Fair Value Measurements, Auditor Industry Expertise, and Audit Fees: Evidence from the Banking Industry

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October 2009

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Abstract: We test a model of audit fee determinants in the banking industry, and investigate several hypotheses regarding the association of audit fees with fair valued assets and with audits by bank industry specialists. Our sample consists of publicly traded bank holding companies and our data are for 2006 and 2008. The latter year is one in which large banks underwent considerable financial stress. First, we find evidence that auditors charge more for auditing bank assets whose fair values are less verifiable, consistent with the notion that audit risks and efforts increase in the difficulty of verifiability. Second, we find that bank specialist auditors charge clients less for audits on average, consistent with cost efficiencies passed along to clients (but not consistent with a product differentiation scenario). Third, we find that bank specialist auditors charge more for auditing less verifiable fair valued assets, even though they charge clients less on average for the audit as a whole. These findings contribute to our understanding of audit fee determinants, fair values, and the role of specialist auditors in the banking industry.

Key Words: audit fees, fair value measurements, FAS 157, industry specialist auditors, banks

JEL Classification: M41

Data Availability: All data used in this study are publicly available from the sources identified in the text.

Acknowledgments: We appreciate Robert DeYoung's helpful advice on bank holding company data.

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1. Introduction

A large literature investigates the determinants of audit fee levels and of audit fee changes for industrial companies (Hay, Knechel, and Wong [2006]). An extensive literature also studies the determinants and effects of auditor specialization in client industries (Craswell et al. 1995, Francis et al. [2005]). However, studies of audit fees routinely exclude client companies belonging to the financial industries (see for example Fan and Wong [2005]). Similarly, studies of auditor industry specialization frequently omit clients in financial industries (see for example Lim and Tan [2008]). We attempt to address these gaps in the literature by providing empirical evidence on the determinants of audit fees for bank holding companies.[1] We focus on the role of the client banks' fair valued assets, and on the role of the bank auditors' industry expertise.

The banking industry recently has attracted attention because of the importance of bank failures and bank rescue attempts during the severe economic downturn of 2007-2009. In particular, investors, regulators and others have been concerned about the possible role of fair value accounting in undermining the viability of banks (U. S. Securities and Exchange Commission (SEC) [2008]).[2] In this context we investigate the effect of fair

[1] A holding company is a corporation that owns several different companies. Bank holding companies originated as a response to state laws restricting the type and number of branches that a bank can open (Mishkin [1995]). The holding companies are able to circumvent restrictive state branching regulations by owning a controlling interest in other banks even if branching is not permitted. The Federal Reserve's regulation Y requires that the companies owned by bank holding companies engage in businesses "closely related to banking." Allowable related activities include provision of investment advice, leasing, credit card services, and servicing of loans in other states.

[2] Section 133 of the Emergency Economic Stabilization Act of 2008 required that the SEC conduct a study on mark-to-market accounting standards as provided by the Financial Accounting Standards Board (FASB)

value measurement inputs (Levels 1, 2 and 3) on the audit fees paid by a sample of publicly traded bank holding companies. Bank holding companies provide a useful sample for this purpose because they are numerous, large, and hold substantial amounts of financial assets that are reported at fair values.[3] We also investigate the association between bank client audit fees and auditors' banking industry expertise. We study both the direct effects of expertise, and the indirect effects (i.e. the interaction of expertise with proportions of fair valued assets). We use Behn et al.'s [2008] auditor industry specialist measure, which captures the amount of banking assets audited by an auditor relative to total client assets audited by that auditor.[4] Using this measure, the Big 4 audit firms are among the least specialized of bank industry auditors.[5] In additional tests, we also employ national level (Craswell et al. [1995]), city level (Francis et al. [2005]), and global network level (Carson [2009]) banking industry audit market share leadership as alternative measures of auditor expertise.[6]

We draw upon a variety of data sources (Federal Reserve FR Y-9C, CRSP, Compustat and Audit Analytics) to assemble client and auditor information for 593 publicly

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Statement of Financial Accounting Standards No. 157, *Fair Value Measurements* (FAS 157). The SEC's *Report and Recommendations* (SEC Report) was issued on December 30, 2008. The Report's contents that are most relevant to this study include Section II, Effects of Fair Value Accounting Standards on Financial Institutions' Balance Sheets; Section III, Impact of Fair Value Accounting on Bank Failures in 2008; and Section VI.C, Auditing Standards.

[3] For the 27 banks studied by the SEC [2008], 31 percent of bank assets were reported at fair value as of first quarter-end 2008.

[4] Client data are for public companies covered by the Audit Analytics database. Throughout the study we refer to this proportion as a measure of industry specialization or industry expertise, interchangeably.

