality. Therefore, we consider whether within-auditor pricing variation (i.e., more granular premiums) along these dimensions reflects enhanced audit quality. Additionally, we consider a coarser measure of premiums—pricing attributable to auditor tier classifications (i.e., Big 4, Second Tier, and Small Auditors), which prior research also links to quality (see DeAngelo 1981 and DeFond and Zhang 2014).

More granular units of analysis: Office and industry-level premiums

To evaluate office-level and industry-level pricing, we calculate a "premium" by audit office and auditor industry similarly to how we calculate *Auditor Premium.* This requires us to estimate equation (1) with auditor-office or auditor-industry fixed effects instead of auditor fixed effects. Using the estimates from each fixed effect as a measure of *Office Premium* or *Auditor-Industry Premium* we re-perform our analyses from Table 4 and tabulate the findings in Table 6.[19]

Results for office-level analysis are presented in panel A and auditor-industry level analysis are presented in panel B. We first evaluate how these alternative premiums relate to restatements and then we compare the alternative specifications to our original design. Consistent with auditor-level results, *Office Premium* is negatively associated with *Restate* (panel A). However, while

19. Sample size is slightly smaller due to increased data restrictions required for generating premiums at the more granular level (e.g., at least two clients per office rather than at least two clients per audit firm). We also considered an "auditor-office-industry" premium since research suggests industry expertise is developed at the local level (Reichelt and Wang 2010). Inferences were similar to those for auditor-industry premium, though we observe significant sample attrition since many offices only have one client in a particular industry.

TABLE 6
Office and industry premiums as alternatives to *Auditor Premium*

Panel A: *Office Premium* versus *Auditor Premium*

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Auditor Premium	−0.029***		−0.029***		−0.018***	
	(−3.42)		(−3.52)		(−3.69)	
Engagement Premium	0.005		0.003		0.006***	
	(1.15)		(0.84)		(2.88)	
Office Premium		−0.022***		−0.022***		−0.012***
		(−3.19)		(−3.31)		(−3.13)
Engagement Premium (From Office Regression)		0.005		0.004		0.006***
		(1.21)		(0.90)		(2.85)
Controls and fixed effects	Table 4, column 2	Table 4, column 2	Table 4, column 4	Table 4, column 4	Table 4, column 6	Table 4, column 6
Observations	29,218	29,218	29,218	29,218	27,925	27,925
Adjusted R^2	0.021	0.021	0.025	0.025	0.012	0.012
χ^2-test						
Auditor Premium = Office Premium	2.75*		2.74*		6.42**	

(The table is continued on the next page.)

TABLE 6 (continued)

Panel B: *Auditor-Industry Premium* versus *Auditor Premium*

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Auditor Premium	−0.027***		−0.027***		−0.016***	
	(−3.18)		(−3.30)		(−3.32)	
Engagement Premium	0.004		0.003		0.005***	
	(1.02)		(0.70)		(2.64)	
Auditor-Industry Premium		−0.010		−0.011*		−0.004
		(−1.57)		(−1.72)		(−1.23)
Engagement Premium (From Industry Regression)		0.003		0.001		0.004*
		(0.56)		(0.25)		(1.86)
Controls and fixed effects	Table 4, column 2	Table 4, column 2	Table 4, column 4	Table 4, column 4	Table 4, column 6	Table 4, column 6
Observations	28,495	28,495	28,495	28,495	27,271	27,271
Adjusted R^2	0.019	0.019	0.023	0.023	0.009	0.009
χ^2-test						
Auditor Premium = Auditor-Industry Premium	12.22***		12.32***		15.44***	

(The table is continued on the next page.)

TABLE 6 (continued)

Panel C: Evaluation of within-auditor variation in *Office Premium* and *Auditor-Industry Premium*

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Auditor Premium (Average Office Premium)	−0.025***	−0.025***	−0.016***			
	(−3.18)	(−3.26)	(−3.46)			
Within Auditor Office Premium	−0.014	−0.015	−0.002			
	(−1.34)	(−1.44)	(−0.42)			
Engagement Premium (from Office Regression)	0.005	0.004	0.006***			
	(1.22)	(0.92)	(2.89)			
Auditor Premium (Average Auditor-Industry Premium)				−0.024***	−0.024***	−0.013***
				(−2.76)	(−2.89)	(−2.69)
Within Auditor Industry Premium				0.012	0.012	0.010*
				(1.38)	(1.32)	(1.89)
Engagement Premium (from Auditor-Industry Regression)				0.003	0.001	0.004*
				(0.63)	(0.32)	(1.94)
Controls and fixed effects	Table 4, column 2	Table 4, column 4	Table 4, column 6	Table 4, column 2	Table 4, column 4	Table 4, column 6
Observations	29,218	29,218	27,925	28,495	28,495	27,271
Adjusted R^2	0.021	0.025	0.012	0.019	0.023	0.009
F-test						
Auditor Premium = Within Auditor Premiums	0.80	0.73	4.35**	8.44***	8.68***	9.66***

