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Auditor Task-Specific Expertise: The Case of Fair Value Accounting

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ABSTRACT: PCAOB inspections repeatedly indicate deficiencies in audits of fair-value (FV) estimates, prompting regulators to improve the related auditing standards. We predict that auditor task-specific FV expertise, gained from work experience during the audit of FV measurements, can contribute to higher audit quality. Utilizing FV-related restatements and comment letters, we find that expertise in auditing Level 3 FV estimates at the office level is associated with greater FV audit quality. Level 2 FV expertise or national level FV expertise is not associated with higher FV audit quality. Following the receipt of a comment letter, we further find that auditor FV expertise is associated with lower comment letter remediation costs and higher FV disclosure quality. Finally, we find that the value relevance of Level 3 FV disclosures increases with the extent of auditor FV expertise. Collectively, our results highlight that auditor fair value expertise contributes to the credibility and usefulness of FV disclosures.

Keywords: auditor expertise; task-specific expertise; fair value; restatements; comment letters; value relevance; XBRL.

I. INTRODUCTION

Auditing fair value measurements (FVM) is a challenging task because FVM often involve subjectivity, technical difficulty, and inherent uncertainty in forecasting future outcomes. Public Company Accounting Oversight Board (PCAOB) inspections repeatedly highlight that audits of FVM are a key area of concern, accounting for 31 percent of all identified audit deficiencies in 2015 (Acuitas 2017). FV is also one of the most prevalent reasons firms receive comment letters from the Securities and Exchange Commission (SEC), further underscoring the importance of this issue (Ernst & Young [EY] 2017; Deloitte 2017). Collectively, the widely recognized complexity associated with FVM suggests that greater auditor expertise in FVM is needed. In this study, we examine whether auditors with greater experience in auditing FV are associated with higher FV audit quality.

Past research on auditor expertise has predominantly focused on industry specialization, principally concluding that auditors can specialize at the national or office level (see Audousset-Coulier, Jeny, and Jiang [2016] for a review). Findings often show that industry specialization contributes to audit quality (Reichelt and Wang 2010). Recent studies explore expertise in specific accounting topics and audit tasks that are typically more complicated, such as tax (McGuire, Omer, and Wang 2012; Christensen, Olson, and Omer 2015), mergers and acquisitions (M&A) (Gal-Or, R. Hoitash, and U. Hoitash 2019), and information technology (Haislip, Peters, and Richardson 2016). These studies conclude that auditor domain-

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specific expertise is associated with improved audit quality in that domain. Similarly, it is possible that auditor FV expertise increases with greater experience in auditing FVM. This is consistent with studies that have documented that task-specific knowledge or experience significantly enhances auditor performance (Bonner 1990; Bonner and Lewis 1990). Additionally, when audit firms/offices frequently confront a common set of accounts, they can rationally justify the investment of time and resources involved in understanding relevant standards and audit procedures and develop related technologies. Hence, we propose that auditor FV expertise can be derived from the sum of FV assets and liabilities of all audit clients in the portfolio of the auditor.

Since there is no established theory on how to best measure auditor FV expertise, we empirically examine two dimensions. First, we examine whether FV expertise is best captured at the national or office level. While past research predominantly suggests that expertise resides at the office, rather than the national, level (e.g., Ferguson, Francis, and Stokes 2003; Francis, Reichelt, and Wang 2005), evidence regarding FV expertise does not exist.[1] Second, we examine whether FV expertise is best gained through auditing Level 2 or Level 3 FVM.[2] Using measures of auditor FV expertise along these two dimensions, we first examine factors associated with auditor FV expertise. We examine this within a broad sample of firm-year observations between 2008 and 2016. We find that larger, less profitable companies with more FV assets that are audited by Big 4 and industry expert auditors are associated with greater auditor FV expertise.

Next, we examine whether auditor FV expertise contributes to the quality of FVM and disclosures using two proxies that are directly related to FV audit quality. Specifically, we predict that the extent of auditor FV expertise will be associated with more accurate FVM, captured by a lower likelihood of FV-related restatements, and with higher FV disclosure quality, measured by a lower likelihood of receiving FV-related comment letters. Restatements are frequently recognized as the most direct signal of audit quality (DeFond and Zhang 2014). The advantage of studying comment letters is that while restatements may be influenced by the work of FV specialists, who often opine on the accuracy of the valuation models, it is less plausible that specialists are involved in assurance over FV-related disclosures, which are more likely influenced by the engagement team.[3] Further, practitioners consider comment letters to be an important indicator of audit quality (Christensen, Glover, Omer, and Shelley 2016).

We find an insignificant association between national level FV expertise and the propensity of FV-related restatements or the likelihood of receiving FV-related comment letters. In contrast, our results show that the extent of auditor FV expertise at the office level is associated with a lower likelihood of FV-related restatements, as well as a lower likelihood of receiving FV-related comment letters. Importantly, we observe that the extent of auditor expertise in Level 3 FVM drives this association, while expertise in Level 2 FVM alone does not appear to be a precise indicator of FV expertise. Taken together, these results are consistent with the theoretical research framework on auditor judgment (Bonner 2008). Using this framework to examine research of FV audits, Bratten, Gaynor, McDaniel, Montague, and Sierra (2013) note that training alone is not sufficient to develop valuation expertise. Rather, developing such expertise requires practice, instruction, experience, and feedback, all of which are typically gained through work experience at the office level.[4]

We perform a battery of tests to assuage endogeneity concerns and other alternative explanations. Specifically, we demonstrate that our results are robust to propensity score matching analysis, to different model specifications, such as restricting the sample to firms that restate or receive comment letters, to correcting for selection bias using the Heckman procedure, and to using alternative measures of FV expertise (i.e., a dummy versus a continuous measure). We further show that FV expertise is not associated with restatements or comment letters that are unrelated to FV. Such falsification tests increase the confidence that our measures effectively capture auditor FV expertise. In addition, our results show that auditors with general industry expertise are not associated with FV audit quality, suggesting that a more nuanced type of expertise is

[1] It is possible that FV expertise is developed and resides at the national level and is used to support different offices as needed. This is especially relevant in the current environment, where reliance on information technology to share knowledge is prevalent. In contrast, it is possible that developing first-hand expertise at the office level is more important than generating knowledge at the national level.

[2] While the valuation method and disclosures between Level 2 and Level 3 overlap, Level 3 valuations involve additional steps that require greater technical knowledge and judgment. Furthermore, Financial Accounting Standard (FAS) 157 and Accounting Standards Codification (ASC) 820 suggest that Level 3 FVM require additional disclosures (PricewaterhouseCoopers [PwC] 2008; Financial Accounting Standards Board [FASB] 2011). Therefore, experience in auditing Level 3 may translate to Level 2, but not *vice versa*. Level 1 FVM do not require specialized skills since they are based on quoted market prices.

[3] The literature has long recognized that preparers and auditors rely heavily on valuation specialists (Cannon and Bedard 2017; Glover, Taylor, and Wu 2018). If most engagements use specialists, then it is possible that auditor FV expertise would not matter. Rather, the quality of FV auditing will be completely driven by the work of specialists, which is not publicly observable. In such a case, we would not expect to see variation in audit quality across different engagements. Nevertheless, as described in more detail in Section II, interviews with audit engagement team members and valuation specialists suggest that FV knowledge of the audit engagement team is important to FV audits.

[4] Interpreting our results should not suggest that national level FV expertise is not important. Rather, it is plausible that most auditors at the national level invest in similar FV-related resources, thus preventing us from detecting discernable effects.

valuable in increasing the quality of FV-specific financial reporting. Taken together, these tests provide some assurance that our results are not driven by spurious correlation.

Motivated by Cassell, Dreher, and Myers (2013), who find that FV comment letters are costly to remediate, we next investigate whether the extent of auditor FV expertise can mitigate these costs. We use two proxies for the cost of remediation: the number of days from the initial comment letter that includes an FV issue to its final resolution, and the number of rounds of communication with the SEC, measured as the number of letters received throughout the resolution process. We find lower remediation costs (i.e., lower number of days and rounds) among clients of auditors with greater FV expertise. This result suggests that greater FV expertise not only reduces the likelihood of receiving a comment letter, it is also associated with swifter and more effective responses to comments from the SEC. Nevertheless, because auditors with FV expertise do not prevent all FV-related comment letters, we further examine whether the severity of the FV comment letters received is lower when the auditor is an FV expert. Using market returns around the disclosure of comment letters and the frequency with which comment letters were downloaded from the SEC as proxies for comment letter severity, we find that auditor FV expertise is associated with less severe FV-related comment letters.

We also investigate the association between auditor FV expertise and improvements in FV disclosure quality subsequent to receiving an FV comment letter. To perform these tests, we introduce a new methodology to collect textual and monetary data that are not available in Compustat. Specifically, we use eXtensible Business Reporting Language (XBRL), a technology that uses predefined tags to standardize the names of financial statement notes to collect text data of FV notes for a large sample of firms.[5] We also use XBRL to identify detailed monetary FV line items reported by companies, many of which are not available in Compustat. Specifically, while very few FV variables are available in Compustat, within our sample, we observe 219 different FV XBRL tags. Without XBRL, it is not possible to capture the richness of FV disclosures unless such data are manually collected. Similar to Bens et al. (2016), we find that following FV comment letters, firms increase their FV disclosures, as measured by the number of words within the fair value disclosures and the number of FV line items disclosed. Adding to their findings, we observe greater disclosure improvements among firms with auditors that possess greater FV expertise. These results corroborate our earlier findings and suggest that, in addition to lower costs of comment letter remediation and lower likelihood of receiving severe FV comment letters, auditor FV expertise is associated with greater improvements in FV disclosures following receipt of an FV comment letter.

Finally, we add to the extensive literature on the value relevance of FV disclosures (Barth 1994; Barth, Beaver, and Landsman 1996). This literature mainly finds that FV disclosures contain information that is important and value-relevant to investors. However, findings consistently suggest that due to their subjectivity and complexity, Level 3 FVM are considered less reliable and less value-relevant than Level 1 or 2 (Song, Thomas, and Yi 2010; Goh, Li, Ng, and Yong 2015). Consistent with FV expert auditors improving the reliability of FV disclosures, our results show that the value relevance of Level 3 FV disclosures increases with the extent of auditor FV expertise.

The current study makes several important contributions. First, we add to the extant auditor expertise literature, which has predominantly concentrated on industry expertise, by focusing on expertise in fair value, an increasingly important area of financial reporting. We document factors associated with auditors with FV expertise and demonstrate the importance of account-specific (or task-specific) expertise *vis-à-vis* financial reporting credibility. Importantly, our analysis shows that industry expertise may not be sufficient in overcoming the inherent complexity in FV reporting. Thus, we add to the nascent literature that primarily relies on surveys and interviews to examine the valuation of FVM (e.g., Griffith 2016; Glover et al. 2018; Cannon and Bedard 2017) by providing archival evidence on the value of auditor FV expertise. Second, our results are consistent with the recent auditor expertise literature, which suggests that human capital and knowledge sharing within the office, rather than at the national level, contribute more to audit quality (Reichelt and Wang 2010; McGuire et al. 2012).[6] The implications of these results are important to audit clients that seek auditors with FV expertise and suggest that they should focus on expertise within the audit office. Finally, we contribute to the extensive literature that examines the value relevance of FV disclosures (e.g., Barth et al. 1996; Song et al. 2010; Magnan, Menini, and Parbonetti 2015) by showing that auditor FV expertise contributes to the value relevance of Level 3 FV disclosures.

[5] Bens, Cheng, and Neamtiu (2016) hand-collected FV note disclosures from 10-K filings for 100 randomly selected firms that receive FV comment letters and their matches. They describe that "Data collection costs are high in this case, as not all firms have a specific note dedicated to the process of fair value measurements (and some use different titles for the note)" (Bens et al. 2016, 365). Using XBRL overcomes these challenges.

[6] Two related working papers that focus on FV expertise at the national level are Cannon, Christensen, Omer, and Wood (2014) and Barr-Pulliam, Mason, and Brown-Liburd (2018a).

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

Background

FV estimates are an important part of the financial statements, and their use and significance have increased over time. The Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) define FV as "the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date." FV disclosures, mandated by ASC 820 (formerly FAS No. 157; FASB 2006), are performed on three levels based on the clarity of the valuation inputs. Level 1 valuation is relatively straightforward because it relies on quoted prices for assets and liabilities of identical products. Level 2 valuation relies on observable market inputs, but can be complicated because it involves estimation based on quoted prices of comparable products, thus requiring judgment in the identification of comparable assets and liabilities. The measurement of Level 3 assets and liabilities requires some or complete reliance on unobservable inputs based on assumptions. These assumptions are highly subjective, require significant judgment, and are hard to validate, and in many cases, small changes to model assumptions can significantly alter the assessed value of Level 3 assets and liabilities. While knowledge and experience with Level 3 FVM likely extend to Levels 1 and 2, this knowledge transfer may not apply from Level 1 or 2 to Level 3.

There are also differences in the required levels of disclosure of Level 3 valuations relative to Level 1 and 2 valuations (FAS 157; PwC 2008). For example, Level 3 valuations require disclosure of the reconciliation of the beginning and ending balances, and companies are asked to "provide a narrative description of the uncertainty of the fair value measurement at the reporting date from the use of significant unobservable inputs" (ASC 820). Taken together, Level 3 valuations and disclosures are often more complicated than Level 1 and 2 valuations and disclosures.