[5] The 269 banks in our 2008 sample are audited by 36 accounting firms. When accounting firms are ranked using the Behn et al. [2008] measure, the Big 4 firms rank near the bottom: #31 (KPMG), #33 (Ernst & Young), #34 (Deloitte & Touche), and #35 (PricewaterhouseCoopers). The more specialized bank auditors in our sample mostly consist of firms that have a few thousand professional employees located in several dozen cities. The Behn et al. [2008] metric thus enables us to make a clear empirical distinction between bank industry specialist auditors and Big 4 auditors.

[6] We measure at the national and global levels, in addition to the office level, because the number of U. S. bank holding companies headquartered in many cities is so small that office level metrics might 'over-classify' auditors as bank industry specialists.

traded U.S. bank holding company-years (324 firms in 2006 and 269 firms in 2008). The data employed for 2008 additionally include fair value data that are newly disclosed under FAS 157. The earlier period enables us to determine associations among available variables prior to the economic downturn of 2007-2009.[7] The latter period allows us to reassess the associations among variables during the economic downturn, and to add fair values to our model. Only one recent study has investigated determinants of audit fees paid by financial institutions using audit fees disclosed in proxy statements: Fields et al. [2004].[8] That study employed a sample of 277 banks and savings institutions, with data drawn from the year 2000. The authors argue that external audits of banks are influenced by the highly regulated nature of that industry:

> In summary, banks are subject to significant regulatory pressures and regulatory agencies rely heavily on auditors in making their evaluations of financial condition. The combination of these two factors leads us to believe that public accounting firms will (and should) focus their audits on the factors deemed important by regulatory agencies." [2004, 56]

In their primary results, the authors find that audit fees are positively associated with client size and with audits performed by the (then) Big 5. Two proxies for liquidity risk (transaction accounts and non-liquid assets)[9] are positively associated with fees. An inverse measure of efficiency (total operating expenses to revenues)[10] is positively associated with

[7] Although the U. S. economy as a whole did not officially enter recession until December, 2007 (NBER 2008), the economic downturn for banks arguably began with the onset of a crisis in the subprime lending market in February, 2007 (Ryan [2009]).

[8] Stein, Simunic, and O'Keefe's [1994] survey data from 1989 include audit hours and audit fees of 108 financial services companies.

[9] Transactions accounts, such as checking accounts, provide customers with ready access to cash via, for example, ATM machines. Transactions accounts thus require banks to maintain and monitor large inventories of currency and coins. This increases operational complexity but not liquidity since the cash balances must be available to serve account customers rather than to pay other creditors. Non-liquid assets consist of the proportion of bank assets held in a form other than relatively short-term, liquid securities (Fields et al. [2004]).

[10] Higher ratios lead to reduced profitabililty, making it more difficult for banks to increase equity (retained earnings) and regulatory capital. High (inverse) efficiency ratios often reflect non-interest expenses arising

fees. Three additional variables represent credit risk and capture loan portfolio composition and loan quality. All three (commercial loans, nonperforming loans, residential mortgage loans)[11] have positive, significant coefficients. A capital ratio and a measure of intangible assets are positively associated with audit fees.[12] Finally, the authors found that savings institutions pay higher fees than commercial banks, and found some evidence that industry specialist auditors charge lower audit fees.[13] Additional explanatory variables, including an interest-sensitivity metric, were not significant.[14]

We first investigate the suitability (explanatory power) of the Fields et al. [2004] model for use with our sample of bank holding companies and our 2006 data. We choose 2006 because that year is subsequent to the phase-in of SOX-related requirements that affect audit fees of large companies (i.e. auditors' SOX Section 404 reports), yet 2006 is prior to the onset of the sub-prime lending crisis early in 2007. We estimate a fee model

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from large numbers of transactions accounts and geographically dispersed branch systems (Fields et al. [2004]).

[11] Commercial loans typically are made to provide customers with short-term working capital. They often are provided under open lines of credit, with timing and amounts of loans determined by customers. Commercial loans are large and complex, and often involve monitoring of collateral as well as customer financial condition. Banks frequently syndicate commercial loans (i.e. sell them to a syndicate of banks) in order to share risk. These arrangements lead to potential liabilities for the originating banks. Whether commercial loans are retained or 'sold', credit risks are greater for banks having large numbers of non-performing loans. Residential mortgage loans are secured by family residences. Historically, defaults and bank losses on such loans have tended to be small. In recent years, however, banks have increasingly engaged in securitization of mortgage loans. Although this reduces credit risk, some risk often is retained via, for example, recourse provisions. In addition, banks often engage in activities to hedge against interest rate risk prior to securitization, thus increasing audit complexity (Fields et al. [2004]).