Notes: This table presents the results from Table 4 with premiums estimated at the office level in panel A and auditor-industry level in panel B. Columns 1, 3, and 5 replicate Table 4, while columns 2, 4, and 6 utilize the alternative premiums. Panel C columns 1–3 (4–6) present results where the auditor premium is "extracted" from the *Office (Auditor-Industry) Premium.* All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2.

negative, the coefficient on *Auditor-Industry Premium* is generally insignificant (panel B), suggesting premiums associated with industry expertise do not translate to improved audit quality.[20] We next consider how these more granular fee premiums compare to *Auditor Premium.* If the relation between *Auditor Premium* and *Restate* in our primary tests is just a manifestation of auditor-office or auditor-industry level factors, then allowing the premium measure to vary at these more granular levels should *improve* the explanatory power of the variable since premium estimates would be more precise. However, we observe the opposite. That is, the coefficient on *Auditor Premium* is significantly more negative than the coefficient on either the *Auditor-Industry Premium* or *Office Premium* variables in all specifications.

The previous results suggest that *Auditor Premium* performs better than *Office Premium* or *Auditor-Industry Premium* in parsimoniously capturing quality-related audit pricing. However, these results do not preclude within-auditor variation in pricing (e.g., at the office or industry level) from also translating to quality. Therefore, we next separate the auditor component from the office- or industry-component of pricing from these more granular variables to compute *Average Office* (*Auditor-Industry*) *Premium,* which is the average of *Office* (*Auditor-Industry*) *Premium* for each auditor year. *Within Auditor Office (Industry) Premium* captures the remaining variation in office (industry) premium within each office (industry) year, while *Engagement Premium* continues to be the residual from these premium model estimations. Although estimated slightly differently, the *Average Office* (*Auditor-Industry*) *Premium* is similar to our primary variable (*Auditor Premium*) since it is the portion of *Office (Auditor-Industry) Premium* that is common across an auditor's clients. *Within Auditor Office (Industry) Premium* reflects variations in office or industry-level premiums *within* each auditor.

Results using these alternative premium estimates are presented in panel C of Table 6. Consistent with our main results, we find a negative relation between auditor premiums and restatements. However, we find no evidence that within-auditor variations in fee premiums relate to audit quality. Furthermore, the coefficient on the auditor premium variables is significantly *more negative* than the coefficients on the within-auditor fee variation in four of six specifications.[21] Together, these findings suggest that auditor premiums are best captured at the auditor level.

A coarser unit of analysis: Auditor tier-level premiums

Our descriptive evidence suggests that larger auditors charge higher fee premiums, on average, and our primary results suggest these premiums equate to higher audit quality. However, it is possible that auditor identity does not meaningfully affect price or quality beyond common tier designations (i.e., Big 4, Second Tier, Small Auditor). If so, our design could be more parsimoniously carried out at the "tier" rather than audit firm level. Therefore, we re-perform our tests estimating premiums in equation (1) at the auditor-tier level. Specifically, we estimate *Tier Premium* for Big 4, Second Tier, and Small Auditors using the same rolling-estimation procedure as in equation (1) but with tier indicators instead of auditor indicators. We then compare the relation between *Tier Premium* and restatements to the relations between *Auditor Premium* and restatements from Table 4.

Panel A of Table 7 reports results of these tests. Using *Tier Premium* in lieu of *Auditor Premium* yields results consistent with Table 4; *Tier Premium* exhibits strong, negative associations with restatements and *Engagement Premium* is insignificantly related to quality. This indicates that fee premiums across "auditor tiers" are associated with increased audit quality. As in Table 6, we also compare the effect of *Tier Premium* to *Auditor Premium.* While the coefficient

20. This does not mean that industry expertise does not relate to fees (or quality) in isolation. Rather, it means that any fee premiums attributable to a particular auditor's industry practice do not reliably predict quality.

21. To further evaluate the effect of office and industry factors on *Auditor Premium*, we re-perform tests from Table 4 after including controls for office size (natural log of number of office clients in year *t*), and indicators for local and national industry leadership in equation (4). If our findings for *Auditor Premium* are a manifestation of the effects of these traits, then we should see the results from Table 4 weaken or disappear once these controls are included. Even with these controls, the coefficient on *Auditor Premium* remains negative and significant in each specification.

TABLE 7
Tier premium as an alternative to *Auditor Premium*

Panel A: *Tier Premium* versus *Auditor Premium*

	(1)	(2)	(3)	(4)	(5)	(6)
					$Restate_{t-1} = 0$	$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*	*Restate*
Auditor Premium	−0.028***		−0.028***		−0.017***	
	(−3.34)		(−3.44)		(−3.67)	
Engagement Premium	0.004		0.003		0.006***	
	(1.09)		(0.77)		(2.79)	
Tier Premium		−0.024**		−0.024**		−0.015***
		(−2.35)		(−2.44)		(−2.91)
Engagement Premium (From Tier Regression)		0.000		−0.001		0.002
		(0.03)		(−0.25)		(1.07)
Controls and fixed effects	Table 4, column 2	Table 4, column 2	Table 4, column 4	Table 4, column 4	Table 4, column 4	Table 4, column 6
Observations	29,440	29,440	29,440	29,440	28,131	28,131
Adjusted R^2	0.021	0.021	0.025	0.024	0.012	0.011
χ^2-test						
Auditor Premium = Tier Premium	0.32		0.31		0.42	

