

The Hidden Risk of Auditor Industry Specialization: Evidence from the Financial Crisis

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Abstract We identify situations in which *auditor industry specialization* is better characterized as *auditor industry concentration* and we develop predictions about situations in which auditor industry concentration could be detrimental for audit outcomes. In stable environments, industry specialist auditors should be able to apply their unique experience and knowledge in ways that yield better audit outcomes. However, during periods of heightened industry-specific risk, specialist auditors from the affected industry could struggle to secure and allocate sufficient resources to mitigate the heightened risk in the affected industry because, by construction, specialists in the affected industry have a client portfolio that is concentrated in the affected industry (i.e., there is insufficient resource slack). We test our predictions by investigating the effects of the recent financial crisis on audits of clients from the banking industry. We find that, during the period before the financial crisis, banking auditor industry specialization is associated with higher audit quality and more timely audits. However, during the financial crisis, the results indicate that banking auditor industry specialization is associated with lower audit quality and less timely audits. Collectively, our results suggest that auditor industry specialization can be detrimental in certain circumstances and that audit firms and audit regulators should consider whether the audit market, audit firms, or audit offices have become too specialized to handle the resource allocation problems that crisis situations present.

Keywords Auditor industry expertise, workload compression, resource constraints, financial crisis.

1 Introduction

Extensive research in accounting provides evidence suggesting that auditors classified as industry specialists provide audits of higher quality (see, e.g., Solomon and Shields (1999), Balsam, Krishnan, and Yang (2003), Krishnan (2003), Krishnan (2005), and Reichelt and Wang (2010)) and investors, auditors and regulators consider auditor industry expertise an indicator of audit quality (Christensen, Glover, Omer, and Shelley 2016).¹ However, inferences about the benefits of auditor industry specialization are generally based on analyses that use large pooled samples where average (net) benefits are measured across time. In contrast, we use theoretical arguments and evidence from the finance and management literatures to identify situations in which *auditor industry specialization* is better characterized as *auditor industry concentration* and we develop predictions about situations in which auditor industry concentration could be detrimental for audit outcomes.

Evidence from the finance and management literatures highlights the benefits of diversification when skills and resources are transferable across segments (see, e.g., Rumelt (1982), Palepu (1985), and Pandya and Rao (1998), among others), with one such benefit being the effective allocation of resources during times of high uncertainty and/or risk. Given that audit professionals routinely work on clients from multiple industries, we argue that the audit market is characterized as one with transferability of resources and skills (certainly more so than a company with multiple divisions of diversified businesses like General Electric, where there is significant variability across products and needed skills). The audit firm structure of partners that routinely oversee audits in different industries also facilitates such reassignment. Collectively,

¹ In 2015, the PCAOB cited auditor industry specialization on its list of 28 audit quality indicators (PCAOB 2015).

these arguments suggest that there are situations in which audit office portfolio diversification (i.e., non-specialization) could be beneficial.

Our study investigates the performance of auditor industry specialists during periods of heightened risk. In stable environments, industry specialist auditors should be able to apply their unique experience and knowledge in ways that yield better audit outcomes. However, during periods of heightened industry-specific risk, specialist auditors from the affected industry could struggle to secure and allocate sufficient resources to mitigate the heightened risk in the affected industry because, by construction, specialists in the affected industry have a client portfolio that is concentrated in the affected industry (i.e., there is insufficient resource slack). In contrast, non-specialist auditors have a client portfolio that is less concentrated in the affected industry, suggesting that they should be better able to secure and allocate resources to clients in the affected industry.

We test our predictions by investigating the effects of the recent financial crisis on audits of clients from the banking industry. The financial crisis and the banking industry provide an ideal setting for our investigation because: 1) the financial crisis affected virtually all banks in the industry; 2) bank clients' risk increased relative to other clients during the financial crisis; 3) the banking industry represents a significant risk exposure for many audit offices; 4) significant cross-sectional variation exists across audit offices in their exposure to the banking industry; and 5) bank audits require specialized knowledge, suggesting that they could benefit from auditor industry expertise.² We argue that the financial crisis increased the riskiness of banking clients and the regulatory and market scrutiny faced by banks' external auditors. This, in turn, caused a

² While the financial crisis of 2008 was a very significant event for banks, bank crises are not uncommon. Previous crises include the savings and loan crisis (late 1980's and early 1990's), the inflation crisis (late 1970's and early 1980'), and many others (see Bordo and Haubrich (2009) for a detailed history).

shift in auditor attention and resources toward bank clients who bore increased risk (Doogar, Rowe, and Sivadasan 2015).³ The strain on office-level resources was likely particularly acute for offices with a large proportion of clients from the banking industry (i.e., audit offices that specialize in the audits of banking clients).

We perform our tests using proxies for audit quality (whether the financial statements are materially misstated as revealed by a subsequent restatement) and audit timeliness (the delay in issuing the audit opinion and whether the client files the annual report after the filing deadline). Palmrose and Scholz (2004) argue that financial statement restatements provide direct evidence of inferior audit quality and indicate the auditor's failure to enforce the correct application of GAAP. Audit opinion delay is a measure of audit timeliness and has been associated with insufficient personnel resources (Behn, Searcy, and Woodroof 2006) and inexperienced personnel (Knechel and Payne 2001). Late filing of annual reports has been associated with the subsequent release of bad news and lower abnormal returns (Chambers and Penman 1984).

While recent studies in the auditor specialization literature generally measure auditor industry specialization using a market-based benchmark (i.e., the extent to which a given firm specializes in an industry relative to other audit firms in the market), we use an office-level measure that does not rely on a market-based comparison to construct our variable of interest. Similar to Krishnan (2003) and Krishnan (2005) that measure industry specialization as industry concentration within the auditor's portfolio, we measure banking auditor industry specialization as the sum of audit fees collected from bank clients divided by the sum of audit fees collected from all clients, where both are measured annually at the office level. Our use of a non-market-

³ Anecdotal evidence from conversations with bank auditors suggests that audit resources were significantly reallocated during the financial crisis, with more resources being committed to bank clients. One manager we spoke with was removed from all nonbank public clients during the financial crisis to focus on a large banking client.

based measure of banking auditor industry specialization yields two important benefits. The first is theoretical – by construction, market-based measures essentially prohibit small audit offices from being classified as specializing in a given industry. This contradicts both theoretical arguments and empirical evidence which suggest that auditor expertise is an individual-, team-, or office-level construct.⁴ The second is practical – our use of an office-based measure that does not depend on other audit firms in the market allows us to capture both banking auditor industry specialization and banking auditor industry concentration (as discussed above, these are the same in our setting).

In our primary tests, we use a sample of banking clients from 2004 through 2009, where the financial crisis period includes 2008 through 2009. We use a difference-in-differences research design to alleviate concerns that our results are attributable to unobserved crisis-related covariates.⁵ We find that, during the period before the financial crisis, banking auditor industry specialization is associated with higher audit quality as indicated by a lower incidence of misstatements, and more timely audits as indicated by a shorter audit opinion delay and a lower incidence of late filings. However, during the financial crisis, the results indicate that banking auditor industry specialization is associated with lower audit quality as indicated by a higher incidence of misstatements, and less timely audits as indicated by a longer audit opinion delay. We do not find a significant association between the incidence of late filings and banking auditor industry specialization during the financial crisis, but the results suggest that the benefits of

⁴ For example, Carcello and Nagy (2004) argue that industry expertise depends on industry concentration at the office-level or team level. Solomon and Shields (1999) define industry specialists as auditors whose training/experience is largely in a particular industry (i.e., at the individual level). Wright and Wright (1997) find that auditors with industry experience (but who are not designated as industry specialists) make superior risk assessments relative to auditors without industry experience. Note that each of these studies focus on absolute (not relative) training, experience, etc.

⁵ Given our interaction design, an unobserved covariate would have to covary simultaneously with banking auditor industry specialization and the financial crisis, not simply be driven by the financial crisis or banking auditor industry specialization.

specialization observed in the period before the financial crisis are no longer significant.⁶ Collectively, the results from our main tests provide compelling evidence suggesting that, although auditor industry specialization is associated with improved audit outcomes during relatively stable periods, specialist auditors (and their clients) subject themselves to significant risk that manifests during crisis periods.

We perform two sets of tests to support our inference that the observed deterioration in the benefits of auditor industry specialization is driven by problems associated with securing and allocating resources to clients from the banking industry. First, we expect that the resource allocation problem is more acute for banking auditor industry specialists that have a number of poorly performing banks in their portfolio because the demand for additional resources should be highest for such offices. Consistent with this, we find some evidence suggesting that our misstatement results are driven by offices with banks that performed relatively poorly during the financial crisis and strong evidence suggesting that our audit opinion delay results are driven by offices with banks that performed relatively poorly during the financial crisis (here, bank performance is based on office-level bank ROA). Second, we expect that the resource allocation problem could be detrimental for nonbank clients that engage banking industry specialist auditors because nonbank clients provide the supply of resources available for reallocation to the banking industry. The results suggest that the adverse implications of banking auditor industry specialization during the financial crisis period extend to all clients within the audit office, suggesting an office-wide resource allocation problem attributable to the concentration of clients within the affected industry.