[12] The total risk-adjusted capital ratio is the total amount of bank regulatory capital divided by risk-weighted assets. Risk-weighted assets are the total of all assets held by the bank which are weighted for credit risk according to a formula determined by the Regulator. Higher levels of capital ratio indicate lower capital risk. To be adequately capitalized under federal bank regulatory agency definitions, a bank holding company must have a Tier 1 capital ratio of at least 4%, and a combined Tier 1 and Tier 2 capital ratio of at least 8% (Ryan [2007, Ch.2]). Fields et al. [2004] also employ the ratio of intangible assets to total assets as a measure of capital risk. Bank intangibles consist largely of intangibles arising from acquisitions. High intangible ratios suggest complex organizations and aggressive, risk-taking managers.

[13] The significant variable was computed as the proportion of sample bank total assets audited by the auditor.

[14] The market sensitivity metric was measured as interest-sensitive assets minus interest sensitive liabilities. It was intended to capture the extent to which a bank is exposed to changing market interest rates.

similar to their Table 2 model and find that log of assets, brand name auditors, standard deviation of returns, securities, efficiency, asset charge-off, and capital ratio explain 88% of the dependent variable variability, which is close to the adjusted R^2 in Fields et al. [2004]. Next we re-estimate the base model using data from fiscal 2008. This provides an opportunity to determine whether the explanatory power of the model and variables change in the context of the financial crisis of 2007-2009. The adjusted R^2 for the 2008 estimation increases by 1% to 89%. Securities, efficiency, asset charge-off and capital ratio are no longer significant in this estimation whereas the amount of non-performing assets now exhibit a positive coefficient.

We extend the basic model by adding proxies for fair valued assets and liabilities, fair value measurement input types (Levels 1 through 3), and auditor expertise. Because many banks have no fair valued liabilities, our analyses focus on fair valued assets. First, we investigate the association between audit fees and fair values of banks' assets. We expect that as the proportions of less verifiable fair valued assets increase, the risks and costs associated with auditors' verification of these balances also increase, leading to higher audit fees. In its *Study of Mark-to-Market Accounting*, the SEC [2008, 188-189] discusses problems involved in the verification and attestation of fair value measurements.[15] First, most auditors lack expertise in dealing with fair value measurements. Audit teams might require specialized valuation expertise, but audit team leaders lack incentives to request such assistance. Failure to use valuation experts on audit teams increases audit risk, but use of such experts increases audit cost. Second, internal controls over fair value measurements

[15] The SEC appears to have relied upon Martin et al. [2006] (a source cited by the SEC) when identifying these issues.

are more difficult to understand than internal controls over most transactions. Frequent changes to fair value methods and applications require changes to corresponding internal controls. This increases audit complexity and risk, requiring auditors to devote incremental effort to understand and evaluate these controls. Finally, preparers and auditors are subject to errors and biases in judgment that are likely to occur when dealing with fair value measurements.[16] This also increases audit risk, requiring additional effort and cost to mitigate. Consistent with our conjecture, we find evidence that audit fees increase in the amounts of fair valued assets and liabilities.

The risks posed by judgments that preparers and auditors must make are particularly great for accounts measured using Level 3 fair value inputs.[17] Level 3 inputs are inherently more subjective than Level 1 inputs, and somewhat more subjective than Level 2 inputs. Level 3 inputs "should reflect the assumptions that market participants would use [in arriving at current exit prices], but they yield mark-to-model valuations that are largely undisciplined by market information" (Ryan [2008, 1627]). The problems bank managers

[16] The Public Company Accounting Oversight Board (PCAOB) has acknowledged these problems by undertaking standard-setting projects on auditing fair value measurements and disclosures. In addition the PCAOB has issued Staff Audit Practice Alerts to guide auditors having engagements involving fair valued accounts and disclosures. On December 10, 2007, the PCAOB issued Alert No. 2 to provide auditors with "additional information related to auditing fair value measurements and disclosures, as well as the use of specialists in this area." On April 21, 2009 the PCAOB issued Alert No. 4 to inform auditors of public companies about potential implications of three recently-issued Financial Accounting Standards Board Staff Positions. The three FASB staff Positions dealt with fair value measurements in disorderly markets, with interim fair value disclosures, and with other-than-temporary impairments.