Panel B: Evaluation of within-tier variation in *Auditor Premium*

	(1)	(2)	(3)
			$Restate_{t-1} = 0$
Variables	*Restate*	*Restate*	*Restate*
Tier Premium (Average Auditor Premium)	−0.024***	−0.024***	−0.015***
	(−2.62)	(−2.71)	(−3.14)
Within Tier Auditor Premium	−0.034**	−0.034**	−0.022***
	(−2.52)	(−2.56)	(−2.64)
Engagement Premium	0.004	0.003	0.005***
	(1.07)	(0.75)	(2.66)
Controls and fixed effects	Table 4, column 2	Table 4, column 4	Table 4, column 6
Observations	29,440	29,440	28,131
Adjusted R^2	0.021	0.025	0.014
F-test			
Tier Premium = Within Tier Premiums	0.47	0.46	0.72

Notes: Panel A of this table presents the results from Table 4 with premiums estimated at the tier level. Columns 1, 3, and 5 replicate Table 4, while columns 2, 4, and 6 utilize the alternative premiums. Panel B presents results where the tier premium is "extracted" from the *Auditor Premium.* All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. ** and *** indicate significance at the 0.05 and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2.

estimates on *Tier Premium* are economically smaller (and the *t*-stats are lower) than the coefficients on *Auditor Premium*, the difference is not statistically significant.

The previous results imply that *Tier Premium* may be as effective as *Auditor Premium* in capturing quality-related audit pricing. Therefore, we next consider whether variation in *Auditor Premium* within each tier incrementally relates to quality. To do so, we adopt a similar approach to Table 6, panel C and extract *Tier Premium* from our original *Auditor Premium* variable by averaging *Auditor Premium* by tier-year, and consider whether the remaining within-tier variation in *Auditor Premium* relates to quality. Panel B of Table 7 reports the results of these tests. Consistent with the argument that individual auditors differentiate themselves, we observe a negative and highly significant coefficient on *Within Tier Variation in Auditor Premium*, indicating that the coarse tier designations do not fully capture quality-related price differentiation between auditors.

Finally, we evaluate whether within-tier variation in *Auditor Premium* reflects quality in each individual tier. Recall that variation in *Auditor Premium* is substantially greater within the Small Auditor designation than in the Big 4 or Second Tier (the standard deviation in *Auditor Premium* is 0.290 for Small Auditors, 0.038 for Big 4, and 0.092 for Second Tier), suggesting relative homogeneity within the larger auditors. We re-perform tests from Table 4 on each tier individually (untabulated) and find that auditor premiums are positively related to quality within the Small Auditor tier (*t*-stat >3.00 in all specifications), but we do not observe statistical significance in either the Big 4 or Second Tier group. This is consistent with prior literature that treats these auditors as relatively homogenous and is perhaps unsurprising given the limited variation in *Auditor Premium* within large auditors. That is, even if there is a relation within these tiers, our tests likely lack the power and precision to detect it. Importantly, if our primary results were just a manifestation of the "Big 4 effect", we would not observe the significant price/quality relation for the *Within Tier Variation in Auditor Premium* variable. Furthermore, if variation in *Auditor Premium* for Small Auditors was solely responsible for the full sample results, we would not observe significance in panel A of Table 7 which treats all Small Auditors the same.

Synthesis

To summarize, the results in Table 6 suggest that premiums related to auditor identity dominate the more granular office and auditor-industry level premiums in capturing quality-related audit pricing. Likewise, Table 7 suggests that tier classifications do not fully capture the relation between auditor pricing and quality, as our primary results are driven by variation in both pricing *across* auditor tiers and *among* smaller auditors. As such, the results in this study further our understanding of the role that audit quality plays in audit pricing, the level at which this relation exists, and the importance of audit firm identity in determining audit pricing, even outside of the Big 4/Second Tier auditor designations.

6. Additional analyses

Alternative measures of audit quality

While restatements represent a salient and egregious measure of an audit failure, auditors likely influence other aspects of financial reporting as well. For instance, prior research often uses large deviations from "expected" non-cash earnings (i.e., abnormal accruals) as an inverse measure of audit quality (DeFond and Zhang 2014). More recent literature shows that the auditor may have a role in mitigating the likelihood and intensity of the SEC comment letter process (Cassell, Dreher, et al. 2013). Thus, we examine the link between audit pricing and quality by repeating tests in Table 4 using either *Abnormal Accruals* or *Comment Letters* as the dependent variable. We measure *Abnormal Accruals* using the absolute value of the residual from a performance-adjusted modified Jones model. For *Comment Letters*, we use data from a FOIA request to identify a sample of reviews from the SEC's Division of Corporate Finance through 2013. We limit our sample to these clients and set *Comment Letters* equal to the natural log of one plus the number of SEC comment letters that mention the 10-K from Audit Analytics.[22]

22. SOX section 408 requires that 10-K filings be reviewed at least once every three years. However, the SEC only posts written comments (comment letters) on the public EDGAR database (the source of the AA data set). Through