⁶ As discussed in Section 4.3, we find that our results are robust to the inclusion of company or audit firm fixed-effects and several alternative design choices.

We make several contributions to the literature. First, our study provides the first evidence suggesting that auditor industry specialization carries hidden risk. Although the benefits of diversification are well known, the risks associated with auditor industry specialization have been largely ignored by accounting academics, practitioners, and regulators. Our results are particularly important because they suggest that this risk manifests during periods of crisis – periods when high quality and timely audits are most critical.

Second, although investors, auditors and the PCAOB consider auditor industry specialization as an indicator of audit quality (Christensen et al. 2016; PCAOB 2015), our results suggest that auditor industry diversification can facilitate the allocation of resources to areas of need and mitigate issues associated with time/budget constraints. Importantly, our results suggest that these benefits accrue to clients in the industry most affected by the crises and to other clients in the office. Our evidence also supports the PCAOB’s assertion that budget constraints hinder auditors’ ability to adequately supervise and review their engagements (PCAOB 2010). Finally, we acknowledge that our results do not suggest that auditor industry specialization is detrimental, on average. Rather, our results suggest that auditor industry specialization can be detrimental in certain circumstances and that audit firms and audit regulators should consider whether the audit market, audit firms, or audit offices have become too specialized to handle the resource allocation problems that crisis situations present.

The paper proceeds as follows: In Section 2, we discuss prior literature and develop our hypothesis. Section 3 provides a discussion of our research methods, sample selection and descriptive statistics. Section 4 presents results from our main tests, additional analyses, and robustness tests. In Section 5, we summarize our findings and provide concluding remarks.

2 Prior literature and hypotheses development

2.1 Auditor industry specialization

Specialist auditors are often associated with better quality because they have specialized training and experience related to their industry (Solomon and Shields 1999). Consistent with this, prior literature provides extensive evidence of better financial reporting quality for clients of industry specialist auditors. For example, Balsam et al. (2003) and Krishnan (2003) find that clients of auditors that are national industry specialists report smaller abnormal accruals and Reichelt and Wang (2010) find that audit quality is higher for audit firms classified as city and national industry specialists. In a related study, Krishnan (2005) finds that clients of specialist auditors report earnings that reflect more timely recognition of bad news than clients of non-specialist auditors. Auditors that specialize in the banking industry have also been shown to provide better audit outcomes for their banking clients. Specifically, Taylor (2010) finds that, for accounts highly specific to the banking industry (i.e. loan loss reserves), bank specialist auditors were more confident in their assessment of inherent risk than other auditors.

2.2 Specialization versus diversification

While auditor industry specialization is beneficial in terms of the auditor's knowledge and experience in a given industry, diversification is a well-known management and investing strategy that has its own set of benefits. A diversified company is one that serves a wide range of markets (Aaker 1980; Andrews 1980; Berry 1975; Chandler 1962; Gluck 1985). Some prior literature argues that companies diversify to improve firm performance. Improved firm performance is achieved because diversification enables a company to better allocate resources and manage risks.⁷ Consistent with this, studies have documented a positive association between

⁷ For example, a diversified company can transfer funds from a cash surplus unit to a cash deficit unit (without taxes or transaction fees), thereby reducing the variability of operating cash flows (Bhide 1990).

firm diversification and future performance (Pandya and Rao 1998; Rumelt 1982). In contrast, a number of studies by financial economists document a negative association between diversification and firm value. For example, Berger and Ofek (1995) find that diversified firms trade at a discount of approximately 15% compared to focused competitors in the same industry and Lang and Stulz (1994) find a negative association between Tobin's Q (market value divided by the book value of assets) and diversification. Collectively, prior work provides mixed evidence on the association between diversification and firm performance/value. Thus, it is important to evaluate situations in which diversification is likely to be beneficial and when it is likely to be detrimental.

Theoretically, the optimal (value maximizing) level of diversification should be such that the economies of scope balance the diseconomies of scale (Rumelt 1982). When a firm operates in a set of related businesses, it can exploit its 'core factors' leading to economies of scale and scope, efficient resource allocation, and specialized technical and managerial skill. Consistent with this, Palepu (1985) distinguishes between companies with predominantly related diversification and companies with predominantly unrelated diversification and finds that companies with predominantly related diversification have significantly higher profitability growth. Similarly, Desai and Jain (1999) find that increasing corporate focus by spinning off unrelated (non-core) divisions generates approximately 50% higher returns to shareholders over a three-year time frame compared to spin-offs that do not refocus the firm. Overall, our reading of prior research indicates that diversification can be beneficial when resources can be transferred easily across areas should significant risks or opportunities arise. More importantly, we argue that the audit market is characterized as one with transferability of resources and skills

because audit professionals can be assigned to clients in different industries in response to changes in risk.

2.3 Audit risk and the allocation of resources

Auditors are required to respond to events that increase the likelihood that the financial statements will be materially misstated and to conduct the audit in a manner that reduces audit risk to an appropriately low level. Prior literature has examined auditor response to various types of risk including the risk of litigation (Ponemon 1992; Pratt and Stice 1994; Simunic and Stein 1996; Krishnan and Krishnan 1996), earnings manipulation (Krishnan, Sun, Wang, and Yang 2013), and fraud (Payne and Ramsay 2005), among others. Research examining banks specifically further support the notion that auditors respond to bank risks (Fields, Fraser, and Wilkins 2004; Doogar et al. 2015).

Auditors respond to changes in risk by adjusting the nature, timing, and extent of audit procedures.⁸ For example, research has demonstrated that auditors allocate more and better resources (i.e. personnel hours) to clients with higher risk (Bell, Doogar, and Solomon 2008). Other research has documented a range of responses to increases in risk including adjusting the audit plan and audit fees (Pratt and Stice 1994; Simunic and Stein 1996), increasing the level of professional skepticism (Payne and Ramsay 2005), increasing the issuance of modified opinions (Krishnan and Krishnan 1996), and resigning from the client (Krishnan et al. 2013). Under normal circumstances, auditors are able to respond to changes in risk by reallocating resources and making other adjustments. However, an exogenous shock can hinder auditors' ability to effectively secure and allocate sufficient resources needed to mitigate the heightened risk in the

⁸ Public Company Oversight Board PCAOB Auditing Standard No. 8 and Auditing Standard No. 13.

client portfolio. We argue that the financial crisis of 2008 was such a shock that likely contributed to significant resource allocation issues for some audit offices.

2.4 Audit risk in the banking industry and the financial crisis

In 2008, the deterioration of the economy increased risk across the board as many large financial institutions failed and many others were acquired or recapitalized by the federal government. On March 14, 2008, The New York Federal Reserve and JPMorgan Chase announced their emergency cash bailout of Bear Stearns following a significant deterioration of the firm's liquidity.⁹ On July 11, 2008, IndyMac Bank failed, marking one of the largest bank failures in American history, and the Federal Deposit Insurance Corporation (FDIC) was named the conservator.¹⁰ Beginning in October 2008 and continuing through 2009, the federal government invested billions of dollars to bail out Fannie Mae, Freddie Mac, AIG, Citigroup, Bank of America, JPMorgan Chase, Morgan Stanley, Goldman Sachs, Merrill Lynch, Regions Financial Corporation, and hundreds of other financial institutions through their Troubled Asset Relief Program (TARP).¹¹

During the financial crisis, banks were under significant scrutiny from regulators and the general public who wanted to understand the role they played in the subprime mortgage crisis. Similarly, bank auditors were under intense pressure to explain how they could have missed the warning signs (Bajaj and Creswell 2008). Consistent with arguments in the preceding section, there is evidence suggesting that bank auditors responded to the financial crisis in accordance with current auditing standards by adjusting audit plans in response to the heightened risk. For example, Doogar et al. (2015) use audit fees as a proxy for auditor attention and find that auditor

⁹ "Bear Stearns Big Bailout." *Bloomberg*, 2008. Matthew Goldstein.

¹⁰ "FDIC Establishes IndyMac Federal Bank, FSB as Successor to IndyMac Bank, F.S.B., Pasadena, California." *FDIC Press Release*, 2008.

¹¹ "Bailed Out Banks." *CNN Money Special Report*.

attention during the lead-up to the financial crisis shifted in line with varying sources of audit risk.¹²

2.5 Auditor workload compression and the development of the formal hypothesis

The PCAOB has expressed concern about the effects of time constraints on auditors' ability to adequately supervise and review the audit (PCAOB 2010), suggesting that audit quality is diminished when auditors are busy. A number of studies provide evidence consistent with this concern. Bills, Swanquist, and Whited (2015) document a decline in audit quality consistent with resource constraints when audit firms experience substantial growth at the office level. Coram, Ng, and Woodliff (2004) find that auditors engage in quality reduction acts as a strategic response to time pressure. Lopez and Peters (2012) find that abnormal accruals are larger and companies are more likely to meet or beat earnings benchmarks for audits completed during the audit busy season.