Auditing FV Estimates

FVM are required for a variety of assets and liabilities, including derivatives, financial instruments, and impaired long-lived assets, among others. Management is responsible for the preparation of FV measurements and disclosures included in the financial statements. The process involves identifying relevant factors, accumulating sufficient and reliable data, developing assumptions, and determining the estimated amount (PCAOB 2001, Auditing Standard [AS] 2501). This process can suffer from information asymmetry, leading to moral hazard (Landsman 2007). That is, managers might use private information to their advantage by choosing model parameters that serve their objectives (Aboody, Barth, and Kasznik 2006). The auditor is required to evaluate these accounting estimates by obtaining evidential matter regarding the reasonableness of the estimated amounts, understanding the controls that govern the estimation process, and assessing the appropriateness of management's disclosures (PCAOB 2002, AS 2502).

When assessing FVM, auditors can rely on one or a combination of the following three approaches (PCAOB 2002, AS 2502). First, auditors can test management assumptions, valuation models, and underlying data and, thus, primarily rely on management's assessment. Under the second approach, auditors prepare independent estimates. The third approach involves the review of events and transactions that occurred after the balance sheet date, but before the audit report date, essentially "gleaning evidence from the future" to substantiate FVM. Current standards do not guide auditors as to which of the three approaches they should follow.

Because of the technical difficulty and subjectivity in verifying FV valuations, auditing FVM is an inherently challenging area for auditors (Bratten et al. 2013). PCAOB (2017a) inspections frequently identify deficiencies in the auditing of FVM at both large and small audit firms, and rank the auditing of FVM among the top three key areas of concerns. Furthermore, Church and Shefchik (2012) find that, unlike other deficiencies, the number of FVM-related audit deficiencies remains constant over time. In response, the PCAOB (2017a) has recently proposed a new auditing standard that enhances the requirements in auditing complex estimates, including FVM. In addition to the need for clearer and stronger auditing standards, another way to improve the auditing of FV measurements and disclosures is through the development of specialized skills.

Auditor Expertise

The audit literature has long recognized that auditors can gain expertise through work experience. This line of research has predominantly focused on auditor industry expertise (e.g., DeFond, Francis, and Wong 2000; Ferguson et al. 2003; Francis et al. 2005). The literature often finds that industry expert auditors are associated with higher audit quality, as evidenced by lower discretionary accruals (Balsam, Krishnan, and Yang 2003; Krishnan 2003; Kwon, Lim, and Tan 2007; Reichelt and Wang 2010; Chi and Chin 2011), lower incidence of financial frauds (Carcello and Nagy 2004), lower propensity of restatements (Romanus, Maher, and Fleming 2008), and a lower likelihood to meet or beat analyst forecasts (Reichelt and Wang 2010). In addition to industry expertise, several studies examine whether auditors develop expertise in specific categories of accounts or

tasks. For example, research suggests that auditors can gain expertise in research and development (Godfrey and Hamilton 2005), information technology (Haislip et al. 2016), tax (McGuire et al. 2012; Christensen et al. 2015), and around economic events such as mergers and acquisitions (Gal-Or et al. 2019) and economic shocks related to oil exploration (Stuber 2019). Two concurrent studies, Cannon et al. (2014) and Barr-Pulliam et al. (2018a), examine auditor expertise in fair value. Cannon et al. (2014) show that the magnitude of FV assets and liabilities increases the likelihood of disclosing a material weakness in internal controls only among firms not audited by a national FV expert auditor. Barr-Pulliam et al. (2018a) find that clients of auditors with national FV expertise are less likely to apply discretion to employee stock option fair value measurements, and are less likely to use FV-adjusted discretionary accruals to manage earnings.

Hypothesis Development

As past research suggests, auditors can gain expertise in an industry (Reichelt and Wang 2010) or within a category of accounts (e.g., McGuire et al. 2012). This line of research mainly argues that when economic activities and accounting disclosures are common across firms, auditors can leverage audit methodologies and specific first-hand knowledge to improve audit quality. Although auditor expertise is always advantageous, the benefits of expertise become more evident when task complexity is high (O'Donnell, Koch, and Boone 2005) because such knowledge provides audit professionals with the basis to recognize and evaluate uncertainty inherent to particular situations. Auditors who frequently encounter a class of accounts can better leverage this specific knowledge to conduct audit procedures. In other words, gaining task-specific knowledge or experience could improve audit quality (Bonner 1990; Bonner and Lewis 1990). Taken together, because of the broad consensus that the audit of FVM is a complex task, greater expertise in auditing FV estimates is expected to enhance the quality of FVM and the related disclosures. We formulate this prediction in the following hypothesis.

H1: The extent of auditor fair value expertise is positively associated with FV-related audit quality.

National Level Expertise, Office-Level Expertise, and the Use of Specialists

While we expect that FV expertise will contribute to audit quality, there is no clear theory to suggest whether such expertise is best captured at the office or national level. Recent results suggest that industry expertise is best captured at the office level (Audousset-Coulier et al. 2016). Nevertheless, it is unclear whether results from the industry expertise literature will translate to more nuanced expertise over complex accounts, such as those requiring FVM.

Expertise at the national level could be more important because of a greater opportunity to benefit from economies of scale in the valuation of FV estimates. Supporting this, in a recently proposed rule, the PCAOB (2017a, 11) notes that through their inspections, they observed that some large audit firms "implemented centralized approaches to developing independent estimates of the fair value of financial instruments." Along similar lines, Bratten et al. (2013, 20) write that "all of the Big 4 firms provide guidance and training materials, including YouTube videos, accessible to the public, to facilitate audits of FVOEs." Therefore, firms that engage with more clients that have greater FVM needs may develop greater expertise and training programs at the national level. However, since most audit firms have multiple clients with FVM, it is possible that there will be no discernable audit quality differences at the national level, as all firms may invest in similar resources. Hence, it is possible that FV expertise is best captured at the office level, where audit teams gain on-the-job experience in FV auditing. This is consistent with Bonner (2008), who suggests that training alone is not sufficient to develop expertise, and that the first-hand practice, instruction, experience, and feedback that are typically gained by office engagement teams are required. Furthermore, if an audit office has more clients with FV needs, then it is more likely that this office will invest in human capital and training to meet the needs of their clients. In sum, if audit offices have more clients that require FV audits, then audit teams in such offices are exposed to more FV-related audits, leading to greater experience and expertise.

Nevertheless, because of the prevalent use of FVM specialists by auditors, it is also possible that neither expertise at the national nor at the office level will make a significant observable difference in the quality of FV reporting. Specifically, the PCAOB (2017b) reports that audit firms use the work of at least one auditor-employed specialist in 85 percent of engagements, with an average of four to five individual specialists in each. Similarly, Glover et al. (2018) report that 86.7 percent of engagements use specialists to assist them in the valuation of complex financial instruments. Therefore, since most auditors enlist the help of specialists, it is possible that the quality of FVM is completely determined by the work of these specialists. This is consistent with concerns of regulators that auditors over-rely on the work of specialists (SEC 2011; PCAOB 2011).

While we acknowledge the possibility that the work of specialists may be a primary contributor to the quality of FV valuations, specialists are less likely to be involved in FV-related disclosures. Further, interview studies find that both

specialists and auditors believe that auditor expertise is highly valuable and supplements important audit-related knowledge that specialists typically lack. In addition, specialists recognize that they lack intimate client knowledge, possibly leading to omission of critical factors that go into valuations. For example, a specialist in the Griffith (2016, 20) study said, "The audit team knows the company better than we do; we're just doing one small piece of this." Similarly, specialists in the Barr-Pulliam, Mason, and Sanderson (2018b) study agree that their lack of knowledge in auditing potentially inhibits the auditability of their work. In addition, an audit manager in the Griffith (2016, 22) study noted that "Auditors are very good at saying this is material or this is not material. Specialists are better at saying: yes, this is a premium I have seen in the 20 other times I've done this work." It is also evident from various studies that the ultimate responsibility for FV-related audits lies with the audit engagement team. An auditor in the Griffith (2016, 22) study suggests that "(Specialists) really leave it up to us. They clearly explain their conclusions and any exceptions they have. But it's clearly up to us as the audit team as to how that fits into the overall audit."

In sum, evidence suggests that both specialists and auditors recognize that technical FV expertise by specialists alone is not sufficient. We believe that auditors' FV expertise can improve the quality of FV audits and empirically examine whether such expertise is better captured at the national or office level.

III. RESEARCH DESIGN

Measuring Auditor Fair Value Expertise

To measure auditor FV expertise, we follow prior literature on audit firm industry expertise (Ferguson et al. 2003; Francis, Reichelt, and Wang 2005; Reichelt and Wang 2010) and account-specific expertise (McGuire et al. 2012; Christensen et al. 2015; Cannon et al. 2014). We first capture FV expertise at the office level based on audit firms' FV market share within each city-industry.[7] Because verifying inputs, model assumptions, and related mandated disclosures for Level 3 FV estimates is more subjective, complicated, and extensive than those of Level 2, we construct two distinct expertise measures based on each class of accounts. Our first variable of interest *C_FVSPEC3,* is defined as total Level 3 FV assets and liabilities under audit for all clients (except for the focal client) within the audit office's client portfolio, divided by total Level 3 FV assets and liabilities within the office's city-industry market. Our second variable, *C_FVSPEC2,* is similarly constructed using Level 2 FV assets and liabilities.

Two concurrent studies (Cannon et al. 2014; Barr-Pulliam et al. 2018a) measure auditor FV expertise at the national level rather than the office level, expecting that FV expertise resides at the national level because of centralized firm-wide training, technology, audit methodologies, and valuation specialists. Hence, our third and fourth variables of interest measure audit firms' FV expertise at the national level. Specifically, we define *N_FVSPEC3* as total Level 3 FV assets and liabilities under audit for all clients (except for the focal client) within the audit firm's national industry client portfolio, divided by total Level 3 FV assets and liabilities within the national industry market. *N_FVSPEC2* is defined similarly based on Level 2 FV assets and liabilities.

FV Audit Quality

Restatements

We rely on two measures to operationalize FV audit quality. The first measure captures financial statement misstatements pertaining to FV reporting. While such misstatements are not prevalent, this measure provides a clear indication of lower audit quality that is directly related to FVM (Palmrose, Richardson, and Scholz 2004; DeFond and Zhang 2014; Christensen et al. 2016). We predict that firms audited by FV expert auditors are less likely to have FV-related restatements. To test this prediction, we estimate the following logistic regression model:

$$FV\_RESTATE_{i,t} = \alpha_0 + \alpha_1 FVSPEC + \beta_n Controls_{i,t} + \varepsilon_{i,t}. \quad (1)$$

The dependent variable (*FV_RESTATE*) is an indicator variable equal to 1 if one of the causes for the restatement is fair value reporting, and 0 otherwise. This variable is constructed based on the year that was misstated. Our variable of interest, *FVSPEC,* is one of four measures of auditor FV expertise (*C_FVSPEC2, C_FVSPEC3, N_FVSPEC2,* and *N_FVSPEC3*).

[7] We define industry based on two-digit SIC codes and city based on Metropolitan Statistical Area (MSA). Since we examine how audit firms' fair value expertise constructed across clients affects the focal client's fair value-related audit quality, we exclude the focal client in the calculation. We also acknowledge that we cannot capture experience gained through auditing FV assets and liabilities of private firms, which may introduce noise into our measure and prevent us from finding significant results.

To control for the general determinants of restatements, including company and auditor characteristics, we follow Lennox and Li (2014), Lobo and Zhao (2013), and Francis, Michas, and Yu (2013). In addition, following Bens et al. (2016), we include variables representing the proportion of FV assets and liabilities to total assets (*FVA_1, FVA_2, FVA_3, FVL_1, FVL_2,* and *FVL_3*) to control for the nature of the company's reporting under FAS 157.[8] Finally, we include year and industry fixed effects and cluster the standard errors by firm. Appendix A provides detailed definitions of all variables in Equation (1).

Comment Letters

The second measure of FV audit quality is based on SEC comment letters that pertain to FV footnote disclosures, capturing the disclosure quality that also needs to be assessed by the auditor.[9] The use of this measure is supported by the PCAOB AS 2502 statement suggesting that "The auditor should evaluate whether the disclosures about FVs made by the entity are in conformity with GAAP."[10] The SEC periodically evaluates company filings and issues comment letters when deficiencies are identified.[11] Thus, comment letters signal the adequacy, clarity, and completeness of the FV information provided and its compliance with GAAP. Using this measure to test H1 is appealing because specialists that may be involved in FVM are less likely to be involved in accounting disclosures. Thus, disclosure deficiencies are more directly attributable to the work of the auditor. We predict that FV expert auditors are more likely to identify disclosure deficiencies prior to filing the financial reports and, thus, avoid receiving an FV-related comment letter. We test this with the following logistic regression model:

$$FV\_LETTER_{i,t} = \alpha_0 + \alpha_1 FVSPEC + \beta_n Controls_{i,t} + \varepsilon_{i,t}. \quad (2)$$

The dependent variable (*FV_LETTER*) is an indicator variable equal to 1 if the firm receives an FV-related SEC comment letter for the 10-K filing, and 0 if the firm receives a non-FV-related comment letter or no comment letters. As defined earlier, *FVSPEC* is one of four measures of auditor FV expertise (*C_FVSPEC2, C_FVSPEC3, N_FVSPEC2,* and *N_FVSPEC3*). We follow Bens et al. (2016) and Cassell et al. (2013) in selecting our control variables, all of which are defined in Appendix A. We also include year and SEC office fixed effects.[12] When we estimate Equation (2) on the full sample, we cluster the standard errors by firm.