Table 8 presents results using these two alternative measures of audit quality. Columns 1 and 2 present results using *Abnormal Accruals,* and columns 3 and 4 present results using *Comment Letters.* Columns 1 and 3 (2 and 4) report results using *Abnormal Fees* (*Auditor Premium* and *Engagement Premium*). Consistent with earlier results using restatements, we fail to observe a significant association between *Abnormal Fees* and either measure of audit quality. However, we find a significantly negative association between *Auditor Premium* and both *Abnormal Accruals* and *Comment Letters.* Furthermore, *Engagement Premium* exhibits a significantly positive association with *Abnormal Accruals*, and a positive though insignificant association with *Comment Letters.* Results in Table 8 corroborate our inferences from Table 4 and further demonstrate that failing to disentangle auditor and engagement fee premiums obfuscates the association between audit pricing and audit quality.

Changes in the relation between fee premiums, restatements, and dismissals over time

Since its inception, the PCAOB has conducted inspections and issued reports identifying engagement and audit firm-level deficiencies in the interest of improving audit quality. Consistent with this aim, DeFond and Lennox (2011) find evidence suggesting that PCAOB inspections improve audit quality by incentivizing low-quality auditors to exit the market following SOX.[23] Furthermore, PCAOB inspections may have caused low-quality auditors that did not exit the audit market to improve audit quality to avoid Part II reports and sanctions. If lower-quality auditors exited the audit market in the post-SOX period and/or remaining auditors improved quality, then disparities in audit quality may have converged over the last decade. We consider this possibility and examine whether the relation between auditor price and quality has changed over our sample period.

We begin by examining trends in auditor premiums and performance over time. To estimate auditor performance (*Auditor Performance*), we estimate a measure similar to *Auditor Premium* but replace *ln(Audit Fees)* in equation (1) with *Restate.* Thus, *Auditor Performance* (i.e., the coefficient on each auditor indicator) captures the extent to which an auditor's clients restate more (positive value) or less (negative value) than expected based on client characteristics (*X*). We plot changes in the number of auditors and the standard deviations of both *Auditor Performance* and *Auditor Premium* over time in Figure 2. For presentation purposes, we scale all variables by their initial (2006) values. We note that the number of unique audit firms in our sample is steadily declining from 249 in 2006 to 171 in 2014, consistent with auditors exiting the market as noted in DeFond and Lennox (2011). As these auditors exit, we observe a substantial narrowing of the audit quality gap. That is, the standard deviation of *Auditor Performance* is steadily decreasing from 0.156 in 2006 to 0.095 in 2014 (approximately a 40 percent decrease). This indicates that the variation in auditor quality has been declining over time indicating that audit firms are providing more homogenous levels of quality. Surprisingly, despite the narrowing gap in quality between audit firms, we find a nearly constant standard deviation in *Auditor Premium* over our sample period (0.337 in 2006 and 0.340 in 2014). This indicates that the variation in auditor-specific fees has remained relatively constant over time.

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the FOIA request, we can identify 10-Ks where the SEC had comments but did not have a written comment letter posted to EDGAR (e.g., orally communicated comments). In our sample, nearly all filings in the listing obtain at least one written comment letter (96.3 percent). We note that there are comment letters on EDGAR that reference 10-Ks that are not included in the FOIA request. Therefore, we limit our sample to reviews appearing in this incomplete list so that missing reviews do not affect our inferences. We note that our findings are not sensitive to relying on the SEC inspection listing. Specifically, we also perform tests using all clients that received a comment letter as listed in Audit Analytics and our inferences are unchanged.

23. In untabulated analysis, we reconsider these findings in our setting by adding a variable to equation (4) indicating whether an auditor exited the public company audit market during the sample period. The coefficient on this variable is positive and significant, indicating that auditors exiting the audit market provide lower audit quality on average (i.e., clients are more likely to restate), consistent with DeFond and Lennox (2011).