[17] FAS 157 specifies a hierarchy of three levels of fair value measurement inputs, with fair value defined as current exit price in an orderly transaction at the measurement date. In decreasing order of preference or priority, these are as follow. Level 1 inputs [FAS 157, para. 24] "are quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date." Level 2 inputs [para. 28] "are inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly." An example would be "Quoted prices for *similar* (emphasis added) assets or liabilities in active markets." Level 3 inputs [para. 30] "are *unobservable* (emphasis added) inputs for the asset or liability. .. unobservable inputs shall reflect the reporting entity's own assumptions about the assumptions that market participants would use in pricing the asset or liability (including assumptions about risk)."

faced in arriving at fair values arguably increased during the subprime crisis of 2007-2008.[18] As markets for banks' financial contracts became increasingly less liquid, bank managers had to rely more on Level 3 inputs.[19] Simultaneously, the information bank managers used to make Level 3 estimates became increasingly irrelevant. "Level 3 (and to a lesser extent Level 2) inputs often are derived from statistical or other analysis of historical data" (Ryan [2008, 1627]). As the values of borrowers' home equity declined from historic highs, recent historical data became useless as a guide to the future. The result was the need for increased use of judgment by preparers and auditors, with accompanying audit risk, and mitigation of such risk via incremental audit effort. We hypothesize (H1) that fair value assets valued using Level 3 inputs are associated with higher audit fees than fair value assets valued using Level 1 and 2 inputs. We find that the coefficients and t-statistics increase monotonically for fair valued assets based on Level 1 inputs to Level 3 inputs. We also find that fair valued assets measured by Level 3 inputs have a positive and statistically significant coefficient in the audit fee model, and the coefficient is greater than those of fair value assets measured by Level 1 and Level 2 inputs.

Empirical evidence suggests that industry specialist auditors have both the incentives and the ability to provide higher quality audit services. Investors view audits

[18] The PCAOB stated in Alert No. 2 [2007, footnote 1]: "A combination of factors in the housing and mortgage markets, including rising delinquency and default rates on subprime mortgages and declining home prices, has led to increases in actual and expected credit losses for residential mortgage-backed securities and mortgage loans. In early 2007, the credit markets began reacting to these changing factors and the prices of many securities backed by subprime mortgages began to decline. Lower volumes of transactions in certain types of collateralized securities might make it more difficult to obtain relevant market information to estimate the fair value of these financial instruments."

[19] Ryan [2008, 1627] notes: "While many firms have been heavily criticized in the popular press for this migration of fair value measurements down the hierarchy, it is an inevitable result of the deterioration of price transparency in the subprime crisis."

provided by industry specialists as having higher quality.[20] Several studies provide mixed evidence on the value to clients of auditors' industry expertise, by investigating whether such expertise is associated with higher audit fees. Of particular interest in our context, Fields et al. [2004] find that two measures of banking industry audit market share are negatively associated with fees paid by a sample of banks in 2000, although significance levels are marginal. They attribute this association to audit economies of scale that are passed along to clients. They also employ a dichotomous variable representing the industry audit leader (i.e. holding the largest banking industry market share). That variable is not associated with audit fees.[21]

We adopt Behn et al.'s [2008] measure of auditor industry expertise based on the relative magnitude of an auditor's banking clients' total assets to the total assets of all clients audited. We then examine the association between audit fees, and proxies for auditor bank industry expertise, in 2006 (prior to the onset of the sub-prime crisis), and in 2008 (in the second year of the crisis). This enables us to determine both whether bank industry expertise is associated with higher or lower audit fees (H2), and whether the value of such expertise increased or decreased as large banks came under increasing economic pressure. We find that our auditor expertise measure is negatively associated with audit fees in both years, and the magnitudes of these coefficients are similar across the two years. This finding is consistent with industry-based cost savings rather than industry-based product differentiation. Auditors appear to become more efficient at auditing bank clients as they

[20] See Ettredge, Kwon and Lim [2009] for a recent summary of auditor industry specialization research.
[21] Fields et al. [2004] speculate that this insignificance reflects that there was no clearly predominant bank audit market leader.

increasingly specialize in auditing banks' assets, and some of the cost savings are passed on to the bank clients as reduced fees.

Finally, we examine whether the relation between bank audit fees and fair-valued assets differs with the extent of the auditor's bank industry specialization. We regress abnormal audit fees (residual values from the baseline audit fee estimation) on the decile rank of the industry expertise variable, fair value assets, and the interaction terms of these variables. We investigate (H3) whether industry-leading auditors charge a higher or lower fee per unit of less verifiable fair valued assets. Although a higher fee is economically appealing, the institutional setting suggests that it might not be supported by the data. As discussed above, most audit team members probably lack FAS 157 valuation expertise. The more industry-specialized audit firms might be better able to provide fair value experts to bank audit teams. If such experts are utilized more often in bank audits conducted by the industry specialists, and if their hours are billed to clients, bank fee data should indicate a higher fee. However, it is possible that audit team leaders will not request such assistance if they think doing so will be viewed negatively by their superiors. Contrary to this scenario, we find evidence that industry specialist auditors charge a premium for less verifiable fair valued assets (Level 2 and Level 3 inputs) whereas they charge less to clients on average for the audit in general.