IV. SAMPLE AND DESCRIPTIVE STATISTICS

Sample Selection

Our sample selection begins with firms covered by Compustat and Audit Analytics with non-missing Central Index Key (CIK) numbers from 2008 through 2016 and available MSA data.[13,14] In the restatement analysis, we eliminate observations with fiscal years ending after 2015 to allow for a sufficient time lag (approximately two years) between misstatement years and the announcement of restatements.[15] Following Bens et al. (2016), we retain firm-year observations with FV restatements (comment letters) and firms that do not have FV restatements (comment letters) at any point during our sample period. Furthermore, we only keep companies reporting non-missing and non-zero FV Level 1, 2, or 3 assets or liabilities, because FV restatements or comment letters are only relevant when companies report under FAS 157. Our final sample consists of 16,600

[8] FAS 157 defines fair value, establishes a framework for measuring fair value in generally accepted accounting principles (GAAP), and expands disclosures about fair value measurements (FASB 2006). FAS 157 is effective for financial statements issued for fiscal years beginning after November 15, 2007.

[9] Although classifying restatements and comment letters that pertain to Level 1, 2, or 3 of FVM issues is preferable, such information is not available.

[10] Christensen et al. (2016) provide additional support for using these two measures, as they find that auditors identify restatements and SEC comment letters as the *two primary* indicators of low audit quality.

[11] Prior research finds that FVM are among the most prevalent reasons for receiving comment letters (Cassell et al. 2013). Consistent with this finding, a recent report by EY (2015) focusing on SEC comment letters summarizes the issues noted with respect to the disclosure quality of FVM-related information. For example, the SEC requests firms to disclose more information about their valuation techniques and inputs or disclose information about FVM that rely on significant unobservable inputs (i.e., Level 3 measurements).

[12] The SEC has 12 division offices that are responsible to issue comment letters. To maintain office industry expertise, each of the 12 offices is assigned to review firms belonging to particular industries. The following website provides a link between each of the 12 offices and four-digit SIC codes that are assigned to them: https://www.sec.gov/divisions/corpfin/cffilingreview.htm. Using two-digit SIC industry fixed effects instead of SEC office fixed effects produces similar results.

[13] This time period is selected because the majority of companies adopted FAS 157 in 2008. A limited number of firms adopted FAS 157 in 2007 (Bens et al. 2016). Our results are robust to a sample starting in 2007.

[14] MSAs are identified from the U.S. Census Bureau's MSA cross-map, which is available at: https://www.census.gov/programs-surveys/metro-micro.html. We manually mapped 327 audit office cities not listed in the data as principal cities in MSA data.

[15] Cheffers, Whalen, and Usvyatsky (2011) find that it takes about 700 days between a misstatement date and a restatement announcement date.

firm-year observations for the restatement analysis and 10,874 firm-year observations for the comment letters analysis. Appendix B presents the sample derivation.

We also employ alternative samples, following Kubick, Lynch, Mayberry, and Omer (2016), that are restricted to firm-year observations that restated their financials (n = 1,835) or received SEC comment letters (n = 6,990). These alternative samples help control for selection bias and unobserved firm characteristics that increase the likelihood of restatements and comment letters.

Descriptive Statistics

Table 1, Panel A (Panel B) reports the descriptive statistics of all variables used in Equation (1) (Equation (2)). In Panel A, the means of *C_FVSPEC2* (*N_FVSPEC2*) and *C_FVSPEC3* (*N_FVSPEC3*) are 0.262 (0.154) and 0.232 (0.148), respectively. This *C_FVSPEC3* descriptive suggests that based on the median, most firms are audited by auditors with no expertise in Level 3 FV, but, on average, clients are audited by auditors who hold 23 percent of the local market share in FV Level 3. The mean of *FV_RESTATE* is 0.011, which translates to 183 FV restatements.[16] Descriptive data in Panel B are comparable with Panel A. We note that in both panels, the median values of *C_FVSPEC2* and *C_FVSPEC3* are nearly zero, suggesting that the distributions of these variables are negatively skewed. In subsequent analyses, we address any potential bias arising from this skewness using propensity score matching. The mean of *FV_LETTER* is 0.251, which translates to 2,943 FV comment letters in the sample. Table 1, Panels C and D present correlations between the dependent variables, the test variables, and FV variables for the restatement and comment letters samples, respectively. Consistent with H1, we observe that auditor Level 3 FV expertise is negatively correlated with both FV restatements and FV comment letters.[17]

Factors Associated with Greater Auditor FV Expertise

Prior to formally testing H1, we examine which company characteristics are associated with auditor FV expertise. Since we are unaware of prior models in the literature examining these associations, we adopt the model of Minutti-Meza (2013), who examines the determinants of having an industry expert auditor. We supplement this model with fair value assets and liabilities variables, expecting a positive association between these variables and the extent of auditor FV expertise. We also include dummies for Big 4 and industry expert auditors. The model also controls for MSA fixed effects to account for the possibility that clients with FV expert auditors are concentrated in certain locations. We estimate the model using 26,769 firm-year observations with non-missing values. Appendix B presents the sample derivation.

Table 2, Columns (1) through (4) report the results of the estimation wherein the dependent variables are *N_FVSPEC2, N_FVSPEC3, C_FVSPEC2,* and *C_FVSPEC3,* respectively. As expected, we find that fair value assets are positively associated with auditor FV expertise, but FV liabilities are generally not significant.[18] We also observe that *SIZE, LOSS, BIG4,* and *C_INDSPEC* are positively associated with auditor FV expertise. Overall, the results suggest that clients with greater FV assets and larger size demand greater auditor FV expertise, and Big 4 auditors and industry specialist auditors are associated with greater FV expertise.

V. EMPIRICAL RESULTS

The Effect of Audit Firms' FV Expertise on FV Restatements

Table 3, Columns (1) through (4) report the results from estimating Equation (1) on the full sample (n = 16,600). Columns (1) and (2) report the results wherein the variables of interest are national level Level 2 and 3 FV expertise—*N_FVSPEC2* and *N_FVSPEC3,* respectively. We find an insignificant association between the national level FV expertise variables and restatement likelihood. Columns (3) and (4) report the results using office-level Level 2 and 3 FV expertise measures—*C_FVSPEC2* and *C_FVSPEC3,* respectively. The results show that the coefficient on *C_FVSPEC2* is insignificant, but the coefficient on *C_FVSPEC3* is negative and significant ($p < 0.10$). In Column (5), we include the four measures of auditor FV expertise in the same model and find similar results. Specifically, *C_FVSPEC3* is negative and significant ($p < 0.05$), while

[16] We address a potential rare event bias in the logit model in two ways. First, results in Table 3 remain robust to the use of the "relogit" command in Stata. Second, we estimate Equation (1) within 1,835 restatement observations wherein 183 FV restatements is a substantial proportion (Table 3, Columns (6) through (10)).

[17] The highest variance inflation factor (VIF) is 5.71 (3.51) in Equation (1) (Equation (2)), indicating that multicollinearity is not a major concern. Kutner, Nachtsheim, and Jeter (2004) suggest that multicollinearity is a concern when the VIF is greater than 10.

[18] One exception is FV liabilities that are negatively associated with national level Level 3 FV expertise. This unexpected association is not significant when FV expertise is measured at the office level.

TABLE 1

Descriptive Statistics

Panel A: Descriptive Statistics—Sample for FV Restatements (16,600 Observations)

Variables	Mean	S.D.	25th	Med	75th
FV_RESTATE	0.011	0.104	0.000	0.000	0.000
C_FVSPEC2	0.262	0.335	0.000	0.000	0.500
C_FVSPEC3	0.232	0.345	0.000	0.000	0.474
N_FVSPEC2	0.154	0.211	0.001	0.001	0.255
N_FVSPEC3	0.148	0.193	0.000	0.000	0.229
FVA_1	0.068	0.152	0.000	0.000	0.054
FVA_2	0.118	0.175	0.000	0.000	0.178
FVA_3	0.017	0.095	0.000	0.000	0.001
FVL_1	0.005	0.072	0.000	0.000	0.000
FVL_2	0.014	0.063	0.000	0.000	0.002
FVL_3	0.013	0.066	0.000	0.000	0.000
SIZE	6.947	2.146	5.744	5.744	8.301
LEV	0.158	0.198	0.010	0.010	0.246
BM	0.902	1.146	0.366	0.366	1.131
DREC	0.011	0.059	−0.004	−0.004	0.019
LOSS	0.312	0.463	0.000	0.000	1.000
M&A	0.227	0.419	0.000	0.000	0.000
PUBLIC_EXC	0.877	0.329	1.000	1.000	1.000
AGE	3.020	0.752	2.485	2.485	3.584
FIN	0.225	1.822	0.002	0.002	0.137
ROA	−0.052	0.325	−0.014	−0.014	0.043
HFVA_3	0.068	0.251	0.000	0.000	0.000
EXTFIND	0.513	0.500	0.000	0.000	1.000
CACCR	−0.001	0.072	−0.016	−0.016	0.018
LAGFV_REST	0.006	0.077	0.000	0.000	0.000
INFLUENCE	0.106	0.142	0.017	0.017	0.126
LNAFEE	10.400	3.981	9.951	9.951	12.680
C_INDSPEC	0.428	0.495	0.000	0.000	1.000
BIG4	0.619	0.486	0.000	0.000	1.000
ICWEAK	0.057	0.232	0.000	0.000	0.000
OFFICESIZE	16.470	2.088	14.980	14.980	18.220
TENURE	2.072	0.612	1.609	1.609	2.485
CHGAUDID	0.053	0.225	0.000	0.000	0.000

(continued on next page)

other measures of FV expertise are not. Columns (6) through (10) report the results from estimating Equation (1) in a sample restricted to restatement observations (n = 1,835). Within this sample, we continue to observe that only *C_FVSPEC3* ($p < 0.05$) is associated with lower FV restatement likelihood. Taken together, these results lend support for H1, suggesting that greater auditor Level 3 FV expertise at the office level is associated with a lower likelihood of FV restatements. In an economic sense, holding other control variables in Column (4) at their sample means, a one-standard-deviation increase in *C_FVSPEC3* reduces the likelihood of an FV restatement by 27.6 percent.

The Effect of Audit Firms' FV Expertise on FV Comment Letters

The second set of tests examines whether auditor FV expertise decreases the likelihood of receiving an FV comment letter. Table 4, Columns (1) through (5) present the results from estimating Equation (2) on the full sample (n = 10,874), and Columns (6) through (10) present the results from estimating Equation (2) on the sample restricted to comment letter observations (n = 6,990). Columns (1) and (2) (Columns (6) and (7)) report the results wherein the variables of interest are national level FV expertise, *N_FVSPEC2* and *N_FVSPEC3,* respectively. Similar to our restatement results, we do not find significant results when FV expertise is captured at the national level. Columns (3) and (4) (Columns (8) and (9)) report the results using measures of office-level FV expertise, *C_FVSPEC2* and *C_FVSPEC3,* respectively. Consistent with our previous findings, we

TABLE 1 (continued)

Panel B: Descriptive Statistics—Sample for FV Comment Letters (10,874 Observations)

Variables	Mean	S.D.	25th	Med	75th
FV_LETTER	0.251	0.434	0.000	0.000	1.000
C_FVSPEC2	0.240	0.334	0.000	0.000	0.486
C_FVSPEC3	0.211	0.339	0.000	0.000	0.373
N_FVSPEC2	0.132	0.208	0.000	0.000	0.208
N_FVSPEC3	0.124	0.193	0.000	0.000	0.192
FVA_1	0.076	0.174	0.000	0.000	0.051
FVA_2	0.114	0.170	0.000	0.000	0.174
FVA_3	0.015	0.092	0.000	0.000	0.000
FVL_1	0.005	0.078	0.000	0.000	0.000
FVL_2	0.012	0.061	0.000	0.000	0.001
FVL_3	0.023	0.112	0.000	0.000	0.000
SIZE	6.331	2.281	5.184	5.184	7.682
RESTATE_3YRS	0.146	0.353	0.000	0.000	0.000
LOSS_3YRS	0.474	0.499	0.000	0.000	1.000
ROA	−0.158	0.651	−0.039	−0.039	0.030
LEV	0.149	0.208	0.003	0.003	0.218
BM	0.862	1.319	0.322	0.322	1.164
M&A_3YRS	0.275	0.447	0.000	0.000	1.000
AGE	2.877	0.760	2.303	2.303	3.434
FIN	0.230	0.584	0.002	0.002	0.151
ICWEAK_3YRS	0.127	0.333	0.000	0.000	0.000
R_ZSCORE	4.773	2.932	2.000	2.000	7.000
PRICE	20.320	27.420	4.358	4.358	24.710
TURNOVER	0.007	0.009	0.001	0.001	0.008
EPNEW	−11.480	68.420	−2.530	−2.530	1.707
FINANCIAL	0.445	0.497	0.000	0.000	1.000
HFVA_3	0.053	0.223	0.000	0.000	0.000
STDCFO	0.161	1.597	0.003	0.003	0.052
NONAUD	0.227	0.257	0.047	0.047	0.308
C_INDSPEC	0.400	0.490	0.000	0.000	1.000
BIG4	0.524	0.499	0.000	0.000	1.000
OFFICESIZE	16.180	2.150	14.690	14.690	18.090

Panel C: Correlation Table—Sample for FV Restatements (16,600 Observations)

Variable	A	B	C	D	E	F	G	H	I	J	K
A. *FV_RESTATE*											
B. *C_FVSPEC2*	**−0.03**										
C. *C_FVSPEC3*	**−0.03**	**0.68**									
D. *N_FVSPEC2*	**0.02**	**0.10**	**0.05**								
E. *N_FVSPEC3*	0.01	**0.06**	**0.10**	**0.69**							
F. *FVA_1*	**0.02**	**−0.04**	**−0.02**	**0.10**	**0.09**						
G. *FVA_2*	**−0.02**	**0.21**	**0.21**	**−0.02**	0.00	**−0.04**					
H. *FVA_3*	0.01	**−0.04**	**−0.01**	0.00	0.00	−0.01	**−0.03**				
I. *FVL_1*	0.00	**−0.02**	**−0.01**	**0.01**	0.00	**0.05**	−0.01	0.01			
J. *FVL_2*	**0.03**	**−0.04**	**−0.02**	**0.07**	**0.06**	**−0.02**	**0.03**	**0.04**	**0.08**		
K. *FVL_3*	**0.08**	**−0.07**	**−0.05**	**−0.05**	**−0.05**	0.01	**−0.05**	**0.13**	**0.02**	**0.04**	
L. *SIZE*	**−0.02**	**0.14**	**0.13**	**0.20**	**0.23**	**−0.28**	**0.16**	**−0.04**	−0.01	**0.04**	**−0.21**