TABLE 8
Alternative measures of audit quality

Variables	(1) *Abnormal Accruals*	(2) *Abnormal Accruals*	(3) *Comment Letters*	(4) *Comment Letters*
Abnormal Fees	**0.001**		**−0.007**	
	(0.93)		**(−0.67)**	
Auditor Premium		**−0.006****		**−0.069*****
		(−2.13)		**(−2.67)**
Engagement Premium		**0.003****		**0.007**
		(2.38)		**(0.67)**
Assets	−0.009***	−0.009***	−0.001	0.001
	(−7.82)	(−7.75)	(−0.10)	(0.06)
Sales	−0.002*	−0.002*	0.001	0.002
	(−1.85)	(−1.67)	(0.07)	(0.29)
Market	0.007***	0.007***	0.006	0.006
	(9.63)	(9.68)	(1.09)	(1.09)
New Auditor	0.004**	0.004**	−0.003	−0.006
	(2.46)	(2.31)	(−0.17)	(−0.32)
Segments	−0.004***	−0.004***	0.000	−0.001
	(−3.59)	(−3.71)	(0.00)	(−0.12)
Acquisitions	−0.006	−0.006	−0.047	−0.044
	(−0.82)	(−0.79)	(−0.71)	(−0.67)
Foreign Income	−0.007***	−0.007***	0.004	0.004
	(−7.30)	(−7.18)	(0.36)	(0.38)
Finance	0.005***	0.005***	0.013	0.013
	(6.08)	(6.11)	(1.50)	(1.53)
SOX 404	−0.008***	−0.007***	0.035**	0.048***
	(−5.26)	(−4.56)	(2.37)	(3.08)
Weak 404	0.003***	0.002***	−0.011	−0.014
	(3.16)	(2.89)	(−1.19)	(−1.48)
Busy FYE	0.004***	0.004***	−0.018*	−0.017
	(3.77)	(3.87)	(−1.75)	(−1.64)
Pension	−0.005***	−0.005***	−0.002	0.002
	(−3.96)	(−3.70)	(−0.22)	(0.20)
Inventory	0.003	0.002	−0.164***	−0.168***
	(0.46)	(0.39)	(−3.13)	(−3.23)
Receivables	0.023***	0.022***	0.004	−0.005
	(3.68)	(3.56)	(0.08)	(−0.09)
Book to Market	0.000	0.000	0.002	0.001
	(0.58)	(0.41)	(0.32)	(0.18)
Growth	0.009***	0.009***	−0.003	−0.003
	(9.13)	(9.10)	(−0.32)	(−0.40)
CFO	0.011	0.011	−0.140***	−0.135***
	(1.36)	(1.34)	(−2.92)	(−2.83)
Loss	0.003***	0.004***	0.017	0.020*
	(2.64)	(2.91)	(1.40)	(1.67)
Distress	−0.000*	−0.000*	−0.001	−0.001
	(−1.68)	(−1.73)	(−0.47)	(−0.56)
ROA	−0.030***	−0.030***	0.134***	0.135***
	(−5.06)	(−5.04)	(3.78)	(3.79)

(The table is continued on the next page.)

TABLE 8 (continued)

Variables	(1) *Abnormal Accruals*	(2) *Abnormal Accruals*	(3) *Comment Letters*	(4) *Comment Letters*
Leverage	0.013***	0.013***	0.015	0.013
	(4.56)	(4.44)	(0.85)	(0.71)
Industry/Year/MSA FE	Included	Included	Included	Included
Observations	25,620	25,620	7,607	7,607
Adjusted R^2	0.194	0.195	0.037	0.038
F-test				
Auditor Premium = Engagement Premium	n/a	8.78***	n/a	7.84***

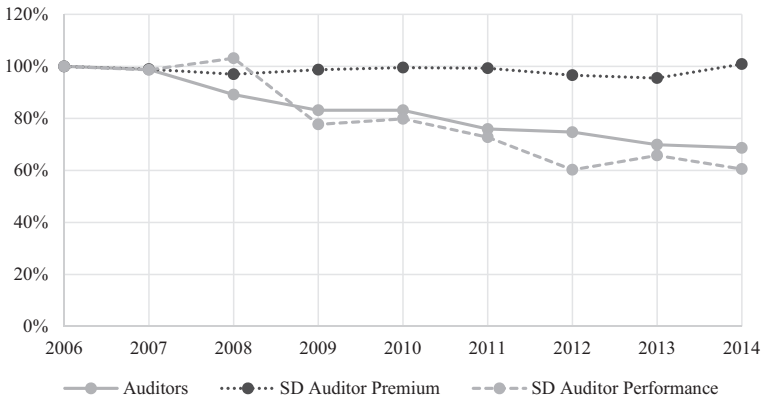
Notes: This table presents estimations of equation (4) after replacing the dependent variable with absolute abnormal accruals (comment letters) in columns 1–2 (3–4). Columns 1 and 2 include all observations with requisite data and columns 3 and 4 include 10-Ks that the SEC selected for inspection. All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2. Bold denotes variables of interest.

Because the narrowing gap in quality has not been accompanied by a narrowing gap in fees, we reconsider our primary findings in Table 4 after allowing the relations between *Auditor Premium* and restatements to vary over time. To do so, we divide the sample into three equal time periods (2006–2008, 2009–2011, and 2012–2014) and interact indicators for the latter two periods with our fee variables. We present these results in columns 1 through 3 of Table 9. Consistent with prior results, the coefficient on *Auditor Premium* is negative and significant, indicating that audit quality is increasing with auditor price during the initial three-year period. Interestingly, the coefficient on the interactions between the two latter period indicators and *Auditor Premium* are positive and significant, indicating that the quality returns to *Auditor Premium* have diminished over time. In the bottom portion of the table, we present the estimated relation during each period.[24] These results indicate that the relation between *Auditor Premium* and quality diminishes to the point of insignificance in the final three-year period in our sample. This is consistent with the diminished variation in quality that has not been accompanied by a diminished variation in auditor premiums.