In summary, we contribute to the literature by providing new evidence on the determinants of bank audit fees and the role of industry specialist auditors in the banking industry. We show that audit fees increase in the difficulty of verifying fair valued amounts. We also show that, consistent with increased efficiency, bank specialist auditors charge bank clients less on average, although these auditors charge premiums for auditing less

verifiable fair valued assets. These findings are new to the literature and provide interesting and timely evidence relevant to the ongoing debate regarding the use of fair value accounting measurements.

The remainder of this paper is organized as follows. Section 2 presents a literature review and develops hypotheses. Section 3 discusses data and research designs. Section 4 provides the descriptive statistics, empirical findings and the results of additional tests. Section 5 concludes.

2. Literature Review and Hypotheses Development

2.1 AUDIT FEES AND FAIR VALUE MEASUREMENTS

In his audit production function framework, Simunic [1980] argues that audit fees increase in the sum of audit costs and expected future losses resulting from the current periods' audited financial statements. Subsequent studies confirm this production function framework by documenting the positive effects of client size, client risk, and client complexity on audit fees (Hay et al. [2006]). With regard to audit fees paid by financial institutions, Stein, Simunic, and O'Keefe [1994] use survey data from 1989 to provide evidence that client risk is a major driver of audit hours of managers and partners. Using audit fees disclosed in proxy statements, Fields et al. [2004] document that clients' risk characteristics (liquidity and credit risks) as well as regulatory capital requirements are important determinants of audit fees paid by U.S. commercial banking firms. In this paper, we examine the effect of fair value measurements on audit fees in US banking holding companies, using 2008 data newly available under FAS 157.

Banks have large proportions of financial assets (and smaller proportions of liabilities) that are subject to fair value measurements on the balance sheet under FAS 115 (for securities) and FAS 133 (for derivatives), among other standards. While prior studies generally confirm that fair value accounting provides price-relevant information in financial statements, the trade-off between relevance and reliability of fair value measurements can pose significant risks for both preparers and auditors.[22] This is because not all fair value measurements are created equal. For example, fair value measurements are easy to verify if there are active markets (e.g., for equity securities). However, if there are no direct market quotes for the identical items (e.g., for derivatives) or if estimated values must be derived from models (e.g., for loans or illiquid assets), then fair values potentially are subject to managerial discretion, which can increase the information asymmetry between managers and users (Benston [2008], Landsman [2007], Penman [2007]).[23] Consistent with this scenario, concurrent research provides early evidence that Level 3 fair values are less value relevant than Level 1 fair values (Kolev [2009], Song, Thomas and Yi [2009]). Accordingly, this information asymmetry should increase the difficulty of verification and the auditor's potential liability from misstated financial statements, thereby increasing audit efforts and audit fees.

Although Financial Accounting Standard No. 157, *Fair Value Measurements* (FAS 157, FASB [2006]), technically does not increase the use of fair values, both academics and practitioners point out the difficulty FAS 157 creates for auditors. FAS 157 defines fair

[22] A recent survey by CFO magazine for 205 senior financial executives indicates fair value issues as the most important future audit-cost driver (37 % of respondents) (O'Sullivan [2008]). Similarly, the PCAOB issued Audit Practice Alert No. 2 following the implementation of FAS 157 (PCAOB [2007]), highlighting the difficulty auditors may face in fair value audits.

[23] Regulators (e.g., the PCAOB chairman Mark Olson and the SEC chief economist Chester Spatt) are also concerned over valuations obtained from models. See Johnson [2007a].

values as exit prices in normal market conditions. It requires managers to employ a fair value input hierarchy, from most to least reliable inputs. The hierarchy is (from most to least preferable inputs: (1) Level 1 (i.e., observable inputs from quoted prices in active markets), (2) Level 2 (i.e., indirectly observable inputs from quoted prices of comparable items in active markets, identical items in inactive markets, or other market-related information), and (3) Level 3 (i.e., unobservable, manager-generated inputs).[24] Identifying and applying appropriate inputs involves substantial judgments in the face of difficulty (Benston [2008]). Martin, Rich and Wilks [2006]) argue that auditors find audits of fair valued amounts difficult due to the lack of domain knowledge (valuation *per se*) as well as psychological biases (e.g., confirmation bias and motivated reasoning). Consistent with Martin et al.'s conjectures, recent anecdotal evidence suggests that auditors do not know much about valuation *per se* (Johnson [2007a, 2007b]). Mark Olson, the chair person of the PCAOB, re-iterated the challenges of fair value accounting for auditors in a speech for international bankers (Olson [2008]): (1) no valuation training, (2) self-serving managerial discretion embedded in fair value measures, and (3) different internal control environment for fair value measures.[25]

Of particular interest to our study, new FAS 157 requirements to disclose assets and liability amounts separately by fair value input level (1, 2, and 3) allows researchers to examine the association between audit fees and audit efforts in a novel context, because it is likely that audit efforts are increasing in amounts of less verifiable fair valued assets and liabilities. Thus, we propose the following hypothesis in the alternate form.