(continued on next page)

TABLE 1 (continued)

Panel D: Correlation Table—Sample for FV Comment Letters (10,874 Observations)

Variable	A	B	C	D	E	F	G	H	I	J	K
A. *FV_LETTER*											
B. *C_FVSPEC2*	0.00										
C. *C_FVSPEC3*	**−0.02**	**0.70**									
D. *N_FVSPEC2*	**0.11**	**0.11**	**0.04**								
E. *N_FVSPEC3*	**0.14**	**0.07**	**0.10**	**0.66**							
F. *FVA_1*	**−0.07**	**−0.03**	**−0.03**	**0.14**	**0.10**						
G. *FVA_2*	0.00	**0.23**	**0.23**	0.01	**0.02**	**−0.07**					
H. *FVA_3*	0.00	−0.01	0.01	**0.02**	0.01	**−0.02**	**−0.03**				
I. *FVL_1*	0.01	**−0.02**	**−0.02**	0.01	0.00	**0.02**	**−0.02**	**0.03**			
J. *FVL_2*	**0.04**	**−0.05**	**−0.03**	**0.04**	**0.05**	**−0.03**	−0.01	0.00	**0.05**		
K. *FVL_3*	**−0.07**	**−0.10**	**−0.07**	**−0.07**	**−0.08**	0.00	**−0.08**	**0.10**	−0.01	**0.05**	
L. *SIZE*	**0.36**	**0.17**	**0.16**	**0.21**	**0.23**	**−0.27**	**0.14**	−0.01	**−0.03**	**−0.06**	**−0.33**

Panel A provides descriptive statistics for the fair value restatement analysis (n = 16,600), and Panel B presents descriptive statistics for the fair value comment letter analysis (n = 10,874). Panel C (Panel D) shows the Pearson correlations between fair value restatement (fair value comment letter) and our variables of interest, fair value assets and liabilities, and size using the full sample of 16,600 (10,874) client-year observations. All correlations significant at least at the 10 percent level are in bold.
All variables are defined in Appendix A.

observe that the coefficients on *C_FVSPEC2* are insignificant, but the coefficients on *C_FVSPEC3* are negative and significant ($p < 0.01$ for the full sample; $p < 0.05$ for the sample restricted to comment letters). Finally, Column (9) (Column (10)) reports the results when all auditor FV expertise measures are included in the same model. We observe similar results. The results are also economically significant, suggesting that when holding all control variables in Column (4) at their sample mean, a one-standard-deviation increase in *C_FVSPEC3* reduces firms' likelihood of receiving an FV-related comment letter by 14.1 percent.

Taken together, the results in Tables 3 and 4 suggest that greater auditor Level 3 FV expertise at the office level is associated with better FV audit quality. Different from Cannon et al. (2014) and Barr-Pulliam et al. (2018a), we do not find any discernable effect for national FV expertise. This does not necessarily imply that efforts at the national level to provide FV-related resources are not effective. Rather, it may suggest that most auditors provide such resources at the national level, and the distinguishing factor in influencing audit quality is the FV experience gained at the office level.[19]

Robustness Tests

Matched Sample

Prior literature finds systematic differences in client characteristics between firms that engage with industry experts and firms that do not (Minutti-Meza 2013). Similarly, untabulated univariate descriptive data show several differences between clients audited by FV and non-FV experts. Therefore, we next construct propensity score matched (PSM) samples based on a caliper distance of 0.01 without replacements. Since our FV expertise variable is a continuous measure, we rely on a dummy variable to create a treatment group (*C_FVSPEC3_DUMMY* = 1) and a control group (*C_FVSPEC3_DUMMY* = 0).[20] Following Armstrong, Jagolinzer, and Larcker (2010), we perform and present covariate balance tests between the treatment and control groups in Appendix C. Panel A (Panel B) presents the post-matching covariate balance tests for 2,392 (1,359) matched pairs for FV restatement (comment letter) analysis. Both matched samples are well balanced, as the covariates between the treatment and control groups are not significantly different.

Table 5, Panel A reports the results from estimating Equation (1) (Equation (2)) on the propensity score matched sample in Column (1) (Column (3)). Because we lose observations due to perfect collinearity in estimating our logit models, particularly

[19] Using the number of clients with FV assets and liabilities in an office to capture auditor FV expertise yields similar results.

[20] To create *C_FVSPEC3_DUMMY,* we use Neal and Riley's (2004) formula (i.e., $1.2 \times 1/n$, where n is the number of auditors) to set our threshold. We identify, on average, 2.2 audit firms within the city-industry market, which translates to 54 percent as the exact threshold for FV expertise at the office level. Using approximately 50 percent as the threshold, we create *C_FVSPEC3_DUMMY*. When using this dummy measure of FV Level 3 expertise in our main models, we find similar results to our findings in Tables 3 and 4. The only exception is for comment letters under the restricted sample approach where the dummy variable is approaching significance (t = −1.53).

TABLE 2

Association Between Client Characteristics and Auditor FV Expertise

	Dependent Variables =			
Variables	***N_FVSPEC2*** **(1)**	***N_FVSPEC3*** **(2)**	***C_FVSPEC2*** **(3)**	***C_FVSPEC3*** **(4)**
FVA_1	0.044***	0.025**	0.027	0.021
	(3.189)	(2.003)	(1.344)	(1.123)
FVA_2	0.054***	0.045***	0.126***	0.169***
	(2.947)	(3.168)	(5.275)	(7.233)
FVA_3	−0.031	−0.011	−0.013	0.090***
	(−1.082)	(−0.664)	(−0.334)	(2.782)
FVL_1	−0.001	−0.024	0.007	0.009
	(−0.037)	(−1.341)	(0.268)	(0.362)
FVL_2	0.038	0.039	−0.073*	−0.040
	(0.794)	(1.020)	(−1.758)	(−0.992)
FVL_3	−0.025	−0.036**	−0.015	0.020
	(−1.304)	(−2.402)	(−0.495)	(0.767)
SIZE	0.001	0.003	−0.009***	−0.004
	(0.477)	(1.626)	(−3.726)	(−1.495)
ROA	0.003	−0.002	0.002	−0.003
	(0.671)	(−0.573)	(0.324)	(−0.356)
LOSS	0.007	0.005	0.007	0.009
	(1.600)	(1.252)	(1.068)	(1.329)
LEV	0.028**	0.009	0.027	0.036**
	(2.388)	(0.850)	(1.463)	(2.095)
BM	0.002	0.000	−0.000	0.002
	(1.079)	(0.203)	(−0.129)	(0.858)
ZSCORE	0.000	0.000	0.000	0.000
	(0.506)	(0.100)	(0.910)	(0.357)
GROWTH	0.000	0.000	−0.000	0.000
	(1.123)	(1.319)	(−0.673)	(1.097)
BIG4	0.211***	0.199***	0.108***	0.071***
	(31.963)	(35.630)	(10.128)	(6.892)
C_INDSPEC	0.030***	0.015***	0.292***	0.250***
	(4.742)	(2.988)	(31.725)	(25.674)
Intercept	−0.130**	−0.200***	−0.006	−0.128***
	(−2.487)	(−6.772)	(−0.065)	(−3.290)
Industry FE	Included	Included	Included	Included
Year FE	Included	Included	Included	Included
MSA FE	Included	Included	Included	Included
n	26,769	26,769	26,769	26,769
Adjusted R^2	0.379	0.356	0.437	0.353

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.
Columns (1) through (4) present the results from regressing our auditor FV expertise measures (*N_FVSPEC2, N_FVSPEC3, C_FVSPEC2,* and *C_FVSPEC3*). Two-tailed t-statistics are presented in parentheses. t-statistics are based on standard errors adjusted for firm-level clustering.
All variables are defined in Appendix A.

for the restatement analysis, we also present the results from estimating Equation (1) (Equation (2)) using a linear probability model in Column (2) (Column (4)). We consistently find a negative and significant coefficient on *C_FVSPEC3*. Overall, we find that the potential bias arising from unobservable firm characteristics driving our main findings, as presented in Tables 3 and 4, is not a significant concern.[21]

[21] Using the determinant model from Table 2 to create a matched sample yields similar results.

TABLE 3

Tests of Fair Value Restatements

	Full Sample					Sample Restricted to Restatements				
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
N_FVSPEC2	0.695				0.702	0.591				0.486
	(1.154)				(1.098)	(0.901)				(0.699)
N_FVSPEC3		0.351			0.265		0.604			0.530
		(0.567)			(0.383)		(0.967)			(0.828)
C_FVSPEC2			−0.231		0.147			−0.702		−0.261
			(−0.474)		(0.310)			(−1.530)		(−0.597)
C_FVSPEC3				−0.936*	−1.089**				−1.075**	−1.010**
				(−1.915)	(−2.117)				(−2.505)	(−2.378)
FVA_1	0.530	0.551	0.558	0.610	0.595	0.340	0.320	0.457	0.457	0.416
	(0.771)	(0.808)	(0.827)	(0.918)	(0.879)	(0.405)	(0.389)	(0.573)	(0.576)	(0.521)
FVA_2	−1.002	−0.976	−0.913	−0.747	−0.782	0.435	0.496	0.577	0.492	0.517
	(−1.043)	(−1.027)	(−0.961)	(−0.772)	(−0.799)	(0.492)	(0.571)	(0.666)	(0.568)	(0.594)
FVA_3	1.839	1.815	1.808	1.953	2.020	1.753	1.776	1.648	1.792	1.815
	(1.081)	(1.058)	(1.042)	(1.095)	(1.150)	(1.109)	(1.124)	(1.017)	(1.085)	(1.115)
FVL_1	0.254	0.260	0.251	0.234	0.240	−0.434	−0.277	0.011	0.143	−0.029
	(0.625)	(0.644)	(0.612)	(0.585)	(0.624)	(−0.168)	(−0.111)	(0.004)	(0.059)	(−0.012)
FVL_2	2.494**	2.525**	2.542**	2.589**	2.535**	2.745**	2.770**	2.796**	2.990**	2.881**
	(2.153)	(2.193)	(2.205)	(2.225)	(2.191)	(2.035)	(2.068)	(2.111)	(2.208)	(2.117)
FVL_3	4.028***	4.031***	3.989***	3.940***	3.981***	4.709***	4.767***	4.832***	4.947***	4.975***
	(4.041)	(4.049)	(4.001)	(3.961)	(3.949)	(4.901)	(4.944)	(4.955)	(5.009)	(5.072)
SIZE	0.059	0.058	0.054	0.048	0.050	0.004	0.012	0.010	0.010	0.011
	(0.561)	(0.564)	(0.515)	(0.466)	(0.472)	(0.042)	(0.124)	(0.101)	(0.099)	(0.113)
LEV	−0.801	−0.789	−0.788	−0.694	−0.687	−0.794	−0.825	−0.816	−0.713	−0.726
	(−1.215)	(−1.191)	(−1.184)	(−1.050)	(−1.046)	(−1.310)	(−1.356)	(−1.341)	(−1.152)	(−1.160)
BM	0.120	0.121	0.119	0.118	0.118	0.057	0.055	0.062	0.082	0.063
	(1.334)	(1.345)	(1.334)	(1.327)	(1.328)	(0.598)	(0.570)	(0.651)	(0.883)	(0.701)
DREC	1.896	1.906	1.893	1.963	1.961	2.541	2.572	2.586	2.575	2.592
	(1.014)	(1.021)	(1.020)	(1.047)	(1.040)	(1.357)	(1.370)	(1.398)	(1.374)	(1.378)
LOSS	−0.251	−0.242	−0.231	−0.221	−0.241	−0.196	−0.190	−0.183	−0.157	−0.157
	(−0.828)	(−0.801)	(−0.764)	(−0.724)	(−0.784)	(−0.629)	(−0.612)	(−0.582)	(−0.495)	(−0.496)
M&A	−0.175	−0.165	−0.166	−0.170	−0.180	−0.261	−0.263	−0.257	−0.239	−0.221
	(−0.570)	(−0.537)	(−0.540)	(−0.553)	(−0.588)	(−0.875)	(−0.878)	(−0.855)	(−0.793)	(−0.735)
PUBLIC_EXC	−0.040	−0.033	−0.031	−0.021	−0.028	−0.404	−0.396	−0.365	−0.331	−0.371
	(−0.101)	(−0.084)	(−0.079)	(−0.053)	(−0.072)	(−1.076)	(−1.063)	(−0.981)	(−0.888)	(−0.987)
AGE	−0.288	−0.293	−0.304	−0.313	−0.299	−0.049	−0.065	−0.086	−0.076	−0.065
	(−1.307)	(−1.321)	(−1.356)	(−1.407)	(−1.337)	(−0.260)	(−0.346)	(−0.457)	(−0.398)	(−0.342)
FIN	−0.012	−0.012	−0.013	−0.014	−0.013	0.162**	0.157*	0.153*	0.151*	0.157*
	(−0.331)	(−0.332)	(−0.342)	(−0.354)	(−0.350)	(1.996)	(1.952)	(1.838)	(1.794)	(1.913)

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TABLE 3 (continued)