Given that: 1) audit risks in the banking industry increased significantly during the financial crisis (see Section 2.4); 2) audit firms allocate resources according to client risks (see Section 2.3), and 3) audit resources can be (relatively easily) transferred across clients within an audit office (see Section 2.2) – we posit that the demand for audit resources allocated to banking clients increased significantly during the financial crisis. Presumably, additional resources would be secured from clients that operate outside of the most affected industry (i.e., nonbank clients). Thus, at the audit office level, our prediction has two important implications: 1) the demand for additional resources is higher in audit offices with more banking clients; and 2) the supply of available resources is lower in audit offices with more banking clients. This, in turn, suggests

¹² Michael Young, a lawyer at Willkie Farr & Gallagher who specializes in cases involving accounting irregularities, states, "Auditors have actually been pretty tough during the crisis in forcing companies to justify their valuation methods, a move which has resulted in many banks having to write down the value of their assets." See "Role of Auditor in Crisis Gets Look." *Wall Street Journal*, 2010. Michael Rapaport.

that audit offices with greater banking industry specialization could both have greater demand for additional resources and the smallest pool of available resources from which to draw.¹³ Stated differently, during periods of heightened industry-specific risks, auditors who specialize in the affected industry are particularly vulnerable to the adverse implications of budget constraints and workload compression. The preceding discussion forms the basis for our hypothesis, stated in the alternative form.

H1: The benefits of banking auditor industry specialization for bank client audit outcomes are mitigated or reversed during the financial crisis compared to the pre-crisis period.

3. Research methods, sample selection, and descriptive statistics

3.1 Research methods

We perform tests using three observable audit outcomes that capture the quality (misstatements) and timeliness (audit opinion delay and late filings) of the audit. We use financial statement misstatements (*MISSTATE*) reported through Form 8-K filings with the SEC to proxy for low quality audits.¹⁴ Misstatements represent material errors or omissions in previously issued financial statements (as revealed through subsequent restatement announcements) and have been used extensively in prior research as a measure of audit and financial reporting quality (Becker, DeFond, Jiambalvo, and Subramanyam 1998; Francis, Maydew, and Sparks 1999; Liu, Raghunandan, and Rama 2009).

¹³ We acknowledge that auditors could successfully secure additional resources to address gradual increases in risk. However, acquiring high-skilled resources to address sudden and dramatic increases in risk (as in the financial crisis) would likely be difficult. We also acknowledge that audit offices could request and secure resources from affiliated offices (i.e., within the operating region of the firm). We discuss tests that address this possibility in Section 4.3.

¹⁴ DeAngelo (1981) defines audit quality as the probability of detecting material errors and misstatements in the client's financial statements and reporting the detected errors and misstatements. Misstatements represent a verifiable occurrence of poor financial reporting quality (DeFond 2010) and are a major focus of regulator and investor concerns about the quality of audit work (Myers, Myers, and Omer 2003). Similarly, Palmrose and Scholz (2004) argue that financial statement restatements provide direct evidence of inferior audit quality and are indicative of the auditor's failure to enforce the appropriate application of GAAP.

We use audit opinion delay (*DELAY*) and late filings (*LATE_FILE*) to proxy for audit timeliness. Delayed financial reports impair relevancy by reducing the timeliness of the information provided to investors.¹⁵ Longer delays reduce the information content of the financial statements as evidenced by less pronounced investor reactions (Givoly and Palmon 1982; Atiase, Bamber, and Tse 1989). Delayed filings also allow subsets of investors to acquire costly private predisclosure information, which compromises the ideal of equal access to information among investors.¹⁶

Ultimately, audit opinion delays can result in companies failing to file their annual financial statements by the deadline imposed by the SEC. The SEC requires that annual reports containing financial statements be filed within: 1) 90 days after the fiscal year-end for non-accelerated filers; 2) 75 days after the fiscal year-end for accelerated filers; and 3) 60 days after the fiscal year-end for large accelerated filers. Companies that fail to file an annual report in a timely manner are required to inform investors via form 12b-25. Feldman, Rosenfeld, Lazar, Livnat, and Segal (2006) find that the filing of form 12b-25 elicits a negative market reaction, suggesting that there is a significant cost for failing to meet the filing deadline.

Prior literature identifies a number of factors associated with budget pressures and/or workload compression that contribute to delayed audit opinions and/or late filings. For example, Behn et al. (2006) find that resource constraints (related to both the client and the auditor) hinder significant reduction in audit opinion delay. Other studies provide evidence of an association between audit opinion delay and a sudden increase in client size (Henderson and Kaplan 2000),

¹⁵ The Financial Accounting Standards Board (FASB) Statement of Financial Accounting Concepts No. 2 – “Timeliness alone cannot make information relevant, but a lack of information timeliness can rob information of relevance it might otherwise have had.”

¹⁶ In 2002, the Securities and Exchange Commission (SEC) expressed concerns about equal access to information among investors and required CEOs to personally vouch for the timeliness and fairness of public information disclosures (see <https://www.sec.gov/news/press/2002-88.htm>). The Dodd Frank Act further increases enforcement of equal access to information by imposing monetary penalties and sanctions for insider trading.

the correction of previously reported interim earnings (Kinney and McDaniel 1993), the risk of the underlying audit (Ashton, Graul, and Newton 1989), the use of inexperienced audit staff (Knechel and Payne 2001), and the discovery of internal control weaknesses (Ettredge, Li, and Sun 2006).

We use an interaction model (difference-in-differences design) to test H1.¹⁷ We regress our three proxies for audit outcomes (*MISSTATE*, *DELAY*, *LATE_FILE*) on the interaction of banking auditor industry specialization and an indicator for the financial crisis period along with main effects and other controls. We estimate the following model using ordinary least squares (OLS):¹⁸

$$\begin{aligned}
 DV_{it} = & \alpha_0 + \alpha_1 BANK_SPEC_{it} + \alpha_2 CRISIS_{it} + \alpha_3 BANK_SPEC_{it} * CRISIS_{it} + \alpha_4 LEVERAGE_{it} \\
 & + \alpha_5 CLIENTSIZE_{it} + \alpha_6 GCO_{it} + \alpha_7 BIG4_{it} + \alpha_8 LOSS_{it} + \alpha_9 ROA_{it} + \alpha_{10} TENURE_{it} \\
 & + \alpha_{11} INFLUENCE_{it} + \alpha_{12} INTANGIBLES_{it} + \alpha_{13} FOR_OPS_{it} + \alpha_{14} L3_ASSETS_{it} + \alpha_{15} BUSY_{it} \\
 & + \alpha_{16} EXCHANGE_{it} + \alpha_{17} BTM_{it} + \alpha_{18} ACQUISITION_{it} + \alpha_{19} AFILER_{it} \\
 & + \alpha_{20} AFILER_LARGE_{it} + \varepsilon
 \end{aligned} \tag{1}$$

DV is *MISSTATE*, *DELAY*, or *LATE_FILE*, depending on the specification. *MISSTATE* is an indicator variable set equal to one if the company has a financial statement misstatement reported through a Form 8-K filing with the SEC (as reported by Audit Analytics), and zero otherwise. *DELAY* is the number of days between the fiscal year-end and the audit opinion date.¹⁹ *LATE_FILE* is an indicator variable set equal to one if the company files their financial report after the SEC deadline, and zero otherwise. *BANK_SPEC* is the sum of audit fees

¹⁷ In this quasi-experimental design, we use the financial crisis as a treatment condition, whereby we examine the difference in the effects of banking auditor industry specialization during the financial crisis and the period before the crisis.

¹⁸ Following Shipman, Swanquist, and Whited (2017), we use a linear probability model to estimate Equation (1) because this allows us to preserve sample observations, compare average treatment effects, and interpret the interaction term as a difference-in-differences test. Statistical inferences are similar for both *LATE_FILE* and *MISSTATE* when we use a probit model and estimate the interaction effect following Norton, Wang, and Ai (2004).

¹⁹ To facilitate the interpretation of coefficients, we tabulate results for raw (untransformed) *DELAY*. However, because raw *DELAY* does not meet the normal distribution assumption required by OLS (Knechel and Sharma 2012), we also perform tests using the natural log of *DELAY*. Inferences from the (untabulated) results are similar.

collected from banking clients, divided by the sum of audit fees collected from all clients, where both inputs are measured annually at the office level. Following Cull and Peria (2013), *CRISIS* is an indicator variable set equal to one for company-years 2008 and 2009, and zero otherwise.