Given the relation between audit quality and *Auditor Premium* has declined over time, clients may be more likely to dismiss premium-priced auditors in recent years. Thus, we consider the relation between *Auditor Premium* and dismissals, and whether this association changes over time. To do so, we replace *Restate* with $Dismiss_{t+1}$ in equation (4). Results from this test are presented in columns 4 and 5 of Table 9 (column 5 is augmented with additional controls that may relate to dismissals—*Mismatch*, *Restate Announce*, and *Restate Announce Quarter*). Consistent with the quality returns associated with *Auditor Premium* in the early two time periods in columns 1–3, we find no consistent relation between *Auditor Premium* and *Dismiss* from 2006 to 2011. However, consistent with the insignificant relation between *Auditor Premium* and *Restate* in the final three-year period, the relation between *Auditor Premium* and *Dismiss* is positive and significant in this period. This finding is consistent with clients being less

24. In untabulated analysis, we interact the time period indicators with all control variables. Inferences on the variables of interest are unchanged by this alternative specification.

Figure 2 Changes in auditor count, standard deviation in auditor performance, and standard deviation in auditor premium over time



willing to retain premium-priced auditors as the quality returns to these premiums have declined.[25]

Falsification test using restatements of interim financials

While we include client characteristics that relate to reporting quality in our vector of control variables, *X*, it is possible that clients with high-quality financial reporting hire premium-priced auditors as a signaling mechanism. This scenario could lead to a spurious relation between fee premiums and quality that is driven by client reporting quality, rather than auditor quality. Our tests using client fixed effects strongly suggest this is unlikely to be the case, but we further address this concern with a falsification test using restatements of quarterly financial statements (*Restate Quarter*) (i.e., restatements of 10-Qs when the misstatement does *not* span a year-end). Because quarterly financial statements are unaudited, these restatements can proxy for pre-audit financial reporting quality. If unobservable client reporting quality drives prior results, as opposed to auditor quality, then we would also expect *Auditor Premium* to be negatively related to restatements of quarterly financials.

In our sample, restatements of quarterly reports (10-Qs) without a 10-K restatement occur in approximately 1.1 percent of our client-year observations. In untabulated analysis, we replace *Restate* in equation (4) with *Restate Quarter.* We find no evidence of a *negative* relation between *Auditor Premium* and quarterly restatements. In fact, we observe a positive and significant relation between *Auditor Premium* and *Restate Quarter*, suggesting that, if anything, clients with poor reporting quality seek out higher-quality auditors, which biases against the relations detected in prior tests. We also note a positive and significant coefficient on *Engagement Premium.* We are cautious to interpret this finding since quarter-only restatement announcements tend to occur before the completion of the audit. In other words, the auditor is aware of the corrected misstatement prior to completion of the audit and can adjust risk assessments and audit fees accordingly.[26]

25. In untabulated analysis, we re-perform these tests with only client-years of auditors that remain throughout the sample period and inferences are similar. This suggests that the observed results are not just a consequence of low-quality auditors exiting the market during the period.

26. In untabulated tests, we remove *Engagement Premium*, *New Auditor*, and *Weak 404* as these could reasonably be considered outcomes of the quarterly restatements, and re-perform these tests. We continue to find no evidence of a negative relation between *Restate Quarter* and *Auditor Premium* (coefficient is positive but insignificant). It is also

TABLE 9
Changes in the relation between fee premiums, restatements, and dismissals over time

	(1)	(2)	(3)	(4)	(5)
			$Restate_{t-1} = 0$		
Variables	*Restate*	*Restate*	*Restate*	$Dismiss_{t+1}$	$Dismiss_{t+1}$
Auditor Premium	−0.060***	−0.062***	−0.037***	0.016*	0.014
	(−4.31)	(−4.50)	(−4.42)	(1.72)	(1.48)
Auditor Premium ×	0.040***	0.040***	0.020**	−0.007	−0.008
Year 2009–2011	(2.94)	(2.97)	(2.08)	(−0.69)	(−0.70)
Auditor Premium ×	0.060***	0.058***	0.034***	0.021**	0.020*
Year 2012–2014	(4.54)	(4.48)	(4.12)	(2.00)	(1.92)
Engagement Premium	−0.003	−0.005	0.000	0.019***	0.017***
	(−0.54)	(−0.81)	(0.05)	(3.94)	(3.48)
Engagement Premium ×	0.011	0.012	0.011**	−0.022***	−0.021***
Year 2009–2011	(1.24)	(1.40)	(2.07)	(−3.16)	(−2.98)
Engagement Premium ×	0.013*	0.013*	0.007	−0.001	−0.001
Year 2012–2014	(1.68)	(1.68)	(1.50)	(−0.18)	(−0.10)
Restate Announce	Not Included	Included	Not Included	Not Included	Included
Control variables	Table 4, column 2	Table 4, column 4	Table 4, column 6	equation (4)	equation (4) Expanded
Industry/Year/MSA FE	Included	Included	Included	Included	Included
Observations	26,175	26,175	24,902	26,175	26,175
Adjusted R^2	0.026	0.032	0.014	0.020	0.023
Auditor Premium + *Auditor Premium* × *Year 2009–2011*	−0.020**	−0.022**	−0.017**	0.009	0.006
	(−1.97)	(−2.22)	(−2.48)	(0.91)	(0.66)
Auditor Premium + *Auditor Premium* × *Year 2012–2014*	−0.000	−0.004	−0.003	0.037***	0.034***
	(−0.01)	(−0.54)	(−0.62)	(4.15)	(3.81)

Notes: Columns 1–3 of this table present re-estimations of Table 4 with interactions of *Auditor Premium* and *Engagement Premium* with time period variables. In columns 4 and 5, *Dismiss* replaces *Restate* as the dependent variable. Columns 1, 2, 4, and 5 include all observations with requisite data, while column 3 includes the subsample of clients that do not eventually restate the prior year financial statements. All specifications include industry, year, and MSA fixed effects. Models are estimated using LPM with standard errors that are robust to heteroskedasticity and clustered by client (Petersen 2009). *t*-statistics are presented in parentheses below the coefficients. *, **, and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively (based on two-tailed tests). All variables are defined in Appendix 2.