	Full Sample					Sample Restricted to Restatements				
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
ROA	0.376	0.383	0.387	0.400	0.396	0.249	0.247	0.263	0.273	0.280
	(1.148)	(1.169)	(1.191)	(1.232)	(1.209)	(0.644)	(0.636)	(0.670)	(0.696)	(0.707)
HFVA_3	−1.525	−1.524	−1.521	−1.558	−1.580	−0.869*	−0.879*	−0.882	−0.881	−0.889*
	(−1.337)	(−1.321)	(−1.295)	(−1.277)	(−1.316)	(−1.676)	(−1.675)	(−1.601)	(−1.610)	(−1.649)
EXTFIND	1.023**	1.027**	1.029**	1.060**	1.061**	0.685	0.671	0.699	0.690	0.694
	(2.390)	(2.395)	(2.404)	(2.467)	(2.468)	(1.484)	(1.460)	(1.522)	(1.540)	(1.546)
CACCR	−0.469	−0.476	−0.470	−0.495	−0.501	−0.893	−0.902	−0.875	−0.868	−0.833
	(−0.473)	(−0.479)	(−0.476)	(−0.500)	(−0.504)	(−0.747)	(−0.750)	(−0.731)	(−0.718)	(−0.686)
LAGFV_REST	9.577***	9.591***	9.584***	9.649***	9.662***	4.708***	4.722***	4.721***	4.767***	4.787***
	(13.905)	(13.782)	(13.732)	(13.595)	(13.778)	(12.733)	(12.766)	(12.715)	(12.427)	(12.457)
INFLUENCE	−0.783	−0.922	−0.907	−1.001	−0.936	−1.081	−1.291	−1.291	−1.319	−1.491
	(−0.496)	(−0.583)	(−0.573)	(−0.628)	(−0.589)	(−0.824)	(−0.982)	(−0.971)	(−0.976)	(−1.074)
LNAFEE	0.039	0.039	0.039	0.039	0.039	0.004	0.002	0.001	0.000	0.002
	(1.048)	(1.045)	(1.043)	(1.051)	(1.054)	(0.115)	(0.067)	(0.038)	(0.013)	(0.045)
C_INDSPEC	−0.061	−0.047	0.024	0.167	0.131	0.049	0.043	0.277	0.319	0.361
	(−0.222)	(−0.172)	(0.075)	(0.557)	(0.409)	(0.187)	(0.166)	(0.900)	(1.129)	(1.165)
BIG4	−0.666	−0.576	−0.505	−0.540	−0.757	−1.101***	−1.089***	−0.990**	−1.008**	−1.226***
	(−1.406)	(−1.245)	(−1.088)	(−1.181)	(−1.609)	(−2.649)	(−2.726)	(−2.488)	(−2.512)	(−2.921)
ICWEAK	1.248***	1.256***	1.246***	1.264***	1.266***	−0.323	−0.318	−0.313	−0.291	−0.284
	(3.321)	(3.315)	(3.291)	(3.331)	(3.356)	(−0.773)	(−0.761)	(−0.756)	(−0.677)	(−0.672)
OFFICESIZE	0.173	0.172	0.184	0.203	0.195	0.068	0.054	0.079	0.090	0.082
	(1.189)	(1.201)	(1.278)	(1.418)	(1.323)	(0.524)	(0.415)	(0.628)	(0.696)	(0.620)
TENURE	0.587**	0.594**	0.607**	0.639**	0.628**	0.536**	0.554**	0.576**	0.551**	0.565**
	(2.033)	(2.039)	(2.076)	(2.167)	(2.148)	(2.156)	(2.226)	(2.254)	(2.140)	(2.169)
CHGAUDID	0.727	0.728	0.734	0.764	0.761	0.116	0.141	0.122	0.049	0.081
	(1.425)	(1.423)	(1.435)	(1.482)	(1.475)	(0.250)	(0.302)	(0.259)	(0.105)	(0.171)
Intercept	−8.879***	−8.834***	−9.018***	−9.405***	−9.332***	−4.861**	−4.616**	−4.949**	−5.413***	−5.172**
	(−3.461)	(−3.470)	(−3.510)	(−3.714)	(−3.631)	(−2.357)	(−2.240)	(−2.420)	(−2.640)	(−2.502)
Industry FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
n	16,600	16,600	16,600	16,600	16,600	1,835	1,835	1,835	1,835	1,835
Pseudo R^2	0.521	0.520	0.520	0.523	0.524	0.439	0.438	0.440	0.443	0.445

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

This table presents results from estimating Equation (1). Columns (1) through (5) present the results for the full sample of 16,600 observations. Columns (6) through (10) present the results for a sample restricted to 1,835 restatement observations. Two-tailed z-statistics are presented in parentheses. z-statistics in Columns (1) through (5) are based on standard errors adjusted for firm-level clustering. z-statistics in Columns (6) through (10) are based on robust standard errors.

All variables are defined in Appendix A.

TABLE 4

Tests of Fair Value Comment Letters

	Full Sample					Sample Restricted to Comment Letters				
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
N_FVSPEC2	−0.213				−0.345	−0.177				−0.233
	(−0.867)				(−1.304)	(−1.331)				(−1.468)
N_FVSPEC3		0.008			0.270		−0.037			0.127
		(0.034)			(1.069)		(−0.264)			(0.771)
C_FVSPEC2			−0.122		0.230			−0.044		0.142
			(−0.732)		(1.236)			(−0.432)		(1.166)
C_FVSPEC3				−0.447***	−0.570***				−0.225**	−0.296**
				(−2.995)	(−3.433)				(−2.334)	(−2.559)
FVA_1	0.494*	0.485	0.482	0.497*	0.514*	−0.000	−0.007	−0.009	−0.003	0.005
	(1.648)	(1.621)	(1.614)	(1.661)	(1.713)	(−0.001)	(−0.031)	(−0.041)	(−0.014)	(0.020)
FVA_2	0.451	0.447	0.456	0.521	0.532	0.527**	0.524**	0.528**	0.561***	0.561***
	(1.383)	(1.368)	(1.390)	(1.583)	(1.624)	(2.569)	(2.555)	(2.568)	(2.723)	(2.727)
FVA_3	0.891	0.881	0.863	0.854	0.894	1.566***	1.563***	1.560***	1.551***	1.567***
	(1.388)	(1.373)	(1.341)	(1.316)	(1.383)	(2.923)	(2.925)	(2.917)	(2.895)	(2.916)
FVL_1	0.163	0.160	0.162	0.147	0.149	0.190	0.186	0.190	0.201	0.210
	(0.590)	(0.578)	(0.592)	(0.530)	(0.528)	(0.398)	(0.390)	(0.398)	(0.423)	(0.441)
FVL_2	1.528**	1.523**	1.513**	1.539**	1.540**	−0.044	−0.061	−0.070	−0.089	−0.056
	(2.229)	(2.212)	(2.207)	(2.255)	(2.243)	(−0.107)	(−0.149)	(−0.170)	(−0.215)	(−0.137)
FVL_3	0.300	0.317	0.303	0.316	0.327	0.720	0.727	0.725	0.719	0.722
	(0.527)	(0.559)	(0.535)	(0.555)	(0.574)	(1.589)	(1.609)	(1.605)	(1.589)	(1.590)
SIZE	0.593***	0.592***	0.589***	0.587***	0.591***	0.105***	0.105***	0.105***	0.103***	0.103***
	(12.169)	(12.201)	(12.134)	(12.151)	(12.160)	(4.783)	(4.796)	(4.753)	(4.660)	(4.663)
RESTATE_3YRS	0.463***	0.461***	0.459***	0.459***	0.463***	0.202***	0.202***	0.202***	0.199***	0.200***
	(4.175)	(4.164)	(4.147)	(4.149)	(4.183)	(2.851)	(2.849)	(2.838)	(2.801)	(2.810)
LOSS_3YRS	0.296***	0.292***	0.293***	0.295***	0.298***	0.152**	0.153**	0.153**	0.157**	0.155**
	(2.958)	(2.921)	(2.936)	(2.945)	(2.974)	(2.361)	(2.367)	(2.376)	(2.422)	(2.392)
ROA	−0.294**	−0.295**	−0.292**	−0.287**	−0.290**	0.011	0.009	0.011	0.015	0.016
	(−2.542)	(−2.558)	(−2.526)	(−2.481)	(−2.499)	(0.092)	(0.079)	(0.095)	(0.131)	(0.134)
LEV	0.123	0.117	0.121	0.138	0.144	0.267	0.262	0.261	0.266	0.273
	(0.452)	(0.428)	(0.446)	(0.508)	(0.528)	(1.521)	(1.496)	(1.489)	(1.514)	(1.555)
BM	−0.050	−0.050	−0.051	−0.049	−0.048	0.109***	0.109***	0.108***	0.109***	0.110***
	(−1.363)	(−1.376)	(−1.391)	(−1.315)	(−1.298)	(3.546)	(3.524)	(3.514)	(3.503)	(3.533)
M&A_3YRS	0.555***	0.555***	0.554***	0.550***	0.552***	0.419***	0.418***	0.417***	0.414***	0.418***
	(5.836)	(5.835)	(5.822)	(5.798)	(5.817)	(6.951)	(6.937)	(6.922)	(6.869)	(6.924)
AGE	0.294***	0.295***	0.294***	0.291***	0.289***	−0.079*	−0.078*	−0.079*	−0.081*	−0.080*
	(3.936)	(3.965)	(3.950)	(3.915)	(3.886)	(−1.798)	(−1.781)	(−1.810)	(−1.845)	(−1.811)
FIN	−0.045	−0.046	−0.047	−0.049	−0.048	−0.098	−0.097	−0.098	−0.101	−0.102
	(−0.442)	(−0.446)	(−0.452)	(−0.468)	(−0.470)	(−1.355)	(−1.345)	(−1.348)	(−1.393)	(−1.411)

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TABLE 4 (continued)

	Full Sample					Sample Restricted to Comment Letters				
Variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
ICWEAK_3YRS	0.143	0.146	0.140	0.132	0.139	0.152	0.154	0.153	0.149	0.150
	(1.071)	(1.094)	(1.052)	(0.994)	(1.038)	(1.520)	(1.538)	(1.530)	(1.493)	(1.503)
R_ZSCORE	−0.020	−0.021	−0.020	−0.016	−0.017	0.031*	0.030*	0.031*	0.032**	0.032**
	(−0.823)	(−0.836)	(−0.799)	(−0.665)	(−0.698)	(1.909)	(1.886)	(1.902)	(2.012)	(2.010)
PRICE	−0.004*	−0.004*	−0.004*	−0.004*	−0.004*	−0.002	−0.002	−0.002	−0.001	−0.002
	(−1.701)	(−1.722)	(−1.725)	(−1.713)	(−1.695)	(−1.615)	(−1.609)	(−1.603)	(−1.509)	(−1.519)
TURNOVER	7.045	6.993	6.935	6.740	6.872	2.477	2.355	2.357	2.359	2.499
	(1.386)	(1.378)	(1.365)	(1.320)	(1.344)	(0.731)	(0.696)	(0.696)	(0.697)	(0.737)
EPNEW	0.000*	0.000*	0.000*	0.000*	0.000*	0.000	0.000	0.000	0.000	0.000
	(1.653)	(1.677)	(1.709)	(1.790)	(1.741)	(0.549)	(0.551)	(0.552)	(0.562)	(0.555)
FINANCIAL	0.138	0.144	0.152	0.163	−0.151	0.491***	0.491***	0.494***	0.508***	0.501***
	(0.535)	(0.558)	(0.588)	(0.634)	(−0.585)	(3.568)	(3.574)	(3.586)	(3.697)	(3.639)
HFVA_3	0.184	0.183	0.183	0.180	0.178	0.123	0.120	0.119	0.124	0.128
	(0.890)	(0.882)	(0.885)	(0.858)	(0.848)	(0.931)	(0.907)	(0.904)	(0.936)	(0.965)
STDCFO	0.014	0.013	0.013	0.013	0.014	−0.006	−0.006	−0.006	−0.006	−0.005
	(0.319)	(0.310)	(0.308)	(0.312)	(0.329)	(−0.061)	(−0.064)	(−0.065)	(−0.064)	(−0.056)
NONAUD	−0.106	−0.106	−0.104	−0.097	−0.103	−0.069	−0.068	−0.067	−0.061	−0.063
	(−0.633)	(−0.633)	(−0.619)	(−0.576)	(−0.609)	(−0.644)	(−0.634)	(−0.627)	(−0.570)	(−0.581)
C_INDSPEC	−0.115	−0.121	−0.079	0.009	−0.027	−0.036	−0.043	−0.032	0.002	−0.012
	(−1.196)	(−1.250)	(−0.705)	(0.089)	(−0.244)	(−0.626)	(−0.733)	(−0.510)	(0.032)	(−0.196)
BIG4	−0.108	−0.148	−0.150	−0.185	−0.175	−0.164*	−0.191*	−0.199**	−0.209**	−0.187*
	(−0.615)	(−0.849)	(−0.899)	(−1.102)	(−0.980)	(−1.648)	(−1.920)	(−2.064)	(−2.168)	(−1.858)
OFFICESIZE	−0.018	−0.019	−0.014	0.003	−0.001	−0.019	−0.020	−0.019	−0.012	−0.014
	(−0.469)	(−0.503)	(−0.362)	(0.070)	(−0.022)	(−0.969)	(−1.027)	(−0.923)	(−0.583)	(−0.675)
Intercept	−5.424***	−5.398***	−5.437***	−5.630***	−9.332***	−0.172	−0.147	−0.154	−0.229	−0.233
	(−8.255)	(−8.213)	(−8.263)	(−8.553)	(−3.631)	(−0.479)	(−0.410)	(−0.427)	(−0.637)	(−0.645)
SEC Office FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
Year FE	Included	Included	Included	Included	Included	Included	Included	Included	Included	Included
n	10,874	10,874	10,874	10,874	10,874	6,990	6,990	6,990	6,990	6,990
Pseudo R^2	0.257	0.259	0.257	0.257	0.259	0.098	0.098	0.098	0.099	0.099

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

This table presents the results from estimating Equation (2). Columns (1) through (5) present the estimation results based on the full sample of 10,874 firm-year observations. Columns (6) through (10) present the estimation results based on sample restricted to comment letter sample of 6,990 firm-year observations. Two-tailed z-statistics are presented in parentheses. z-statistics in Columns (1) through (5) are based on standard errors adjusted for firm-level clustering. z-statistics in Columns (6) through (10) are based on robust standard errors.