[24] The Appendix to this paper provides example fair value disclosures make by a sample bank in 2008.
[25] The use of a specialist or appraiser does not solve the auditor's problem because the auditor should be the final authority to examine and validate fair value measurements (PCAOB [2007]).

H1: The assumed positive association between audit fees and fair valued assets is more evident for less verifiable fair valued assets than for more verifiable fair valued assets.

We focus on fair valued assets because the frequency of 'zero' observations for fair valued liabilities is high.

2.2 AUDITOR EXPERTISE AND AUDIT FEES IN THE BANKING INDUSTRY

The preceding discussion regarding the auditors' expected challenges in auditing fair valued account balances highlights the importance of auditors' expertise because high quality monitoring is likely to effectively mitigate the information asymmetry problem posed by less verifiable fair values (Penman [2007]). One can define and discuss auditor's expertise at several levels – the individual auditor or audit team, the audit engagement office, and the audit firm in domestic and/or international markets.

At the individual level, both training and experience increase the auditor's domain knowledge of a specific industry, and specialized industry knowledge reduces errors in judgment (Solomon, Shields, and Whittington [1999]). Using the banking industry as an instrumental setting, Low [2004] provides experimental evidence that the auditors' knowledge of the client's industry improves their audit risk assessments and the perceived quality of audit planning decisions.

However, the training and experience of individual auditors do not occur and operate in a vacuum. The audit team, engagement office, and audit firm provide individual auditors with opportunities for training and experience, and the collective human capital investments made by these units contribute to the quality of specific audits. Because team level data are not readily available, prior studies on auditor expertise focus on audit firms'

industry expertise. These studies measure an audit firm's industry specialty/knowledge as its market share in specific industries in domestic and international markets, and examine whether audit fees charged by industry specialist auditors are different from those charged by non-specialist auditors. For example, using Australian fee data, Craswell, Taylor, and Francis [1995] document a fee premium for auditors that have industry-leading market shares. In the U.S. IPO market setting, Mayhew and Wilkins [2003] also report fee premiums charged by industry-leading market share audit firms. Carson [2009] further reports that the fee premium effect is replicated globally when the industry expertise is defined by global industry market shares.[26] Note that because cost savings arising from specialization and product differentiation arising from specialization predict audit fee discounts and premiums respectively, the results of prior studies should be interpreted with caution. Prior studies generally expect and try to find fee premiums for industry specialist auditors. Researchers have paid less attention to the possibility that specialization in some industries could result in cost savings passed along to clients.

Another stream of research re-measures the auditor's industry specialization based on the engagement office's industry market share in local markets, assuming that an audit firm is a loose network of semi-autonomous offices. Using Australian and U.S. data, Ferguson, Francis and Stokes [2003], and Francis, Reichelt and Wang [2005], document that the fee premium for industry specialist auditors is higher when industry expertise is measured at the office level than when measured at the national level.

[26] Carson [2009] includes banking firms in her sample and identifies KPMG and PwC as the leading and the next industry specialist in global markets. Because she does not report the industry-by-industry results, we cannot conclude the effect of global firm effect on audit fees in the banking industry.

As discussed earlier, Fields et al. [2004] use an industry specialist measure based on audit firms' domestic industry market share and investigate the audit fee premium paid to the auditor having the largest market share in their sample of banking clients. They fail to document a fee premium effect for bank industry specialists. Since it is not clear whether this result is due to their specific data period or to the use of an industry specialist measure based on audit firms' national market shares, we believe that it is worth re-visiting this issue using new data and measures. We base our auditor expertise measure on the relative magnitude of bank client assets audited to total assets audited (Behn et al. [2008]). This metric classifies numerous non-Big 4 accounting firms as more specialized than the Big 4 in auditing bank clients. In additional tests, we also consider auditor expertise based on national, city, and global market shares in the banking industry. We believe that an office measure is particularly relevant for our study because audit team expertise, the ideal unit for analysis, is more closely approximated by engagement office expertise than by audit firm expertise. The discussion so far leads to the following hypothesis in the null form.

H2: The extent of auditors' banking industry specialization does not affect audit fees paid by bank clients.

We specify a non-directional, null hypothesis due to the potential opposite effects of industry specialization on audit fees arising from audit efficiencies (leading to fee discounts) versus product differentiation (leading to fee premiums).

2.3 THE EFFECT OF AUDITOR EXPERTISE ON THE RELATION BETWEEN FAIR VALUE MEASUREMENTS AND AUDIT FEES

Finally, we examine whether the assumed relation between audit fees and fair value measurements in H1 differs across extent of auditors' industry expertise.