7. Conclusion

In this study, we reconsider the important theoretical relationship between audit fees and audit quality. Specifically, we provide evidence of a significant auditor-specific component of fees that is distinct from client characteristics and differs from traditional audit fee residuals. We find that auditor-specific fees are positively related to audit quality (i.e., negatively related to restatements), but that the remaining engagement-specific fee premium (i.e., residual fees) does not relate to

possible that the positive relation in interim restatements tests is driven by high-priced auditors detecting accounting errors affecting interim restatements before they extend to the annual filing. This would explain both the positive relation between *Auditor Premium* and *Restate Quarter* as well as the negative relation between *Auditor Premium* and *Restate.* This explanation is also consistent with premium auditors providing higher-quality audits.

improved financial reporting quality. We also show that inferences regarding the fee/quality relation are substantially different when the auditor and engagement components are not separated. Our findings provide a possible explanation for the conflicting findings in prior research on the relation between fee residuals and audit quality proxies. Further analysis suggests that the audit price-quality relation is not a manifestation of office or industry level traits shown in prior literature to relate to fees or quality. We further show that our measure does not just reflect a large auditor ("Big 4") effect as the relation exists within a sample of Small Auditors. In sum, our evidence suggests that quality-related audit pricing is best and most parsimoniously captured using auditor premiums.

Our study makes important contributions to several streams of auditing and financial reporting literature. First, we contribute to the literature on fee determinants and fee residuals by demonstrating the significance of an auditor-specific component of audit fees that extends beyond traditional Big 4/non-Big 4 designations. In so doing, our results suggest that a simple "Big 4" or "Second Tier" indicator is insufficient to fully capture variation in auditor quality and pricing effects. We suggest that researchers wishing to investigate (or control for) audit quality should either use auditor fixed effects or *Auditor Premium* as more refined and flexible measures than those suggested in prior research. Second, we contribute to the literature on the relation between audit fees and audit quality. We provide evidence that while there is a positive relation between audit fees and audit quality, the conflicting findings in prior literature may be attributable to the commingling of the auditor and engagement components of the fee residual. Finally, we contribute to research on the evolution of the audit market by showing that the relation between auditor premiums and audit quality has declined over time as audit quality differences between audit firms have converged.

Appendix 1

Selected prior research on "abnormal" audit fees and audit quality

Study	Auditor variables in estimation of fee residual	Interpretation of fee residual	Quality measure	Sample restrictions	Relationship with quality
Asthana and Boone (2012)	Model not reported	Quasi-rents for positive residual and client bargaining power for absolute negative residual	Absolute discretionary accruals and meet or beat analyst expectations	2000–2009	Negative relation with *absolute* abnormal audit fees (relation is milder post-SOX
Blankley et al. (2012)	Sample conditioned on Big N clients	Audit effort	Future restatement announce-ments	SOX compliant, Big N clients from 2004 to 2007	Positive
Choi et al. (2010)	Big N	Profits/incentives to compromise independence	Absolute discretionary accruals	2000–2003	Negative for positive abnormal fees; Insignificant for negative abnormal fees
Eshleman and Guo (2014)	Big N, Second Tier auditor, national industry leader, local industry leader, joint leader, auditor office size, client power	Audit effort	Discretionary accruals used to meet or beat analyst forecasts	Clients with pre-discretionary accrual earnings below consensus analyst forecast from 2000 to 2011	Positive for negative abnormal fees

(The Appendix is continued on the next page.)

Appendix 1 (continued)

Study	Auditor variables in estimation of fee residual	Interpretation of fee residual	Quality measure	Sample restrictions	Relationship with quality
Hoitash et al. (2007)	Big N	Fee premium or discount granted by the auditor	Absolute discretionary accruals, accruals quality	2000–2003	Negative
Hribar et al. (2014)	Big N*	Client accounting quality	Restatements, comment letters, accounting fraud	2000–2010	Negative
Kinney et al. (2004)	Sample conditioned on large auditor clients	Ex ante misstatement risk**	Restatements	Sample collected from the seven largest audit firms from 1995 to 2000	Negative
Lobo and Zhao (2013)	Big N; industry specialization	Audit effort	Restatements	2000–2009	Positive

Notes: *We note that Hribar et al. (2014) intentionally omit accounting quality variables (e.g., internal control weaknesses) because these variables are direct measures of accounting quality and their research question relates to whether audit fees can proxy for accounting quality. As such, they relegate components of fees that are a result of poor accounting quality to the residual. They intend to focus on client reporting quality whereas our study aims to control for client reporting quality and capture audit quality. For these reasons, the residual in their study is not comparable to ours. **Kinney et al. (2004) use audit fees divided by the square root of total assets rather than a fee residual.