Equation (1) includes controls for variables that have been shown to affect audit outcomes in previous work (Ettredge et al. 2006, Lennox and Li 2014). *LEVERAGE* is equal to total liabilities divided by total assets. *CLIENTSIZE* is the natural logarithm of total assets in millions. *GCO* is an indicator variable set equal to one if the company receives a going concern opinion, and zero otherwise. *BIG4* is an indicator variable set equal to one if the company engages a Big 4 auditor, and zero otherwise. *LOSS* is an indicator variable set equal to one if net income is less than zero, and zero otherwise. *ROA* is equal to income before extraordinary items divided by total assets. *TENURE* is an indicator variable set equal to one if the current auditor's tenure is more than four years, and zero otherwise. *INFLUENCE* is equal to company audit fees divided by the sum of audit fees collected from all clients in the office. *INTANGIBLES* is equal to intangible assets divided by total assets. *FOR_OPS* is an indicator variable set equal to one if the company reports a currency translation adjustment after net income to arrive at total comprehensive income, and zero otherwise. *L3_ASSETS* is an indicator variable set equal to one if the company has level 3 fair value assets (level 3 assets would have been particularly difficult to value during the financial crisis), and zero otherwise. *BUSY* is an indicator variable set equal to one if the company's fiscal year-end is in November, December or January, and zero otherwise. *EXCHANGE* is an indicator variable set equal to one if the company trades on a major exchange (NYSE, American, NASDAQ), and zero otherwise. *BTM* is the book value of equity divided by the market value of equity. *ACQUISITION* is an indicator variable set equal to one if the company reports an acquisition, and zero otherwise. *AFILER* is an indicator variable set

equal to one if the company is an accelerated filer, and zero otherwise. *AFILER_LARGE* is an indicator variable set equal to one if the company is a large accelerated filer, and zero otherwise.²⁰ Lastly we control for year and MSA fixed effects in all tests and cluster our standard errors by company.²¹

In Equation (1), the coefficient on *BANK_SPEC* (α_1) captures the effect of banking auditor industry specialization on audit outcomes during the period before the financial crisis. The coefficient on *CRISIS* (α_2) captures the effect of the financial crisis on audit outcomes when *BANK_SPEC* equals zero (i.e., audit offices with no banking clients). The coefficient on the interaction between *BANK_SPEC* and *CRISIS* (α_3) captures the incremental effect of banking auditor industry specialization on audit outcomes during the financial crisis relative to the pre-crisis period. H1 predicts a positive and significant coefficient on the interaction term, which would indicate that the benefits of banking auditor industry specialization (if any) are mitigated or reversed during the financial crisis.

3.2 Sample selection and descriptive statistics

The sample construction process begins with all company-year observations from 2004 through 2009 with necessary data in Compustat and Audit Analytics to construct the variables in Equation (1). The sample is restricted to clients in the banking industry, classified as SIC codes 60 through 62 which include depository institutions, nondepository institutions, and security & commodity brokers.²² We also restrict the sample to domestic banks with a domestic auditor. Finally, we exclude audit firms with fewer than ten public clients to ensure that our measure of

²⁰ Filing status impacts the financial statement filing deadline and, thus, has a direct impact on *DELAY*.

²¹ All continuous control variables are winsorized at the 1st and 99th percentiles.

²² Our sample size is larger than that of bank studies that restrict their analysis to bank holding companies (i.e., those that use regulatory reporting data sets).

banking auditor industry specialization is meaningful.²³ The final sample consists of 3,199 bank company-year observations.

We present comparative descriptive statistics (financial crisis and pre-crisis periods) in Table 1. By construction, the bulk of the sample falls in the pre-crisis period, with approximately 30 percent of the observations falling in the crisis period. The incidence of misstatements (*MISSTATE*) is very low in both periods, with only 1.2 (3.7) percent of banks having a misstatement during the financial crisis (pre-crisis) period. The average audit opinion delay (*DELAY*) is approximately 73 and 65 days after the fiscal year-end during the crisis and pre-crisis periods, respectively. The incidence of late financial statement filings (*LATE_FILE*) is relatively stable across the two periods, with approximately 7-8 percent of banks failing to file by the deadline. The average of *BANK_SPEC* is 58.5 percent in the crisis period and 52.8 percent in the pre-crisis period. Notably, the sample exhibits significant variance in *BANK_SPEC* in both periods (with ranges from less than 1% to 100% and large standard deviations), suggesting that there is significant variance in the extent of banking auditor industry specialization in the audit offices included in the sample. Finally, as expected, average financial performance (*ROA*) is worse and the incidence of losses (*LOSS*) is higher during the financial crisis.

<Insert Table 1 Here>

We present Pearson (below the diagonal) and Spearman (above the diagonal) correlations in Table 2. Across the pre-crisis and crisis periods combined, *BANK_SPEC* is significantly negatively associated with *MISSTATE* and negatively but insignificantly associated with *DELAY* and *LATE_FILE*, suggesting that banking auditor industry specialization is associated with better audit outcomes, on average (i.e., across the sample period). Other control variables are associated

²³ We calculate *BANK_SPEC* using the full Audit Analytics audit fees dataset (before merging with Compustat). As discussed in Section 4.3, we find similar results if we calculate *BANK_SPEC* using the final sample.

with our outcome variables consistent with expectations. For example, large banks, banks with higher *ROA*, and banks with longer *TENURE* are associated with shorter *DELAY* and are less likely to *LATE_FILE*.

<Insert Table 2 Here>

4. Results

4.1 Tests of H1

Results from the estimation of Equation (1), used to test H1, are presented in Table 3. The dependent variable is *MISSTATE*, *DELAY*, and *LATE_FILE* in Columns (1), (2), and (3), respectively. In all columns, the coefficient on *BANK_SPEC* is negative and statistically significant ($p < 0.01$ or $p < 0.10$, depending on the specification). This indicates that, during the pre-crisis period, audit outcomes improve as the extent of banking auditor industry specialization increases. As discussed previously, this result is consistent with a large body of research on the effects of auditor industry specialization.

Importantly, the coefficient on the interaction term (*BANK_SPEC* x *CRISIS*) is positive and significant in each column ($p < 0.01$). This indicates that the benefits of banking auditor industry specialization (observed during the pre-crisis period) are mitigated during the crisis period. Moreover, joint tests indicate that the association between *BANK_SPEC* and two of the three outcome variables (*MISSTATE* and *DELAY*) is positive and significant ($p < 0.05$ and $p < 0.01$, respectively). The joint test is insignificant in Column (3), where the dependent variable is *LATE_FILE*. Thus, during the financial crisis, banking auditor industry specialization was detrimental for audit outcomes (in terms of the incidence of misstatements and audit opinion delays) or had no statistically detectable benefit (in terms of late filings). Collectively, the results in Table 3 provide strong support for H1, and suggest that the benefits of banking auditor

industry specialization for audit outcomes are mitigated or reversed during the financial crisis compared to the pre-crisis period. We infer that audit outcomes were adversely affected during the financial crisis because audit offices with large portfolios of clients from the banking industry faced both a heightened demand for additional resources and a relatively small supply of available additional resources to draw from.

<Insert Table 3 Here>

4.2 Additional analyses

In this section, we report results from two sets of tests designed to support our inference that the observed deterioration in the benefits of banking auditor industry specialization is driven, at least in part, by difficulties associated with securing and allocating resources to clients from the banking industry.

Cross-sectional analysis – Audit offices with high and low ROA banks

Our primary tests treat all banks (adjusted for bank size) as requiring (demanding) a similar amount of additional resources to deal with the risks that arose during the financial crisis. In cross-sectional tests, we relax this assumption by assuming that audit offices with bank clients that are performing relatively well (poorly) will demand less (more) additional resources, such that the effects documented in Table 3 will be driven primarily by audit offices with poorly performing banks.

We categorize observations by audit office, where high (low) ROA bank-offices are those where the audit fee weighted average of ROA for banks in that office is above (below) the sample median (offices are classified as high or low bank ROA offices on an annual basis). We then estimate Equation (1) separately for the sample of banks in high and low ROA audit offices. The results are presented in Tables 4 and 5.

Table 4 presents results from cross-sectional tests where the dependent variable is *MISSTATE* and Table 5 presents results from cross-sectional tests where the dependent variable is *DELAY*.²⁴ In both tables, Column (1) presents results for the sample of banks in high ROA audit offices and Column (2) presents results for the sample of banks in low ROA audit offices. In both tables, the coefficient on the interaction between *BANK_SPEC* and *CRISIS* is positive and significant in Column (1) and Column (2). The joint tests in Table 4 (*MISSTATE*) indicate that auditor industry specialization was especially detrimental for banks audited by audit offices with low ROA banks, while the incremental effect of auditor industry specialization during the crisis (Column 3) is not significantly different between high and low ROA audit offices. The joint tests in Table 5 (*DELAY*) indicate that specialization was detrimental for clients of bank specialist offices with both high and low ROA clients. Notably, for *DELAY* the incremental effect of auditor industry specialization during the crisis (Column 3) was significantly longer at offices with low ROA banks than at offices with high ROA banks. Overall, these findings highlight stronger effects at audit offices where the demand for additional resources was likely to be the greatest, and further demonstrate the difficulties associated with securing and allocating resources to clients from the banking industry.

<Insert Table 4 Here>

<Insert Table 5 Here>

Nonbank clients

Our primary tests do not consider the implications of changes to office-level resource allocation plans for nonbank clients. If the inferences that we draw from our primary tests are correct – that

²⁴ We find no significant cross-sectional results when the dependent variable is *LATE_FILE*.

is, the demand for (supply of) additional resources is greatest (lowest) in offices where the client portfolio is weighted towards clients from the banking industry – then the effect of any reallocation of resources should be most pronounced for nonbank clients that engage banking specialist auditors. Stated differently, while H1 predicts a crisis-induced deterioration in audit outcomes for banking clients of bank specialists, we also expect a crisis-induced deterioration in audit outcomes for nonbank clients of bank specialists.