Early evidence on the value relevance of fair value measurements under FAS 157 documents that the value relevance of fair value measurements is more evident when clients are audited by Big 4 auditors (Goh, Ng and Tong [2009]) and by big engagement offices (Song et al. [2009]). These results are consistent with the notion that equity market investors perceive the quality of audited fair value information differs conditional upon auditor quality. However, studies that employ Big 4 auditors and large engagement offices as proxies for audit quality do not capture the effects of industry expertise in the provision of audit services to bank holding companies. Our data indicate that bank client assets comprise relatively small proportions of total client assets audited by the Big 4 firms. It is among the smaller national accounting firms that bank clients provide large proportions of the total assets audited.[27]

The direction of the industry specialist effect on the relation between audit fees and fair values, if any, is not clear. On one hand, if industry specialization yields efficient audits, we may expect industry specialist auditors to charge less for auditing a given proportion of fair valued assets. On the other hand, prior studies report fee premiums for industry specialists and interpret these as the results of product differentiation, implying that industry specialists might charge more for auditing a given proportion of fair valued assets. Alternatively, industry specialists

[27] These accounting firms are only small in comparison to the largest international accounting firms, including the Big 4. For example, Clifton Gunderson LLP, one of the most specialized bank auditors in 2006 and 2008, based on the Behn et al. [2008] metric, provided the following information at its web site as of October, 2009: "Clifton Gunderson, ranked as one of the nation's largest certified public accounting and consulting firms, provides a wide range of assurance, accounting, tax, and consulting services to clients in a variety of industries. Founded in 1960, Clifton Gunderson has a staff of more than 2,000 professionals serving clients from 45 offices across the country."

could charge more because they devote more effort to auditing fair valued assets. Thus, we provide the following null hypothesis.

H3: The association between bank audit fees and fair valued assets (see H1) is not affected by the extent of auditors' banking industry specialization.

3. Data and Research Design

3.1 DATA

We first identify U.S. domestic bank holding companies whose fiscal years end in December 2006 and December 2008,[28] with available asset data, from the regulatory call report database (FR Y-9C forms) provided by the Federal Reserve Bank of Chicago.[29] Because audit fee disclosures are only available for public companies, we further identify public bank holding companies using the Center for Research of Security Prices (CRSP) – Federal Reserve Bank (FRB) link provided by the Federal Reserve Bank of New York.[30] This initial procedure yields 657 firm-years. In order to use fair values collected from Compustat and audit fees compiled by Audit Analytics, we merge this dataset with the CRSP/Compustat Merged Research File and retain 612 firm-years.[31] We then additionally require valid returns data to construct the standard deviation of returns (available for N=601 company-years) and finally require the dataset to have non-missing, non-zero audit fees. These procedures yield the final sample of 593 company-years (324 observations from 2006 and 269 observations from 2009). The reduction in the 2008 sample partially reflects

[28] Our sample includes more than 90% of bank holding companies that are covered by both CRSP and Compustat. The number of banks in our sample is similar to sample sizes in prior studies such as Fields et al. [2004].
[29] Available at http://www.chicagofed.org/economic_research_and_data/bhc_data.cfm.
[30] The CRSP-FRB link provides the PERMCO-RSSD ID matching scheme and is available at http://www.newyorkfed.org/research/banking_research/datasets.html. This matching scheme is superior to other matching schemes (e.g., CUSIP matching available from the Chicago Fed's FR Y-9C database).
[31] We use PERMCO and LPERMCO in this merge procedure.

the banking sector's financial distress in the recent sample period.[32] Table 1 delineates the sample selection procedure.

[Insert Table 1 here]

3.2 Research Design and Variable Measurements

3.2.1 Estimation of the of Fields et al. [2004] Model Using 2006 and 2008 Data

We use the audit fee model developed by Fields et al. [2004, 65, equation (1)] for the banking industry as the baseline model for our analyses. Because Fields et al. [2004] obtain data from a commercial database, whereas we use a public bank holding company database, the variable definitions, although similar, are slightly different between their model and our model. We estimate the following equation (1) for 2006 and 2008 December year-end bank holding companies respectively (firm and year index omitted for brevity).

$$\begin{aligned} LnAFEES = {} & \beta_0 + \beta_1 LnASSET + \beta_2 BIGN + \beta_3 LOSS + \beta_4 STDRET + \beta_5 TRANSACCT \\ & + \beta_6 SECURITIES + \beta_7 EFFICIENCY + \beta_8 COMMLOAN + \beta_9 NONPERFORM \\ & + \beta_{10} CHGOFF + \beta_{11} MTGLOAN + \beta_{12} CAPRATIO + \beta_{13} INTANG \\ & + \beta_{14} SENSITIVE + \beta_{15} SAVINGS + \varepsilon \end{aligned} \quad (1)$$

The dependent variable is *LnAFEES*, which is log transformed value of audit fees from the Audit Analytics database.