All variables are defined in Appendix A.

TABLE 5

Robustness Tests

Panel A: Propensity Score Matching

	Dependent Variables =			
	FV_RESTATE		*FV_LETTER*	
Variables	**(1)**	**(2)**	**(3)**	**(4)**
C_FVSPEC3	−1.790*	−0.006**	−0.487**	−0.078***
	(−1.758)	(−2.232)	(−2.494)	(−3.069)
Intercept	−6.383	−0.010	−5.456***	−0.335**
	(−1.419)	(−0.683)	(−4.609)	(−2.166)
Control Variables	Included	Included	Included	Included
Industry FE	Included	Included		
SEC Office FE			Included	Included
Year FE	Included	Included	Included	Included
n	3,655	4,784	2,718	2,718
Pseudo R^2	0.278		0.299	
Adjusted R^2		0.550		0.297

Panel B: Heckman Procedure

	Dependent Variables =	
Variables	***FV_RESTATE*** **(1)**	***FV_LETTER*** **(2)**
C_FVSPEC3	−0.971**	−0.509**
	(−2.055)	(−2.565)
Inverse Mills' Ratio	−0.550	0.098
	(−1.612)	(0.751)
Intercept	−5.709**	−7.358***
	(−2.222)	(−8.450)
Control Variables	Included	Included
Industry FE	Included	
SEC Office FE		Included
Year FE	Included	Included
n	16,415	7,049
Pseudo R^2	0.513	0.277

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.
In Panel A, Columns (1) and (2) (Columns (3) and (4)) present the results from estimating Equation (1) (Equation (2)) on the propensity score matched sample of 4,784 (2,718) firm-year observations. Columns (1) and (3) present the results of estimating the logit model, while Columns (2) and (4) present the results of estimating the linear probability model. Please refer to Appendix C for after-matching covariate balance tests. In Panel B, Column (1) (Column (2)) presents the result from estimation of Equation (1) (Equation (2)) including inverse Mills' ratios obtained from the determinant model estimation presented in Table 2. Two-tailed z-statistics (or t-statistics for Panel B, Columns (2) and (4)) are presented in parentheses. z-statistics (or t-statistics) are based on standard errors adjusted for firm-level clustering.
All variables are defined in Appendix A.

Heckman Procedure

Another potential concern is that the negative association between FV restatements (FV comment letters) and auditor FV expertise could reflect self-selection bias, such that fair value experts choose less risky clients. Although we control for various factors related to such risks in Equations (1) and (2), other unobservable factors that our models do not capture could bias our results. To mitigate such concerns, we reestimate our models using the Heckman two-stage procedure. Specifically, we regress

C_FVSPEC3_DUMMY on the explanatory variables in Table 2 and include the inverse Mills' ratio in Equations (1) and (2). Results reported in Table 5, Panel B are consistent with our main results, thus alleviating self-selection bias concerns.[22]

Falsification Tests

We conduct falsification tests by exploiting all non-FV-related restatements and restatements due to debt, quasi-debt, warrants, and equity issues, which we select because it is the most prevalent reason for restatements (Audit Analytics 2017). In untabulated results, we do not find significant associations for the auditor FV expertise variables, increasing our confidence that we capture FV expertise that is instrumental in alleviating FV-related issues. Similarly, we examine all non-FV-related comment letters and non-GAAP-related comment letters, which is the most prevalent topic (other than FV) in comment letters (EY 2017; Deloitte 2017). In untabulated results, we do not find a significant association between audit firms' FV expertise and comment letters that are unrelated to FV. These results further support that auditor FV expertise is specifically associated with FV disclosures.

VI. ADDITIONAL ANALYSES AND SENSITIVITY TESTS

Costs of FV Comment Letter Remediation and FV Comment Letter Severity

Cassell et al. (2013) find that FV comment letters have the highest remediation costs in terms of response time and the number of rounds necessary to completely resolve the SEC-raised deficiencies or SEC requests for clarification. This motivates us to further explore whether auditor FV expertise helps reduce remediation costs of FV comment letters. To examine this issue, we estimate the following linear regression model:

$$DAYS/ROUNDS_{i,t} = \alpha_0 + \alpha_1 FVSPEC + \beta_n Controls_{i,t} + \varepsilon_{i,t}. \quad (3)$$

Following Cassell et al. (2013), we include the number of filings referred to in the comment letter (*NUMFILING*) and the number of comment topics (*NUMTOPIC*) as control variables, in addition to control variables included in Equation (2). We measure the cost to remediate with *DAYS,* defined as the log number of days from the first comment letter to the "clean" final letter, and *ROUNDS,* defined as the number of letters received from the SEC between the first letter and the "clean" final letter. We estimate Equation (3) on a sample that is restricted to FV comment letter observations only. Due to the nature of *DAYS* and *ROUNDS,* we follow Cassell et al. (2013) and impose similar restrictions to construct the sample,[23] leaving us with 2,792 FV comment letter observations. Table 6, Columns (1) and (2) show that office-level FV expertise gained through auditing Level 3 FV investments is associated with lower remediation costs, as captured by the number of days (Column (1), $p < 0.05$) and the number of rounds (Column (2), $p < 0.01$).

While FV expert auditors improve FV reporting, they do not prevent all FV-related comment letters. We next investigate whether clients of FV expert auditors receive less severe FV comment letters. To classify the severity of FV comment letters, we employ two market-based measures. First, we use abnormal returns (*ABNRET*) on the SEC disclosure date of the comment letter as a proxy for the severity of FV comment letters.[24] Within a sample restricted to FV comment letters (a sample size of 2,747 with available return information), we regress abnormal returns on auditor FV expertise, along with size, book-to-market, and price-earnings ratio as control variables. Results reported in Table 6, Column (3) shows that the market reacts more positively (less negatively) when the firm is audited by an FV expert auditor.

Second, using the SEC log files obtained from Loughran and McDonald (2017), we count the number of times a comment letter was downloaded from the EDGAR platform. We surmise that a greater number of downloads (*ACCESS*) during the 12 months following the disclosure proxies for severity. Within a sample restricted to FV comment letters (a sample size of 2,730 with available log files), we regress the number of downloads on our FV expertise measure, along with control variables included in Equation (2). Results reported in Table 6, Column (4) show a negative and significant coefficient on auditor FV expertise.[25] Collectively, our findings suggest that greater auditor FV expertise is associated with a lower likelihood of

[22] It is also possible that office location contributes to selection bias. To alleviate this concern, in sensitivity analysis, we include MSA fixed effects across our main models. While this resulted in significant sample attrition, we observe results that are consistent with our main analysis.

[23] These restrictions include (1) excluding observations with missing first or last letter, (2) excluding observations with no clean last comment letter, and (3) excluding observations with fewer than three letters in the conversation.

[24] The SEC disclosure date of comment letters comes after the final comment letter. Until that disclosure date, all correspondence between the SEC and the firm is held private.

[25] While we focus on *C_FVSPEC3,* in untabulated results, we find insignificant coefficients for national level FV experts (i.e., *N_FVSPEC2* and *N_FVSPEC3*) across the remediation and severity models. *C_FVSPEC2* is mostly not significant, except for the number of rounds and the number of SEC downloads.

TABLE 6

Tests of Fair Value Comment Letters—Costs of Remediation and Severity

	Dependent Variables =			
Variables	***DAYS*** **(1)**	***ROUNDS*** **(2)**	***ABNRET*** **(3)**	***ACCESS*** **(4)**
C_FVSPEC3	−0.124**	−0.271***	0.003*	−0.122*
	(−1.967)	(−3.535)	(1.892)	(−1.848)
Intercept	3.298***	1.690***	−0.005**	1.317***
	(14.381)	(5.215)	(−2.339)	(5.448)
Control Variables	Included	Included	Included	Included
SEC Office FE	Included	Included		Included
Year FE	Included	Included		Included
n	2,613	2,613	2,747	2,730
Adjusted R^2	0.224	0.130	0.003	0.567

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.
Columns (1) and (2) present the results from estimating Equation (3) with dependent variables of *DAYS* and *ROUNDS,* respectively. For Columns (1) and (2), control variables as specified in Equation (3) are included. Column (3) presents the results from regressing the dependent variable of abnormal returns on SEC disclosure date on fair value comment letters. Control variables size, book-to-market, and price-earnings ratio are included. Column (4) presents the results from regressing the dependent variable of the number of times fair value comment letters are accessed. Control variables as specified in Equation (2) are included. A sample restriction to FV comment letters is imposed across these four analyses. Two-tailed t-statistics are presented in parentheses. t-statistics are based on standard errors adjusted for firm-level clustering.
All variables are defined in Appendix A.

receiving FV-related comment letters, lower remediation costs, and lower severity when an FV comment letter is received. This suggests that auditors' FV expertise can assist companies in addressing disclosure deficiencies that are related to their expertise. From an economic perspective, a one-standard-deviation increase in auditor FV expertise is associated with a decline of 4.1 percent and 7.6 percent in the number of days and rounds until resolution, respectively. In addition, a one-standard-deviation increase in auditor FV expertise is associated with a decline of 4.0 percent in the number of times the SEC comment letters are downloaded.

Effect of FV Expertise on Improvements to Fair Value Footnote Disclosure

Using a limited sample, Bens et al. (2016) find that companies improve FV disclosure in 10-Ks subsequent to receiving FV comment letters. In this section, we extend the approach of using monetary XBRL tags by R. Hoitash and U. Hoitash (2018) and introduce a new method to automatically collect footnote information for a large sample of U.S. firms using a relatively new requirement to file financial reports in eXtensible Business Reporting Language (XBRL) format. This method overcomes data limitations borne by the intensive data collection task described in Bens et al. (2016).[26] XBRL requires companies to identify each financial statement note using a text-block tag. Using XBRL, we automatically identify the most common XBRL tags that depict the FV note, extract the text described in this note, and count the words in the note.[27] Using XBRL, we are also able to identify the number of FV XBRL tags. While Compustat aggregates FV disclosures into less than ten primary FV-level variables, XBRL disclosures present all FV-related line items. In our sample, the number of FV tags ranges between one and 219.[28] Without using XBRL, such analysis requires manual collection and subjective classification of the data. Overall, more detailed disclosures containing more words and FV tags provide greater information.

Since we compare pre- to post-period receipt of FV comment letters, we retain observations between 2012 and 2015. Following Bens et al. (2016), we match FV comment letter firm-year observations with firm-year observations that did not

[26] Since XBRL became mandatory for larger filers from 2011 and all filers from 2012, our sample includes the years 2011 to 2016.

[27] The most common fair value text tag representing a fair value note is: <us-gaap:FairValueDisclosuresTextBlock>; this tag appears for 73 percent of our entire firm-year observations (n = 7,951) between 2011 and 2016.

[28] Examples of FV XBRL tags are: <us-gaap:AccountsPayableFairValueDisclosure>, <us-gaap:InventoryFairValue>, <us-gaap:InvestmentsFairValueDisclosure>. We use Python to download text blocks directly from XBRL filings. Datasets of the financial statements and notes provided by the SEC should not be used for textual analysis because the SEC truncates the data at 2,048 bytes.

receive FV-related comment letters using a propensity score matched model that predicts the event of receiving FV comment letters.[29] This procedure results in 778 firm-year observations for the number of words analysis and 996 firm-year observations for the number of XBRL tags analysis. We use changes in the number of words (or the number of XBRL tags) from the pre- to the post-period as the dependent variable.

Table 7, Panel A presents the effect of receiving FV comment letters on the changes in the number of words in Column (1), and the moderating effect of audit firms' expertise in FV Level 3 in Column (2). On average, firms use 1,654 words in their FV footnote disclosures. Column (1) reports a positive coefficient on *FV_LETTER* ($p < 0.10$), suggesting that companies increase FV disclosure quality subsequent to receiving FV comment letters. This confirms Bens et al.'s (2016) findings. In Column (2), we examine the interaction between *FV_LETTER* and *C_FVSPEC3* and find that the number of words in the FV footnote increases to a greater extent as auditor FV expertise increases ($p < 0.05$). This result is also economically significant and suggests that a one-standard-deviation increase in *C_FVSPEC3* is associated with 104 (6.2 percent) more words disclosed in the FV footnote. Table 7, Panel B presents the effect of receiving an FV comment letter on the changes in the number of FV XBRL tags in Column (1), and the moderating effect of audit firms' expertise in Level 3 FV in Column (2). On average, firms use 16 XBRL fair value tags in their financials (untabulated). In Column (1), consistent with Bens et al. (2016), we find a positive coefficient on *FV_LETTER* ($p < 0.05$). In Column (2), we find a positive and significant coefficient on the interaction term between *FV_LETTER* and *C_FVSPEC3* ($p < 0.05$), suggesting that the increase in the number of FV XBRL tags is greater in firms with an auditor that has greater FV expertise. Economically, a one-standard-deviation increase in *C_FVSPEC3* is associated with a disclosure of 1.82 (11.4 percent) additional FV XBRL tags. In Columns (3) and (4), we focus on changes in the number of Level 3 FV tags alone, and inferences are the same as the results presented in Columns (1) and (2), where the overall FV XBRL tags are examined.