Appendix 2

Variable definitions

Test variables	
Abnormal Fees	Residual (ε) from equation (1) excluding auditor fixed effects for client i in year t
Auditor Premium	The coefficient for each auditor indicator from the estimation of equation (1) calculated on a three-year rolling average, demeaned by year across all client years (i.e., the average auditor premium for each year is zero). For estimation purposes, we set PwC as the reference audit firm (i.e., intercept)
Auditor Premium Diff	*Auditor Premium*$_{j,t-1}$ minus *Auditor Premium*$_{k,t-1}$, where auditor j (k) is client i's year t ($t-1$) auditor
Auditor-Industry Premium	An estimate of *Auditor Premium* using auditor-industry fixed effects instead of auditor fixed effects in equation (1)
Engagement Premium	Residual (ε) from equation (1) for client i in year t
Office Premium	An estimate of *Auditor Premium* using auditor-office fixed effects instead of auditor fixed effects in equation (1)
Tier Premium	An estimate of *Auditor Premium* using auditor tier indicators instead of auditor fixed effects in equation (1)

(The Appendix is continued on the next page.)

Appendix 2 (continued)

Other variables	
Abnormal Accruals	Absolute value of the residual from a modified Jones model including a control for performance (Kothari et al. 2005) estimated by industry-year for all industry years with 10 or more observations: $TA/A = \alpha + \lambda_0\ (1/A) + \lambda_1\ (\Delta REV\text{-}\Delta REC)/(A) + \lambda_2\ (PPE/A) + \lambda_3\ (NI/A)$. Where A = average assets; TA = total accruals (income before extraordinary items − cash flows from operations); ΔREV = change in revenue; ΔREC = change in receivables; *PPE* is net property plant and equipment; and *NI* is income before extraordinary items
Acquisitions	Cash outflow for acquisitions$_t$ / assets$_t$
Assets	Natural log of total assets$_t$ (in millions)
Audit Fees	Total audit fees$_t$
Auditor Performance	An estimate of *Auditor Premium* replacing *ln(Audit Fees)* with *Restate* in equation (1)
Book to Market	Book value of equity$_t$ / market value of equity$_t$
Busy FYE	Indicator variable equal to one if the client has a December, January, or February fiscal year-end, zero otherwise
CFO	Operating cash flows$_t$ / ((assets$_t$ + assets$_{t-1}$) / 2)
Comment Letters	Natural log of one plus the number of letters sent by the SEC to the client that mention the 10-K
Dismiss	Indicator variable equal to one if the client dismissed its auditor in the year following fiscal year-end, zero otherwise
Distress	Altman Z-score from Altman (1983) calculated as: 0.717 × (working capital$_t$ / assets$_t$) + 0.847 × (retained earnings$_t$ / assets$_t$) + 3.107 × (earnings before interest and taxes$_t$ / assets$_t$) + 0.42 × (book value of equity$_t$ / liabilities$_t$) + 0.998 × (sales$_t$ / assets$_t$)
Finance	Indicator variable equal to one if the client issues debt and/or equity that is greater than 2 percent of lagged total assets, zero otherwise
Foreign Income	Indicator variable equal to one if the client had income from foreign operations, zero otherwise
Growth	(sales$_t$ − sales$_{t-1}$) / sales$_{t-1}$
Inventory	Inventory$_t$ / assets$_t$
Leverage	Liabilities$_t$ / assets$_t$
Loss	Indicator variable equal to one if net income is negative, zero otherwise
Market	Natural log of market value of equity$_t$ (millions)
Mismatch	Indicator variable equal to one if the company and its auditor are considered mismatched following the model developed by Shu (2000), zero otherwise
New Auditor	Indicator variable equal to one for first-year audits, zero otherwise
Pension	Indicator variable equal to one if the client has pension expenses during the current year, zero otherwise
Receivables	Receivables$_t$ / assets$_t$
Restate Announce	Indicator variable equal to one if the client announced restatement of annual financial statements during the fiscal year in an item 4.02 8-K filing, zero otherwise
Restate Announce Quarter	Indicator variable equal to one if the client announced restatement of interim financial statements during the fiscal year in an item 4.02 8-K filing, zero otherwise
Restate	Indicator variable equal to one if the client subsequently restated the year's financial statements and the restatement was disclosed in an item 4.02 8-K filing, zero otherwise

(The Appendix is continued on the next page.)

Appendix 2 (continued)

Restate Quarter	Indicator variable equal to one if the client issued a restatement of a 10-Q that was initially filed in year *t* but the restatement period does *not* span year-end and the restatement was disclosed in an item 4.02 8-K filing, zero otherwise
ROA	Net income$_t$ / ((assets$_t$ + assets$_{t-1}$) / 2)
Sales	Natural log of sales$_t$ (in millions)
Segments	Natural log of 1 plus the total number of business and operating segments reported in the fiscal year
SOX 404	Indicator variable equal to one if the client is SOX 404(b) compliant, zero otherwise
Weak 404	Count of number of 404(a) weaknesses from Audit Analytics

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