The sample is comprised of company-year observations from 2004 through 2009 with necessary data in Compustat and Audit Analytics to construct the variables in Equation (1). We exclude banks (i.e., the observations in our primary sample), utility companies, and companies from other highly regulated industries because they face different regulatory and reporting requirements. As in our primary sample, we restrict the nonbank sample to domestic companies with a domestic auditor and we exclude auditors with fewer than ten public clients. The final sample consists of 18,738 nonbank company-year observations.²⁵

Table 6 presents results where the dependent variable is *MISSTATE* in Column (1) and *ACCRUALS* in Column (2).²⁶ Table 7 presents results where the dependent variable is *DELAY* in Column (1) and *LATE_FILE* in Column (2). Because we do not have a prediction about the main effect of *BANK_SPEC* in either period (i.e., we do not have a prediction about the association between audit outcomes for nonbank clients and banking auditor industry specialization), we focus our discussion on the interaction term. In three of the four tests, we find a positive and significant coefficient on the interaction between *BANK_SPEC* and *CRISIS*. The lone exception

²⁵ We include Industry-Crisis fixed effects in our nonbank tests because the impact of the financial crisis likely varied across industries. We exclude Industry-Crisis fixed effects from our main tests because the sample is limited to banks (i.e., there is little variation in industry).

²⁶ Following Dechow and Sloan (1995), we use the modified Jones model (including prior year return on assets) to estimate the absolute value of discretionary accruals (*ACCRUALS*). Tests where *ACCRUALS* is the dependent variable use a smaller sample due to data constraints. We do not use *ACCRUALS* as a dependent variable in our analyses of bank audits because there are no widely-accepted discretionary accrual models for banks.

is in Table 7, Column (2), where the dependent variable is *LATE_FILE*. Collectively, the results in Tables 6 and 7 suggest a crisis-induced deterioration in audit outcomes for nonbank clients of bank specialists.

<Insert Table 6 Here>

<Insert Table 7 Here>

4.3 Supplemental and robustness tests

Regional analysis

In our main tests, we measure *BANK_SPEC* at the office level because we expect that resource reallocation plans are likely to be executed primarily at that level. We acknowledge, however, that audit offices often share resources with affiliate offices within their geographic area.²⁷ Thus, we perform tests after calculating *BANK_SPEC* at the (within firm) region level.²⁸ Inferences from the (untabulated) results are consistent with those in Table 3.

Post-crisis period Analysis

Our main analyses contrast the effects of banking auditor industry specialization during the financial crisis with the pre-crisis period. This design provides the cleanest sample in which to test our hypotheses because we can rely on prior research to predict that auditors will respond to increases in risk symmetrically. Performing tests using observations from the post-crisis period is problematic because it is much more difficult to determine both: 1) when the post-crisis period

²⁷ Consistent with this, our discussions with a partner and a manager who conducted bank audits during the financial crisis at a Big 4 firm indicated that they frequently lead audits of bank clients from another office within the same geographic region. They also mentioned that sharing manager and partner resources across offices within a geographic region was common in the banking practice because of industry expertise.

²⁸ Audit Analytics reports six ‘auditor region’ classifications in the U.S.; mid atlantic, midwest, new england, southeast, southwest, and west. In our discussions with an audit manager from a Big 4 firm, the regional designations from Audit Analytics generally aligned with how their firm divided up the regions, although not exactly.

begins (i.e., when the risk begins to subside); and 2) how and when auditors will respond to decreases in risk (or how their response will translate into observable measures).²⁹

Nevertheless, in (untabulated) exploratory tests, we examine over-time changes in the coefficient on *BANK_SPEC* during post-crisis years. In tests where the dependent variable is *MISSTATE*, the coefficient on *BANK_SPEC* peaks in 2009 before declining steeply in 2010 and reaching pre-crisis levels in 2011. In tests where the dependent variable is *DELAY*, the coefficient on *BANK_SPEC* peaks in 2011 and declines thereafter, dropping close to pre-crisis levels by 2014. Finally, in tests where the dependent variable is *LATE_FILE*, the coefficient on *BANK_SPEC* peaks in 2009 and declines sharply in 2010, reaching pre-crisis levels in 2013. Collectively, these findings are consistent with a gradual recovery in the benefits of banking auditor industry specialization as the crisis-induced risks subsided.

Other Robustness Tests

We perform a series of additional tests to assess the robustness of our main results. First, we include (separately) auditor and company fixed effects in order to alleviate concerns that our results are attributable to unmeasured auditor or company-level characteristics. Second, we replace the raw (unlogged) *DELAY* dependent variable with the logged version. Third, we calculate *BANK_SPEC* using our final sample instead of the full sample available in Audit Analytics. Finally, we incorporate data from 2010 and assume that the financial crisis covers years 2008 through 2010. Inferences from these (untabulated) tests are consistent with those from our main tests (Table 3) in that we observe a deterioration in the benefits of banking auditor industry specialization during the financial crisis relative to the pre-crisis period.

²⁹ Our predicted crisis effect will moderate when auditors believe the risks are no longer relevant and reduce resources committed to those risks, or hire and train additional audit personnel sufficient to mitigate sustained risk.

5 Summary and conclusions

We investigate the implications of auditor industry specialization on audit outcomes during times of industry-specific crises. To date, prior literature has provided compelling evidence suggesting that industry specialist auditors provide audits of higher quality. However, audit researchers and regulators have largely ignored a potential risk associated with auditor specialization – the concentration of clients in a given industry within the audit office.

We use a difference-in-differences design and focus on the effects of banking auditor industry specialization on audit outcomes for bank clients during and before the financial crisis. We find that, during the period before the financial crisis, banking auditor industry specialization is associated with higher audit quality and more timely audits. However, during the financial crisis, the results indicate that banking auditor industry specialization is associated with lower audit quality and less timely audits. Results from two sets of additional analyses support our inference that the observed deterioration in the benefits of auditor industry specialization is driven by problems associated with securing and allocating resources to clients from the banking industry. Collectively, our results provide the first empirical evidence suggesting that auditor industry specialization can be detrimental for audit outcomes. Our results should be particularly concerning because they suggest that the risk associated with auditor industry specialization manifests during periods of crisis, when high quality and timely audits are likely to be particularly important.

Our study is subject to a number of important limitations and caveats. First, we assume that resource allocation plans are centered around availability at the office (in our primary tests) or region (in supplemental tests) level. We acknowledge that within-firm resource sharing could occur outside of those bounds. Second, our results are based on observed audit outcomes during

a single crisis period (the financial crisis of 2008 and 2009) that had the greatest impact on a single industry (the banking industry). Thus, our results may not generalize to crises of different magnitudes or crises that primarily influence other industries. Third, although our difference-in-differences design and robustness tests (including company fixed effects) should alleviate concerns about omitted variables, we acknowledge that the financial crisis resulted in fundamental changes throughout U.S. markets such that we cannot completely eliminate concerns related to unobserved covariates. Finally, we acknowledge that our results do not suggest that auditor industry specialization is detrimental, on average. Rather, our results suggest that auditor industry specialization can be detrimental in certain circumstances and that audit firms and audit regulators should consider whether the audit market, audit firms, or audit offices have become too specialized to handle the resource allocation problems that crisis situations present.

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TABLE 1
Summary Statistics: Comparison of Financial Crisis and Pre-Crisis Period Observations

Variable	Financial Crisis					Pre-Crisis				
	Obs.	Mean	S.D.	Min.	Max	Obs.	Mean	S.D.	Min.	Max
<i>MISSTATE</i>	969	0.012	0.111	0.000	1.000	2230	0.037	0.189	0.000	1.000
<i>DELAY</i>	969	72.643	16.287	21.000	211.000	2230	64.856	19.128	21.000	244.000
<i>LATE_FILE</i>	969	0.084	0.277	0.000	1.000	2230	0.072	0.258	0.000	1.000
<i>BANK_SPEC</i>	969	0.585	0.373	0.007	1.000	2230	0.528	0.381	0.006	1.000
<i>LEVERAGE</i>	969	0.868	0.152	0.033	1.865	2230	0.872	0.159	0.033	2.260
<i>CLIENTSIZE</i>	969	7.379	1.716	0.394	14.615	2230	7.193	1.806	0.527	14.355
<i>GCO</i>	969	0.046	0.211	0.000	1.000	2230	0.009	0.092	0.000	1.000
<i>BIG4</i>	969	0.349	0.477	0.000	1.000	2230	0.447	0.497	0.000	1.000
<i>LOSS</i>	969	0.223	0.416	0.000	1.000	2230	0.048	0.213	0.000	1.000
<i>ROA</i>	969	-0.013	0.128	-3.327	0.405	2230	0.005	0.105	-2.743	0.385
<i>TENURE</i>	969	0.286	0.452	0.000	1.000	2230	0.283	0.450	0.000	1.000
<i>INFLUENCE</i>	969	0.158	0.216	0.002	1.000	2230	0.137	0.192	0.000	1.000
<i>INTANGIBLES</i>	969	0.025	0.073	0.000	0.944	2230	0.025	0.061	0.000	0.805
<i>FOR_OPS</i>	969	0.520	0.500	0.000	1.000	2230	0.548	0.498	0.000	1.000
<i>L3_ASSETS</i>	969	0.768	0.422	0.000	1.000	2230	0.998	0.047	0.000	1.000
<i>BUSY</i>	969	0.897	0.304	0.000	1.000	2230	0.879	0.326	0.000	1.000
<i>EXCHANGE</i>	969	0.807	0.395	0.000	1.000	2230	0.765	0.424	0.000	1.000
<i>BTM</i>	969	1.444	1.136	-9.322	3.632	2230	0.616	0.534	-9.322	3.632
<i>ACQUISITION</i>	969	0.547	0.498	0.000	1.000	2230	0.588	0.492	0.000	1.000
<i>AFILER</i>	969	0.353	0.478	0.000	1.000	2230	0.369	0.483	0.000	1.000
<i>AFILER_LARGE</i>	969	0.270	0.444	0.000	1.000	2230	0.252	0.434	0.000	1.000