The Effect of FV Expertise on Value Relevance of FV Disclosures

Another important issue, not examined in prior research, is whether auditors with FV expertise can increase the value relevance of FV disclosures. Several studies support the importance of FV disclosures (Barth 1994; Barth et al. 1996; Goh et al. 2015; Kolev 2009). However, some studies suggest that the complexity in measuring Level 3 FV assets and liabilities poses challenges to firms and market participants, and these disclosures are perceived as less reliable because they are susceptible to measurement errors (Song et al. 2010; Riedl and Serafeim 2011).[30]

Song et al. (2010) find that strong corporate governance increases the value relevance of FV disclosures, and particularly Level 3 disclosures. The external auditor is perhaps the most important external monitoring mechanism that can directly assure the reliability of FV disclosures. However, the archival literature often overlooks the role of the auditor. We fill this void in the literature by examining whether auditor FV expertise can mitigate the reduction in the ability of market participants to rely on FV disclosures (particularly Level 3).

Following Song et al. (2010), we examine the association between per-share price and FV assets and liabilities per share using the modified Ohlson (1995) model as follows:

$$\begin{aligned} PRC_{i,t} = {} & \alpha_0 + \alpha_1 NFVA_{i,t} + \alpha_2 FVA1_{i,t} + \alpha_3 FVA2_{i,t} + \alpha_4 FVA3_{i,t} + \alpha_5 FVA1_{i,t} \times C\_FVSPEC3 \\ & + \alpha_6 FVA2_{i,t} \times C\_FVSPEC3 + \alpha_7 FVA3_{i,t} \times C\_FVSPEC3 + \alpha_8 FVL1_{i,t} + \alpha_9 FVL2_{i,t} + \alpha_{10} FVL3_{i,t} + \alpha_{11} FVL1_{i,t} \\ & + \alpha_{12} FVL2_{i,t} + \alpha_{13} FVL3_{i,t} + \alpha_{14} IB_{i,t} + \alpha_{15} C\_FVSPEC3 + \varepsilon_{i,t}. \end{aligned} \tag{4}$$

To construct the sample, we start from the universe of Compustat and Audit Analytics (n = 50,019 per Appendix B). We further restrict our sample to non-missing, non-zero FV Level 1, 2, or 3 assets or liabilities and non-missing price information in the CRSP database, leading to 21,212 observations. Finally, to avoid the effect of extreme outliers, we delete observations with studentized residuals greater than 2 in the estimation of Equation (4), excluding interaction terms with *C_FVSPEC3* (Belsley, Kuh, and Welsch 1980; Song et al. 2010), resulting in a final sample of 18,360 firm-year observations.

In Table 8, Column (1), we present the results of estimating a baseline regression (Equation (4) without interaction terms). We find that FV assets and liabilities are value-relevant regardless of hierarchy. We further find that the coefficients of Level 3 FV assets and liabilities are significantly smaller than the coefficients of Level 1. These confirm

[29] The first-stage model is essentially the same as Equation (2).

[30] Even sophisticated intermediaries such as financial analysts appear to face difficulties in assessing the earnings of companies with FV and derivative estimates (Chang, Donohoe, and Sougiannis 2016; Liang and Riedl 2014; R. Hoitash, U. Hoitash, and Yezegel 2018).

TABLE 7

Improvement to Fair Value Disclosures (in the 10-K Fair Value Footnote)

Panel A: Number of Words

	Dependent Variable =	
	Δ in Number of Words from the Pre- to the Post-Period	
Variables	**(1)**	**(2)**
FV_LETTER	86.566*	84.493*
	(1.893)	(1.852)
C_FVSPEC3		106.946
		(1.248)
FV_LETTER × *C_FVSPEC3*		388.824**
		(2.269)
Intercept	69.895***	68.010***
	(3.057)	(2.982)
n	778	778
R^2	0.005	0.013

Panel B: Number of XBRL Tags

	Dependent Variable =			
	Δ in Number of Tags from the Pre- to the Post-Period		Δ in Number of Level 3 Tags from the Pre- to the Post-Period	
Variables	**(1)**	**(2)**	**(3)**	**(4)**
FV_LETTER	1.767**	1.758**	0.815**	0.804**
	(2.316)	(2.307)	(2.238)	(2.215)
C_FVSPEC3		0.748		0.859
		(0.543)		(1.309)
FV_LETTER × *C_FVSPEC3*		6.490**		3.779***
		(2.354)		(2.877)
Intercept	0.430	0.409	0.269	0.257
	(1.126)	(1.074)	(1.477)	(1.416)
n	996	996	996	996
R^2	0.005	0.011	0.005	0.015

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.
In Panel A, Column (1) presents the mean changes in the number of words in the 10-K fair value footnote from the pre- to the post-period of receiving fair value comment letters. Column (2) presents the effect of audit firms' fair value expertise on the mean changes in the number of words. Tests in Panel A are performed on the propensity score matched (predicting *FV_LETTER*) sample of 778 firm-year observations. Panel B, Column (1) (Column (3)) presents the mean changes in number of XBRL tags (Level 3 tags) in the 10-K fair value footnote from the pre- to the post-period of receiving fair value comment letters. Column (2) (Column (4)) presents the effect of audit firms' fair value expertise on the mean changes in the number of XBRL tags (Level 3 tags). Tests in Panel B are performed on the propensity score matched (predicting *FV_LETTER*) sample of 996 firm-year observations. Two-tailed t-statistics are presented in parentheses.
All variables are defined in Appendix A.

Song et al.'s (2010) findings. Next, we replicate the results in Song et al. (2010) by creating a standardized governance score variable based on principal-component analysis using six corporate governance variables (i.e., board independence, audit committee financial expertise, the frequency of annual audit committee meetings, total percent of shares held by institutional investors, size of audit office, and no material control weakness). Following Song et al. (2010), we construct *GOVRANK* by decile-ranking the governance score so that the variable lies between 0 and 1. Consistent with their findings, Table 8, Column (2) shows that the interaction between Level 3 FV assets and *GOVRANK* is positive and significant ($p < 0.05$). In Column (3), we present the results of estimating Equation (4) and find a positive and significant

TABLE 8

Impact of Auditor FV Expertise on Value Relevance of FV Assets and Liabilities

	Dependent Variable = *PRC*			
Variables	**(1)**	**(2)**	**(3)**	**(4)**
NFVA	0.799***	0.826***	0.812***	0.837***
	(5.334)	(8.556)	(5.685)	(8.521)
FVA1	1.179***	1.760***	1.240***	1.733***
	(6.258)	(3.356)	(6.011)	(3.483)
FVA2	0.748***	0.787***	0.756***	0.810***
	(5.023)	(8.958)	(5.371)	(9.404)
FVA3	0.479**	−0.188	0.489**	−0.151
	(2.222)	(−0.536)	(2.485)	(−0.452)
FVA1 × C_FVSPEC3			−0.356	−0.012
			(−1.458)	(−0.066)
FVA2 × C_FVSPEC3			−0.019	−0.020
			(−0.386)	(−0.403)
FVA3 × C_FVSPEC3			0.660***	0.441*
			(2.639)	(1.953)
NFVL	−0.822***	−0.858***	−0.840***	−0.872***
	(−5.172)	(−9.477)	(−5.622)	(−9.518)
FVL1	−1.372***	−1.436***	−1.383***	−1.451***
	(−5.560)	(−5.737)	(−6.178)	(−5.908)
FVL2	−0.756***	−0.741***	−0.771***	−0.746***
	(−4.195)	(−6.625)	(−4.308)	(−6.210)
FVL3	−0.576***	−0.515***	−0.490**	−0.470***
	(−2.589)	(−3.623)	(−2.080)	(−2.949)
FVA1 × GOVRANK		−0.666		−0.618
		(−1.540)		(−1.498)
FVA2 × GOVRANK		−0.025		−0.039
		(−0.386)		(−0.579)
FVA3 × GOVRANK		0.931**		0.901**
		(2.408)		(2.318)
IB	2.218*	2.161*	2.177*	2.138*
	(1.923)	(1.947)	(1.934)	(1.947)
GOVRANK		12.525***		12.377***
		(7.292)		(7.026)
C_FVSPEC3		0.811	0.857	−0.102
		(0.788)	(1.008)	(−0.095)
Intercept	11.780***	18.754***	25.279***	19.035***
	(6.483)	(10.670)	(12.355)	(10.945)
n	18,360	18,025	18,360	18,025
Adjusted R^2	0.601	0.635	0.607	0.637

*, **, *** Denote significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively.

Column (1) presents the result from estimating Equation (4) excluding the auditor FV expertise variable (i.e., *C_FVSPEC3*). Column (2) presents the results from estimating Equation (4) excluding interactions between the auditor FV expertise variable and FV assets Level 1, 2, and 3, but including the corporate governance variable (i.e., *GOVRANK*) and its interactions with FV assets Level 1, 2, and 3. Column (3) presents the results from estimating Equation (4). Column (4) presents the results from estimating Equation (4) with the corporate governance variable (i.e., *GOVRANK*) and its interactions with FV assets Level 1, 2, and 3. Two-tailed t-statistics are presented in parentheses. t-statistics are based on standard errors adjusted for two-way clustering on firm and year.

All variables are defined in Appendix A.

coefficient on the interaction between Level 3 FV assets and auditor Level 3 FV expertise ($p < 0.05$). This suggests that the extent of auditor Level 3 FV expertise enhances the value relevance of Level 3 FV assets. It is possible that auditor FV expertise is correlated with corporate governance, which may explain our results. To examine this possibility, we correlate *C_FVSPEC3* and *GOVRANK,* as well as *C_FVSPEC3* and individual corporate governance variables, and find that the

correlations are generally low, ranging from −0.02 to 0.11. We next include interaction terms between *GOVRANK* and FV assets in Equation (4) and present the results in Column (2). We again find that the interaction between *C_FVSPEC3* and Level 3 FV assets is significantly positive ($p < 0.10$). Overall, these findings are consistent with our main results, suggesting that auditor Level 3 FV expertise helps increase audit quality and the reliability of FV disclosures, which is of importance to market participants.[31]

Additional Robustness Tests

We next present several additional robustness tests for our primary results presented in Tables 3 and 4 using the *C_FVSPEC3* variable.

Auditor Changes

We take advantage of auditor changes and conduct a change analysis. We identify a treatment group of 112 (85) auditor changes from a non-FV expert to an FV expert in the restatement (comment letter) sample and a control group of 1,296 (1,115) auditor changes, either from FV expert to non-FV expert or from non-FV expert to non-FV expert. To increase the power of our tests, we identify these changes over the prior two years. Therefore, we drop 2008 and 2009 from our analyses. In untabulated results, we find that clients that changed to an FV expert auditor are significantly ($p < 0.05$) less likely to receive an FV comment letter. We do not find significant results with respect to FV restatements, perhaps because of the lower incidence of restatements and auditor changes in this restricted sample.

Joint Effect of National- and Office-Level FV Expertise

As discussed earlier, both national- and office-level FV expertise could contribute to higher FV audit quality. To further investigate the potential that a combination of both is important, we partition our restatement and comment letter samples into firms above and below the median of national FV expertise. Within each sample, we examine the association between the dependent variable and *C_FVSPEC3*. We find that in the restatement analysis, our measure is only significant when national-level FV expertise is above the median. In contrast, in the comment letter analysis, it is significant in firms both above and below the median. These results suggest that FV measurement (which is more related to restatements) might also be influenced by national level FV expertise, while FV disclosure (which is more related to comment letters) is more directly attributed to the office-level FV expertise.[32]

Joint Effect of Industry Expertise and Office-Level FV Expertise

It is also possible that the joint effect of industry expertise and FV expertise is stronger. To investigate, we partition our sample into companies with and without industry experts (i.e., $C\_INDSPEC = 0$ versus $C\_INDSPEC = 1$) and examine the association of *C_FVSPEC3* with restatements and comment letters. In untabulated results, we find that FV expertise is negatively associated with the likelihood of restatements in both samples. In the comment letter analysis, we find that *C_FVSPEC3* is only negatively associated with comment letters when the auditor is also an industry expert. However, *C_FVSPEC3* is negatively associated with the number of rounds to remediate and positively associated with FV Level 3 disclosure quality subsequent to receiving a comment letter in both samples.[33] Together, these results suggest that the value of auditor FV expertise is mostly not dependent on auditor industry expertise.

VII. CONCLUSION

There is broad recognition that accounting disclosures have become overly complex (FASB 2017). As a result, auditor task-specific expertise can be valuable, especially when task complexity is high (O'Donnell et al. 2005). This study seeks to contribute to the extant auditor expertise literature, which has predominantly focused on auditor industry expertise, by examining whether auditor FV expertise is associated with improved audit quality related to FV. Considering ongoing concerns over the difficulty and subjectivity in FV accounting, as well as persistent audit deficiencies identified by the PCAOB, examining this issue is important.

[31] For robustness, we interact Level 1 auditor expertise with Level 1 assets and liabilities and repeat this for Levels 2 and 3. Untabulated results show that only the interaction between Level 3 auditor expertise and Level 3 assets is positive and significant. This is consistent with prior literature documenting that only Level 3 disclosures challenge market participants.

[32] We also partition the sample into two by high/low office FV expertise and find that national FV expertise is insignificant in either bucket.

[33] National FV expertise or industry expertise remain insignificant in these models.