Variable Definitions:

<i>MISSTATE</i>	= Indicator variable set equal to one if the company has a financial statement misstatement reported through a Form 8-K filing with the SEC (as reported by Audit Analytics), and zero otherwise.
<i>DELAY</i>	= The number of days between the fiscal year-end and the audit opinion date.
<i>LATE_FILE</i>	= Indicator variable set equal to one if the company files their financial report after the SEC deadline, and zero otherwise.
<i>BANK_SPEC</i>	= The sum of audit fees collected from banking clients, divided by the sum of audit fees collected from all clients, where both inputs are measured annually at the office level.
<i>CRISIS</i>	= Indicator variable set equal to one for company-years 2008 and 2009, and zero otherwise.
<i>LEVERAGE</i>	= Total liabilities divided by total assets.
<i>CLIENTSIZE</i>	= The natural logarithm of total assets in millions.
<i>GCO</i>	= Indicator variable set equal to one if the company receives a going concern opinion, and zero otherwise.
<i>BIG4</i>	= Indicator variable set equal to one if the company engages a Big4 auditor, and zero otherwise.
<i>LOSS</i>	= Indicator variable set equal to one if net income is less than zero, and zero otherwise.
<i>ROA</i>	= Income before extraordinary items divided by total assets.
<i>TENURE</i>	= Indicator variable set equal to one if the current auditor's tenure is more than four years, and zero otherwise.
<i>INFLUENCE</i>	= Company audit fees divided by the sum of audit fees collected from all clients in the office.
<i>INTANGIBLES</i>	= Intangible assets divided by total assets.
<i>FOR_OPS</i>	= Indicator variable set equal to one if the company reports a currency translation adjustment after net income to arrive at total comprehensive income, and zero otherwise.
<i>L3_ASSETS</i>	= Indicator variable set equal to one if the company has level 3 fair value assets, and zero otherwise.
<i>BUSY</i>	= Indicator variable set equal to one if the company's fiscal year-end is in November, December or January, and zero otherwise.
<i>EXCHANGE</i>	= Indicator variable set equal to one if the company trades on a major exchange (NYSE, American, NASDAQ), and zero otherwise.
<i>BTM</i>	= Book value of equity divided by the market value of equity.
<i>ACQUISITION</i>	= Indicator variable set equal to one if the company reports an acquisition, and zero otherwise.
<i>AFILER</i>	= Indicator variable set equal to one if the company is an accelerated filer, and zero otherwise.
<i>AFILER_LARGE</i>	= Indicator variable set equal to one if the company is a large accelerated filer, and zero otherwise.

TABLE 2
Pearson and Spearman Correlations

<i>MISSTATE</i>	1	0.064	0.055	-0.098	-0.067	0.011	0.045	-0.012	0.095	-0.003	0.021	0.013	-0.049	0.037	0.003	0.042	-0.127	-0.013	-0.032	-0.014	0.070	-0.032
	2	0.000	0.002	0.000	0.000	0.518	0.011	0.503	0.000	0.846	0.228	0.479	0.006	0.037	0.877	0.019	0.000	0.470	0.073	0.439	0.000	0.075
<i>DELAY</i>	2	0.057	0.260	0.023	0.205	0.084	-0.247	0.182	-0.116	0.210	-0.327	-0.168	-0.021	-0.112	-0.046	-0.134	-0.008	-0.179	0.270	-0.022	0.023	-0.298
	3	0.001	0.000	0.198	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.231	0.000	0.000	0.010	0.000	0.655	0.000	0.000	0.213	0.199	0.000
<i>LATE_FILE</i>	3	0.055	0.300	0.000	-0.011	0.021	0.082	-0.015	0.205	-0.016	0.101	-0.134	-0.022	0.039	-0.003	-0.026	-0.029	-0.090	0.036	-0.016	0.015	-0.044
	4	0.002	0.000	0.551	0.244	0.000	0.409	0.000	0.378	0.000	0.000	0.216	0.028	0.878	0.138	0.141	0.102	0.000	0.044	0.365	0.386	0.014
<i>BANK_SPEC</i>	4	-0.098	-0.024	-0.017	0.072	0.089	-0.283	-0.035	-0.653	-0.045	-0.113	-0.184	0.606	-0.189	-0.031	-0.059	0.012	-0.106	0.194	-0.031	0.022	-0.282
	5	0.000	0.180	0.347	0.000	0.000	0.000	0.047	0.000	0.011	0.000	0.000	0.000	0.000	0.079	0.001	0.513	0.000	0.000	0.077	0.213	0.000
<i>CRISIS</i>	5	-0.067	0.192	0.021	0.069	-0.022	0.061	0.124	-0.091	0.268	-0.452	0.003	0.071	-0.029	-0.026	-0.409	0.025	0.046	0.535	-0.038	-0.015	0.019
	6	0.000	0.000	0.244	0.000	0.209	0.001	0.000	0.000	0.000	0.000	0.847	0.000	0.099	0.146	0.000	0.156	0.009	0.000	0.031	0.384	0.275
<i>LEVERAGE</i>	6	-0.036	0.013	0.043	0.184	-0.013	0.110	0.149	-0.037	0.029	-0.181	0.014	0.059	-0.293	-0.024	0.029	0.090	-0.095	-0.081	-0.005	0.064	-0.132
	7	0.040	0.465	0.016	0.000	0.460	0.000	0.000	0.039	0.105	0.000	0.441	0.001	0.000	0.176	0.101	0.000	0.000	0.000	0.768	0.000	0.000
<i>CLIENTSIZE</i>	7	0.045	-0.174	-0.041	-0.228	0.048	0.235	-0.084	0.536	-0.120	0.167	0.342	-0.001	0.415	0.052	0.082	0.222	0.298	-0.095	0.129	0.063	0.619
	8	0.011	0.000	0.020	0.000	0.006	0.000	0.000	0.000	0.000	0.000	0.000	0.962	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<i>GCO</i>	8	-0.012	0.233	0.205	-0.034	0.124	0.124	-0.145	-0.053	0.271	-0.215	-0.045	0.027	-0.047	-0.002	-0.073	-0.011	-0.187	0.019	-0.067	-0.053	-0.069
	9	0.503	0.000	0.000	0.056	0.000	0.000	0.000	0.003	0.000	0.000	0.010	0.133	0.008	0.893	0.000	0.523	0.000	0.272	0.000	0.003	0.000
<i>BIG4</i>	9	0.095	-0.051	-0.016	-0.667	-0.091	-0.059	0.513	-0.053	-0.079	0.231	0.356	-0.476	0.292	0.041	0.093	0.083	0.213	-0.247	0.067	-0.034	0.466
	10	0.000	0.004	0.378	0.000	0.000	0.001	0.000	0.003	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.055	0.000
<i>LOSS</i>	10	-0.003	0.191	0.101	-0.043	0.268	-0.028	-0.179	0.271	-0.079	-0.488	-0.079	0.037	0.005	-0.262	-0.301	-0.026	-0.151	0.219	-0.297	-0.033	-0.097
	11	0.846	0.000	0.000	0.014	0.000	0.119	0.000	0.000	0.000	0.000	0.000	0.035	0.779	0.000	0.000	0.148	0.000	0.000	0.000	0.062	0.000
<i>ROA</i>	11	-0.002	-0.118	-0.109	0.055	-0.073	-0.222	0.171	-0.282	0.035	-0.308	0.138	-0.100	0.109	0.059	0.172	0.038	0.170	-0.628	0.064	0.056	0.233
	12	0.912	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.001	0.000	0.031	0.000	0.000	0.000	0.002	0.000
<i>TENURE</i>	12	0.013	-0.113	-0.022	-0.195	0.003	0.031	0.368	-0.045	0.356	-0.079	0.025	-0.140	0.169	0.032	0.044	0.058	0.124	-0.092	0.049	-0.074	0.351
	13	0.479	0.000	0.216	0.000	0.847	0.075	0.000	0.010	0.000	0.159	0.000	0.000	0.000	0.075	0.014	0.001	0.000	0.000	0.005	0.000	0.000
<i>INFLUENCE</i>	13	-0.006	-0.012	0.025	0.439	0.048	0.090	0.060	0.018	-0.245	0.000	-0.071	0.055	-0.016	-0.033	0.062	-0.033	0.071	-0.041	0.118	0.001	0.002
	14	0.739	0.498	0.151	0.000	0.007	0.000	0.001	0.299	0.000	0.684	0.000	0.002	0.002	0.353	0.062	0.000	0.021	0.000	0.936	0.896	0.010
<i>INTANGIBLES</i>	14	0.043	0.035	0.018	-0.186	-0.004	-0.247	-0.029	0.089	0.150	0.104	-0.114	-0.027	0.002	0.010	0.060	0.115	0.177	-0.021	0.137	-0.029	0.368
	15	0.016	0.049	0.305	0.000	0.805	0.000	0.000	0.000	0.000	0.000	0.000	0.132	0.578	0.001	0.000	0.000	0.247	0.000	0.096	0.000	0.000
<i>FOR_OPS</i>	15	0.003	-0.017	-0.026	-0.034	-0.026	0.011	0.091	-0.002	0.041	-0.262	0.032	-0.039	0.037	0.026	0.036	0.002	0.027	-0.039	0.757	-0.057	0.105
	16	0.877	0.325	0.138	0.054	0.146	0.553	0.000	0.893	0.020	0.000	0.034	0.075	0.026	0.036	0.000	0.002	0.133	0.030	0.000	0.001	0.000
<i>L3_ASSETS</i>	16	0.042	-0.111	-0.026	-0.062	-0.409	0.043	0.083	-0.073	0.093	-0.301	0.010	0.044	-0.025	-0.027	0.267	-0.032	0.023	-0.228	0.260	0.025	0.059
	17	0.019	0.000	0.141	0.001	0.000	0.015	0.000	0.000	0.000	0.574	0.014	0.164	0.122	0.000	0.000	0.068	0.195	0.000	0.000	0.165	0.001
<i>BUSY</i>	17	-0.127	0.016	0.029	0.021	0.025	0.105	0.211	-0.011	0.083	-0.026	0.009	0.058	0.040	-0.030	-0.032	0.000	0.080	-0.024	0.042	0.046	0.108
	22	0.000	0.359	0.102	0.241	0.156	0.000	0.000	0.523	0.000	0.148	0.604	0.001	0.025	0.086	0.002	0.068	0.000	0.177	0.017	0.010	0.000