We predict that auditor FV expertise can contribute to audit quality and that FV expertise at the office and the national level can both play an important role. To examine our predictions, we rely on FV-related restatements and comment letters as two metrics for audit quality that are based on the *ex post* recognition that the measurement or disclosure of FV estimates were inadequate. Our analyses reveal that not all FV measures of auditor expertise are associated with audit quality. Specifically, we do not find that auditor FV expertise, constructed based on Level 2 FV measurements, contributes to audit quality. However, we find that auditor expertise in Level 3 FV is associated with lower likelihood of FV restatements and lower likelihood of receiving FV comment letters. These results only hold when auditor FV expertise is measured at the office level, rather than at the national level, and are robust to several falsification tests, alternative measures of auditor FV expertise, and propensity score matching.

We expand the comment letter results in several ways. Because auditors with FV expertise do not prevent all FV-related comment letters, we examine whether the severity of FV comment letters is lower when the auditor is an FV expert. Relying on two market-based measures for severity, we document that the severity of comment letters received is lower when the auditor is an FV expert. Next, we examine two important benefits associated with FV expertise subsequent to receiving FV comment letters. First, we investigate whether auditor FV expertise is associated with lower cost of remediation of SEC comment letters. By examining the role of FV experts in remediation costs, we add to the findings of Cassell et al. (2013), who report that FV issues in comment letters involve the highest remediation costs. Second, leveraging the power of XBRL, we examine whether auditor FV expertise is associated with subsequent improvements to FV disclosures. We find that auditor FV expertise is associated with lower cost of remediation and greater improvement to FV disclosures. In our final analysis, we contribute to the burgeoning literature that examines the value relevance of FV disclosures (e.g., Barth 1994; Song et al. 2010). Consistent with the notion that auditor FV expertise improves the reliability of FV disclosures, we show that the extent of auditor FV expertise is associated with increased value relevance of Level 3 FV disclosures.

Our study underscores the importance of task-specific expertise, which, in our context, is most beneficial at the office level. As such, audit firms should recognize the value of developing specialized knowledge at the office level and, at the same time, think of ways to better leverage technical skills and knowledge at the national level. Audit clients with complex FV disclosures should be cognizant of the potential benefits of engaging with FV expert auditors. Finally, we recognize that our results are subject to measurement error because we cannot truly observe auditor FV expertise. As such, it is important to complement archival studies with field-based studies, experiments, and interviews to better understand the formation and benefits of task-specific expertise.

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APPENDIX A

Variable Definitions

Variable		Definition
Dependent Variables		
FV_RESTATE	=	1 if the company's financial statement in year *t* is restated due to fair value-related issue, and 0 otherwise.
FV_LETTER	=	1 if the company receives a comment letter containing fair value topic in year *t,* and 0 otherwise.
DAYS	=	the natural log of days from the first comment letter to the clean final letter.
ROUNDS	=	the number of letters (from the SEC) from the first comment letter to the clean final letter.
ABNRET	=	value-weighted abnormal return on the comment letter disclosure date.
ACCESS	=	the natural log of number of downloads of comment letters during the 12 months following the disclosure.
PRC	=	per-share price on the 10-K filing month-end.
Variables of Interest		
N_FVSPEC2	=	market share of Level 2 fair value audited for clients (other than client *i*) within a national industry market.
N_FVSPEC3	=	market share of Level 3 fair value audited for clients (other than client *i*) within a national industry market.
C_FVSPEC2	=	market share of Level 2 fair value audited for clients (other than client *i*) within a city and industry market.
C_FVSPEC3	=	market share of Level 3 fair value audited for clients (other than client *i*) within a city and industry market.
N_FVSPEC3_DUMMY	=	1 if the variable *N_FVSPEC3* is greater than 30 percent, and 0 otherwise.
C_FVSPEC3_DUMMY	=	1 if the variable *C_FVSPEC3* is greater than 50 percent, and 0 otherwise.
Control Variables		
FVA_1	=	fair value asset based on Level 1 divided by total assets.
FVA_2	=	fair value asset based on Level 2 divided by total assets.
FVA_3	=	fair value asset based on Level 3 divided by total assets.
FVL_1	=	fair value liability based on Level 1 divided by total assets.
FVL_2	=	fair value liability based on Level 2 divided by total assets.
FVL_3	=	fair value liability based on Level 3 divided by total assets.
SIZE	=	the natural log of total assets.
LEV	=	long-term debt divided by total assets.
BM	=	book value of equity divided by market value of equity.
DREC	=	(receivables in year *t* minus receivables in year $t-1$) divided by receivables in year $t-1$.
LOSS	=	1 if the company's income before tax is negative, and 0 otherwise.
M&A	=	1 if the company is involved in mergers and acquisitions, and 0 otherwise.
PUBLIC_EXC	=	1 if the company is listed in the main stock exchange, and 0 otherwise.
AGE	=	the natural log of company age (based on Compustat listing).
FIN	=	sum of new long-term debt plus new equity scaled by lagged total assets.
ROA	=	net income divided by total assets.
EXTFIND	=	1 if *free cash* < -0.5, and 0 otherwise, where *free cash* is cash flows from operations minus average capital expenditure scaled by lagged current assets.
CACCR	=	change in noncash current assets from year $t-1$ to *t* scaled by average total assets.
LAGFV_REST	=	1 if the company's financial statement in year $t-1$ is restated due to fair value, and 0 otherwise.
LNAFEE	=	the natural log of nonaudit fees.
C_INDSPEC	=	1 if the auditor has market shares greater than 50 percent in an industry (defined as two-digit SIC code) and in a particular city (defined as MSA), and 0 otherwise.
BIG4	=	1 if the company is audited by one of the Big 4 auditors, and 0 otherwise.
CHGAUDID	=	1 if auditor is changed in year *t,* and 0 otherwise.
ICWEAK	=	1 if internal control material weakness is reported, and 0 otherwise.
OFFICESIZE	=	the natural log of total audit fees generated in the audit office.
TENURE	=	the natural log of auditor tenure.
INFLUENCE	=	focal client's audit fees divided by total audit fees earned within the audit office.
RESTATE_3YRS	=	1 if the company's financial statement in year *t,* $t-1$, or $t-2$ is restated, and 0 otherwise.
M&A_3YRS	=	1 if the company is involved in mergers and acquisitions in year *t,* $t-1$, or $t-2$, and 0 otherwise.
LOSS_3YRS	=	1 if the company's income before tax is negative in year *t,* $t-1$, or $t-2$, and 0 otherwise.
ICWEAK_3YRS	=	1 if the company's internal control weakness is reported in year *t,* $t-1$, or $t-2$, and 0 otherwise.
ZSCORE	=	Altman's z-score, calculated as 1.2 * (net working capital/total assets) + 1.4 * (retained earnings/total assets) + 3.3 * (earnings before interest and taxes/total assets) + 0.6 * (market value of equity/book value of liabilities) + 1.0 * (sales/total assets).
R_ZSCORE	=	decile rank of the variable *ZSCORE*.

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APPENDIX A (continued)

Variable		Definition
PRICE	=	average of prices per share over 20 trading days after the day of the 10-K filing.
TURNOVER	=	the natural log of average daily turnover (= daily trading volume/shares outstanding) over 20 trading days after the day of the 10-K filing.
EPNEW	=	basic earnings per share excluding extraordinary items divided by price per share at the fiscal year-end.
FINANCIAL	=	1 for financial institutions, and 0 otherwise.
HFVA_3	=	1 if the company's Level 3 fair value asset is greater than 3 percent of total assets, and 0 otherwise.
STDCFO	=	standard deviation of cash flow from operations based on the past three years.
NONAUD	=	nonaudit fees divided by total audit fees.
GROWTH	=	(Sales in year t − Sales in year $t-1$) divided by Sales in year $t-1$.
NUMFILING	=	the number of filings (all kinds) addressed in the SEC comment letter.
NUMTOPIC	=	the number of issues in the first comment letter from the SEC.
NFVA	=	non-fair value assets per share.
NFVL	=	non-fair value liabilities per share.
FVA(L)1	=	fair value assets (liabilities) per share from Level 1 input.
FVA(L)2	=	fair value assets (liabilities) per share from Level 2 input.
FVA(L)3	=	fair value assets (liabilities) per share from Level 3 input.
IB	=	net income before extraordinary items per share.
GOVRANK	=	decile rank of governance score scaled by 10, where governance score is constructed on principal-component analysis using six governance variables of board independence, audit committee financial expertise, the frequency of annual audit committee meetings, total percent of shares held by institutional investors, size of audit office, and no material control weakness.

APPENDIX B

Sample Selection

	Firm-Year Observations
Compustat observations with non-missing CIK during 2008–2016	78,841
Exclude observations not matched with Audit Analytics[a]	(20,827)
Exclude observations that do not match with MSA data by office location	(7,995)
Sample to construct audit firm's fair value expertise	50,019
Additional restrictions for testing factors associated with auditor FV expertise	
Exclude observations with missing values to compute variables in determinant model	(22,806)
Keep observations with non-missing, non-zero fair value (Level 1, 2, or 3)	(444)
Final sample for testing factors associated with auditor FV expertise	26,769
Additional restrictions for testing fair value restatement	
Exclude observations with missing values to compute variables in Equation (1)	(25,712)
Exclude observations with fiscal years 2015 and 2016	(4,826)
Keep observations with non-missing, non-zero fair value (Level 1, 2, or 3)	(296)
Keep fair value restatement and non-fair value restatement firms	(775)
Drop observations with perfect collinearity in estimating logit model	(1,810)
Final sample for fair value restatement analysis	16,600
Additional restrictions for testing fair value comment letter	
Exclude observations with missing values to compute variables in Equation (2) after merging with CRSP	(23,618)
Keep observations with non-missing, non-zero fair value (Level 1, 2, or 3)	(413)
Keep fair value comment letters and non-fair value comment letter firms[b]	(14,611)
Drop observations with perfect collinearity in estimating logit model	(503)
Final sample for fair value comment letter analysis	10,874

[a] After merging, fiscal year follows Compustat convention.
[b] We use Audit Analytics' SEC comment letter database and identify fair value-related comment letters based on accounting topic 935 coded by Audit Analytics.

APPENDIX C

Covariate Balance Test (After Matching)

Panel A: Sample for Fair Value Restatements

	Treatment Group n = 2,392	Control Group n = 2,392	t-stat	p-value
FVA_1	0.0657	0.0642	0.34	0.73
FVA_2	0.1406	0.1413	−0.12	0.90
FVA_3	0.0111	0.0093	1.00	0.32
FVL_1	0.0049	0.0071	−0.77	0.44
FVL_2	0.0155	0.0143	0.63	0.53
FVL_3	0.0075	0.0084	−0.63	0.53
SIZE	7.3252	7.2677	0.99	0.32
LEV	0.1528	0.1518	0.17	0.87
BM	0.9575	0.9650	−0.22	0.82
DREC	0.0097	0.0107	−0.58	0.56
LOSS	0.2889	0.2981	−0.70	0.49
M&A	0.2291	0.2366	−0.62	0.54
PUBLIC_EXC	0.8942	0.8955	−0.14	0.89
AGE	3.1074	3.0806	1.23	0.22
FIN	0.1655	0.1684	−0.16	0.88
ROA	−0.0283	−0.0344	0.85	0.40
HFVA_3	0.0636	0.0569	0.97	0.33
EXTFIND	0.5736	0.5673	0.44	0.66
CACCR	−0.0007	−0.0006	−0.06	0.96
LAGFV_REST	0.0042	0.0050	−0.43	0.67
INFLUENCE	0.0680	0.0685	−0.20	0.84
LNAFEE	10.7760	10.7250	0.48	0.63
C_INDSPEC	0.6689	0.6840	−1.11	0.27
BIG4	0.7053	0.7061	−0.06	0.95
ICWEAK	0.0393	0.0439	−0.80	0.43
OFFICESIZE	16.9040	16.8740	0.55	0.58
TENURE	2.1755	2.1755	0.00	1.00
CHGAUDID	0.0401	0.0410	−0.15	0.88

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APPENDIX C (continued)

Panel B: Sample for Fair Value Comment Letters

	Treatment Group n = 1,359	Control Group n = 1,359	t-stat	p-value
FVA_1	0.0749	0.0735	0.23	0.82
FVA_2	0.1571	0.1482	1.16	0.25
FVA_3	0.0159	0.0113	1.43	0.15
FVL_1	0.0025	0.0017	0.98	0.33
FVL_2	0.0113	0.0115	−0.12	0.90
FVL_3	0.0109	0.0141	−1.11	0.27
SIZE	6.7626	6.8481	−1.09	0.28
RESTATE_3YR	0.1258	0.1266	−0.06	0.95
LOSS_3YRS	0.4496	0.4503	−0.04	0.97
ROA	−0.0697	−0.0840	1.02	0.31
LEV	0.1384	0.1361	0.31	0.76
BM	1.0120	1.0032	0.18	0.86
M&A_3YRS	0.2723	0.2936	−1.23	0.22
AGE	2.9327	2.9477	−0.49	0.62
FIN	0.1901	0.1813	0.46	0.65
ICWEAK_3YRS	0.0832	0.0846	−0.14	0.89
R_ZSCORE	5.0280	5.0927	−0.61	0.54
PRICE	21.2090	21.7840	−0.53	0.60
TURNOVER	0.0062	0.0064	−0.68	0.50
EPNEW	−4.7157	−14.1030	1.56	0.12
FINANCIAL	0.5570	0.5600	−0.15	0.88
HFVA_3	0.0559	0.0508	0.60	0.55
STDCFO	0.0556	0.0497	0.77	0.44
NONAUD	0.2335	0.2411	−0.78	0.44
C_INDSPEC	0.6718	0.6696	0.12	0.90
BIG4	0.6056	0.6012	0.24	0.81
OFFICESIZE	16.5910	16.6610	−0.86	0.39