<i>EXCHANGE</i>	18	-0.013	-0.133	-0.090	-0.110	0.046	-0.047	0.292	-0.187	0.213	-0.151	0.117	0.124	0.001	0.023	0.027	0.023	0.080		-0.083	0.069	0.170	0.291
		0.470	0.000	0.000	0.000	0.009	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.946	0.202	0.133	0.195	0.000		0.000	0.000	0.000	0.000
<i>BTM</i>	19	-0.020	0.140	0.035	0.136	0.444	-0.072	0.008	-0.067	-0.153	0.190	0.021	-0.044	0.055	-0.165	-0.038	-0.202	0.045		-0.033	-0.030	-0.064	-0.204
		0.271	0.000	0.051	0.000	0.000	0.000	0.647	0.000	0.000	0.226	0.013	0.002	0.000	0.030	0.000	0.012	0.063		0.093	0.000	0.000	0.000
<i>ACQUISITION</i>	20	-0.014	-0.013	-0.016	-0.036	-0.038	0.068	0.156	-0.067	0.067	-0.297	0.063	0.049	-0.043	0.062	0.757	0.260	0.042		0.069	-0.021	-0.032	0.136
		0.439	0.460	0.365	0.043	0.031	0.000	0.000	0.000	0.000	0.000	0.005	0.014	0.001	0.000	0.000	0.017	0.000		0.229	0.069	0.000	0.000
<i>AFILER</i>	21	0.070	0.003	0.015	0.028	-0.015	0.041	-0.030	-0.053	-0.034	-0.033	0.011	-0.074	0.006	-0.044	-0.057	0.025	0.046		0.170	-0.018	-0.032	-0.446
		0.000	0.882	0.386	0.114	0.384	0.021	0.092	0.003	0.055	0.062	0.528	0.000	0.720	0.013	0.001	0.165	0.010		0.000	0.323	0.069	0.000
<i>AFILER_LARGE</i>	22	-0.032	-0.179	-0.044	-0.301	0.019	-0.070	0.615	-0.069	0.466	-0.097	0.076	0.351	0.021	0.156	0.105	0.059	0.108		0.291	-0.128	0.136	-0.446
		0.075	0.000	0.014	0.000	0.275	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.241	0.000	0.000	0.001	0.000		0.000	0.000	0.000	0.000

Pearson correlations are in the bottom left, Spearman correlations are in the top right. P-values appear below coefficients. See Table 1 for variable definitions.

TABLE 3
The Effect of Banking Auditor Industry Specialization on Bank Client Audit Outcomes
During the Financial Crisis and Pre-Crisis Periods

	(1)		(2)		(3)	
	<i>MISSTATE</i>		<i>DELAY</i>		<i>LATE_FILE</i>	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
<i>BANK_SPEC</i>	-0.026*	(-1.71)	-7.687***	(-4.00)	-0.054*	(-1.88)
<i>CRISIS</i>	-0.081***	(-5.15)	5.652***	(3.79)	-0.101***	(-4.57)
<i>BANK_SPEC x CRISIS</i>	0.060***	(4.00)	13.507***	(8.49)	0.094***	(3.27)
<i>LEVERAGE</i>	-0.065**	(-1.97)	8.930**	(2.08)	0.049	(0.97)
<i>CLIENTSIZE</i>	0.013***	(2.87)	-1.865***	(-5.08)	-0.004	(-0.74)
<i>GCO</i>	-0.003	(-0.11)	22.184***	(4.47)	0.359***	(5.08)
<i>BIG4</i>	0.026*	(1.77)	4.883***	(3.14)	0.009	(0.45)
<i>LOSS</i>	0.005	(0.41)	2.623**	(2.01)	0.017	(0.81)
<i>ROA</i>	-0.044	(-1.62)	1.321	(0.23)	-0.087	(-0.84)
<i>TENURE</i>	-0.003	(-0.24)	-2.055**	(-2.16)	-0.005	(-0.38)
<i>INFLUENCE</i>	0.025	(0.93)	5.567**	(2.44)	0.054	(1.56)
<i>INTANGIBLES</i>	0.093	(1.33)	6.177	(1.02)	0.003	(0.03)
<i>FOR_OPS</i>	-0.002	(-0.21)	-0.312	(-0.30)	-0.026*	(-1.73)
<i>L3_ASSETS</i>	0.008	(1.11)	-0.277	(-0.26)	-0.013	(-0.58)
<i>BUSY</i>	-0.072***	(-3.20)	2.433	(1.46)	0.028*	(1.86)
<i>EXCHANGE</i>	-0.014	(-1.27)	-2.293**	(-2.08)	-0.039**	(-2.56)
<i>BTM</i>	0.005	(1.31)	1.336**	(2.41)	0.016*	(1.68)
<i>ACQUISITION</i>	-0.002	(-0.21)	1.688	(1.61)	0.026*	(1.70)
<i>AFILER</i>	0.012	(1.14)	-1.916*	(-1.86)	0.026*	(1.66)
<i>AFILER_LARGE</i>	-0.039**	(-2.52)	-5.437***	(-3.43)	0.009	(0.40)
Constant	0.049	(1.48)	65.973***	(14.56)	0.007	(0.14)
Year FE	Yes		Yes		Yes	
MSA FE	Yes		Yes		Yes	
Joint Tests:						
<i>BANK_SPEC +</i>	0.034**	(2.08)	5.82***	(2.72)	0.04	(1.10)
<i>BANK_SPEC x CRISIS =0</i>						
Observations	3199		3199		3199	
Adjusted R ²	0.086		0.268		0.104	

This table presents results from the estimation of Equation (1), used to test H1. See Table 1 for variable definitions. Standard errors are clustered by company. *, **, *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. P values are based on one-tailed tests for our variable of interest (bolded) and two-tailed tests otherwise.

TABLE 4
Cross-sectional Tests: Offices with High and Low ROA Banks - MISSTATE

<i>DV: MISSTATE</i>	(1) Offices with High ROA Banks		(2) Offices with Low ROA Banks		(3) Test of Differences	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
<i>BANK_SPEC</i>	-0.034*	(-1.67)	-0.040*	(-1.67)		
<i>CRISIS</i>	-0.066***	(-2.99)	-0.101***	(-3.91)		
<i>BANK_SPEC x CRISIS</i>	0.048**	(2.20)	0.078***	(3.43)	0.030	(0.929)
<i>LEVERAGE</i>	-0.107*	(-1.93)	-0.078*	(-1.83)		
<i>CLIENTSIZE</i>	0.010*	(1.93)	0.018**	(2.23)		
<i>GCO</i>	0.001	(0.04)	-0.004	(-0.13)		
<i>BIG4</i>	0.037*	(1.76)	0.003	(0.12)		
<i>LOSS</i>	-0.006	(-0.61)	-0.001	(-0.05)		
<i>ROA</i>	-0.318**	(-2.12)	-0.002	(-0.05)		
<i>TENURE</i>	0.003	(0.23)	-0.001	(-0.05)		
<i>INFLUENCE</i>	0.060*	(1.82)	0.011	(0.28)		
<i>INTANGIBLES</i>	0.018	(0.25)	0.165	(1.51)		
<i>FOR_OPS</i>	-0.005	(-0.36)	0.008	(0.47)		
<i>L3_ASSETS</i>	-0.004	(-0.37)	0.021	(1.50)		
<i>BUSY</i>	-0.066**	(-2.31)	-0.086***	(-3.15)		
<i>EXCHANGE</i>	-0.026	(-1.65)	-0.004	(-0.28)		
<i>BTM</i>	-0.002	(-0.40)	0.005	(1.02)		
<i>ACQUISITION</i>	0.009	(0.64)	-0.023	(-1.43)		
<i>AFILER</i>	0.021	(1.54)	0.009	(0.53)		
<i>AFILER_LARGE</i>	-0.030	(-1.53)	-0.037*	(-1.77)		
Constant	0.115**	(2.13)	0.000	(0.01)		
Year FE	Yes		Yes			
MSA FE	Yes		Yes			
Joint Tests:						
<i>BANK_SPEC +</i>	0.014	(0.599)	0.038*	(1.486)		
<i>BANK_SPEC x CRISIS=0</i>						
Observations	1553		1646			
Adjusted R ²	0.159		0.107			

See Table 1 for variable definitions. Standard errors are clustered by company. *, **, *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. P values are based on one-tailed tests for our variable of interest (bolded) and two-tailed tests otherwise.

TABLE 5
Cross-sectional Tests: Offices with High and Low ROA Banks - DELAY

<i>DV: MISSTATE</i>	(1)		(2)		(3)	
	Offices with High ROA Banks		Offices with Low ROA Banks		Test of Differences	
	Coeff.	t-value	Coeff.	t-value	Coeff.	t-value
<i>BANK_SPEC</i>	-8.093 ***	(-2.73)	-7.169 ***	(-2.76)		
<i>CRISIS</i>	1.303	(0.74)	9.486 ***	(3.74)		
<i>BANK_SPEC x CRISIS</i>	11.951 ***	(5.13)	15.725 ***	(6.44)	3.774 ***	(5.30)
<i>LEVERAGE</i>	7.464	(0.67)	7.165	(1.47)		
<i>CLIENTSIZE</i>	-1.457 ***	(-3.20)	-2.334 ***	(-5.12)		
<i>GCO</i>	62.949 **	(2.23)	19.945 ***	(3.85)		
<i>BIG4</i>	2.379	(1.29)	7.137 ***	(3.02)		
<i>LOSS</i>	0.257	(0.10)	2.441	(1.51)		
<i>ROA</i>	-26.722	(-0.78)	2.769	(0.46)		
<i>TENURE</i>	-2.370 **	(-2.35)	-0.757	(-0.51)		
<i>INFLUENCE</i>	3.350	(1.12)	8.244 **	(2.34)		
<i>INTANGIBLES</i>	10.873	(1.55)	5.128	(0.54)		
<i>FOR_OPS</i>	0.231	(0.14)	-0.505	(-0.40)		
<i>L3_ASSETS</i>	-1.847	(-1.21)	1.150	(0.68)		
<i>BUSY</i>	0.467	(0.20)	3.585 *	(1.65)		
<i>EXCHANGE</i>	-3.549 **	(-2.49)	-1.840	(-1.32)		
<i>BTM</i>	2.787 ***	(2.79)	0.205	(0.31)		
<i>ACQUISITION</i>	0.509	(0.29)	2.141	(1.61)		
<i>AFILER</i>	-2.032	(-1.27)	-1.257	(-1.01)		
<i>AFILER_LARGE</i>	-5.424 **	(-2.53)	-3.877 *	(-1.78)		
Constant	73.660 ***	(6.85)	66.577 ***	(11.28)		
Year FE	Yes		Yes			
MSA FE	Yes		Yes			
Joint Tests:						
<i>BANK_SPEC +</i>	3.858 *	(1.563)	8.556 ***	(2.429)		
<i>BANK_SPEC x CRISIS=0</i>						
Observations	1553		1646			
Adjusted R ²	0.264		0.312			

See Table 1 for variable definitions. Standard errors are clustered by company. *, **, *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. P values are based on one-tailed tests for our variable of interest (bolded) and two-tailed tests otherwise.

TABLE 6
Nonbank Clients – MISSTATE and ACCRUALS

	(1)		(2)	
	<i>MISSTATE</i>		<i>ACCRUALS</i>	
	Coeff.	t-value	Coeff.	t-value
<i>BANK_SPEC</i>	-0.025	(-1.12)	-0.007	(-1.08)
<i>CRISIS</i>	-0.049*	(-1.73)	-0.040*	(-1.88)
<i>BANK_SPEC x CRISIS</i>	0.057**	(1.87)	0.014*	(1.30)
<i>LEVERAGE</i>	0.006*	(1.68)	0.001	(0.44)
<i>CLIENTSIZE</i>	0.006***	(2.94)	-0.007***	(-10.81)
<i>GCO</i>	-0.011	(-1.29)	0.020***	(3.83)
<i>BIG4</i>	-0.009	(-1.25)	-0.004	(-1.54)
<i>LOSS</i>	0.006	(1.05)	0.009***	(4.71)
<i>ROA</i>	-0.006*	(-1.77)	-0.031***	(-6.82)
<i>TENURE</i>	-0.011*	(-1.81)	-0.005***	(-3.29)
<i>INFLUENCE</i>	-0.019	(-1.16)	0.005	(0.90)
<i>INTANGIBLES</i>	0.015	(0.97)	-0.021***	(-4.33)
<i>FOR_OPS</i>	0.008	(1.51)	-0.003	(-1.54)
<i>L3_ASSETS</i>	-0.008	(-1.62)	-0.004	(-1.46)
<i>BUSY</i>	-0.013**	(-2.20)	0.001	(0.63)
<i>EXCHANGE</i>	-0.020**	(-2.23)	-0.009***	(-3.18)
<i>BTM</i>	0.004**	(2.12)	-0.004***	(-4.32)
<i>ACQUISITION</i>	0.000	(0.09)	0.005***	(2.94)
<i>AFILER</i>	0.015*	(1.87)	0.000	(0.12)
<i>AFILER_LARGE</i>	-0.006	(-0.64)	-0.000	(-0.09)
Constant	-0.029	(-1.04)	0.151***	(6.84)
Year FE	Yes		Yes	
Industry-Crisis FE	Yes		Yes	
MSA FE	Yes		Yes	
Observations	18738		17434	
R-squared	0.060		0.200	

ACCRUALS is the absolute value of discretionary accruals, estimated using the modified Jones model (including prior year return on assets), following Dechow and Sloan (1995). See Table 1 for all other variable definitions. Standard errors are clustered by company. *, **, *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. P values are based on one-tailed tests for our variable of interest (bolded) and two-tailed tests otherwise.

TABLE 7
Nonbank Clients – DELAY and LATE_FILE

	(1)		(2)	
	<i>DELAY</i>		<i>LATE_FILE</i>	
	Coeff.	t-value	Coeff.	t-value
<i>BANK_SPEC</i>	-2.978	(-1.42)	-0.028	(-1.32)
<i>CRISIS</i>	-4.081	(-0.62)	-0.535 ***	(-6.13)
<i>BANK_SPEC x CRISIS</i>	10.307 ***	(3.03)	0.033	(1.09)
<i>LEVERAGE</i>	1.335 **	(2.57)	0.014 **	(2.49)
<i>CLIENTSIZE</i>	-1.480 ***	(-6.60)	-0.006 **	(-2.45)
<i>GCO</i>	7.027 ***	(5.57)	0.159 ***	(10.00)
<i>BIG4</i>	2.985 ***	(4.16)	-0.011	(-1.40)
<i>LOSS</i>	4.690 ***	(8.71)	0.032 ***	(5.57)
<i>ROA</i>	0.640	(1.31)	-0.004	(-0.66)
<i>TENURE</i>	-2.950 ***	(-5.71)	-0.014 ***	(-2.60)
<i>INFLUENCE</i>	11.537 ***	(5.54)	0.077 ***	(3.88)
<i>INTANGIBLES</i>	3.636 ***	(2.86)	0.055 ***	(3.32)
<i>FOR_OPS</i>	0.480	(0.95)	0.025 ***	(4.37)
<i>L3_ASSETS</i>	1.872 ***	(3.73)	-0.002	(-0.30)
<i>BUSY</i>	0.726	(1.28)	0.057 ***	(10.25)
<i>EXCHANGE</i>	-4.671 ***	(-5.15)	-0.067 ***	(-6.71)
<i>BTM</i>	-0.676 **	(-1.97)	-0.005	(-1.36)
<i>ACQUISITION</i>	0.984 **	(2.11)	0.015 ***	(2.84)
<i>AFILER</i>	-1.230 *	(-1.69)	0.010	(1.35)
<i>AFILER_LARGE</i>	-7.221 ***	(-8.32)	-0.005	(-0.59)
Constant	71.613 ***	(10.72)	0.116	(1.33)
Year FE	Yes		Yes	
Industry-Crisis FE	Yes		Yes	
MSA FE	Yes		Yes	
Observations	18738		18738	
R-squared	0.168		0.141	

See Table 1 for variable definitions. Standard errors are clustered by company. *, **, *** indicate significance at $p < 0.10$, $p < 0.05$, and $p < 0.01$, respectively. P values are based on one-tailed tests for our variable of interest (bolded) and two-tailed tests otherwise.