Independent variables (with data items in the parentheses) are as follows.

LnASSET is log transformed total assets (BHCK2170).

BIGN is a dichotomous variable coded as 1 for firms audited by 4 brand name auditors (PwC, KPMG, Deloitte and E&Y), 0 otherwise.

[32] An increase in financial distress is suggested by the very large increase in the proportion of sample banks experiencing losses in 2008 compared to 2006 evident in Panel A of Table 2.

LOSS is a dummy variable coded as 1 for firms with net income (BHCK4340) less than zero, 0 otherwise.

STDRET is a firm specific standard deviation of 12 month returns ending upon the fiscal year end and measures the operating risk of the firm.

TRANSACCT is total transaction accounts deflated by total deposits ([BHCB2210+ BHCB2389+BHCB3187]/[BHDM6631+BHDM6636+BHFN6631+BHFN6636]).

SECURITIES is defined as one less total securities deflated by total assets (1 – [BHCK1754 + BHCK1773]/BHCK2170).

EFFICIENCY is the efficiency ratio and is measured by total operating expenses deflated by total revenue ([BHCK4135+BHCK4217+BHCK4093]/[BHCK4079+BHCK4107-BHCK4073]).

COMMLOAN is the sum of commercial and agricultural loans deflated by gross loans ([BHCK1590+BHCK1763+BHCK1764]/[BHCK2122+BHCK2123]).

NONPERFORM is nonperforming loans divided by gross loans ([BHCK5526 + BHCK5525]/[BHCK2122+BHCK2123]).

CHGOFF is net charge-offs deflated by loan loss reserve ([BHCK4635-BHCK4605]/BHCK3123).

MTGLOAN is total domestic real estate and home equity loans divided by gross loans (BHCK1410/[BHCK2122+BHCK2123]).

CAPRATIO is total risk-adjusted capital ratio (BHCK7205).

INTANG is intangible assets divided by total assets ([BHCK3163+BHCK0426]/BHCK2170).

SENSITIVE is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets ([BHCK3197-BHCK3296-BHCK3298]/BHCK2170).

SAVINGS is coded as 1 if the company is a savings institution (SIC codes 6035 and 6036), 0 otherwise.

Fields et al. [2004] expect all the coefficients except that on *SENSITIVE* to be positive, and find that the coefficients on *LnASSET*, *BIGN*, *TRANSACCT*, *SECURITIES*, *EFFICIENCY*, *COMMLOAN*, *NONPERFORM*, *CHGOFF*, *MTGLOAN*, *CAPRATIO*, *INTANG* and *SAVINGS* are positive and significant at the 0.05 (one-sided) level or better.

3.2.2 Audit Fees and Fair Value Measurements (H1)

After estimating the Fields et al. [2004] model in 2006 and 2008, we test whether the assumed positive association between audit fees and fair value measured assets is more evident for less verifiable fair value assets (Levels 2 and 3) than for more verifiable fair value assets (Level 1) by estimating the following equation (2). Equation (2) is based on equation (1) and additionally includes fair value measured variables as test variables. Consistent with other recent fair value studies (e.g., Goh et al. [2009], Song et al. [2009], Kolev [2009]), we focus on fair valued assets rather than fair valued liabilities, because fair valued liabilities are relatively small in amount and are observed for only a limited number of firms.

$$\begin{aligned} LnAFEES = {} & \delta_0 + \delta_1 FVA1\_TA + \delta_2 FVA2\_TA + \delta_3 FVA3\_TA + \delta_4 FVL1\_TA + \delta_5 FVL23\_TA \\ & + \delta_6 LnASSET + \delta_7 BIGN + \delta_8 LOSS + \delta_9 STDRET + \delta_{10} TRANSACCT \\ & + \delta_{11} SECURITIES + \delta_{12} EFFICIENCY + \delta_{13} COMMLOAN + \delta_{14} NONPERFORM \\ & + \delta_{15} CHGOFF + \delta_{16} MTGLOAN + \delta_{17} CAPRATIO + \delta_{18} INTANG \\ & + \delta_{19} SENSITIVE + \delta_{20} SAVINGS + \varepsilon \end{aligned} \quad (2)$$

The dependent variable, *LnAFEES*, is the same as in (1) and all independent variables used in (1) enter equation (2) as control variables. The variables of interest are *FVA1_TA*, *FVA2_TA*, and *FVA3_TA*, and are defined as fair valued asset amounts measured using Level 1, Level 2, and Level 3 inputs deflated by total assets, respectively. *FVL1_TA* and *FVL23_TA* are total fair valued liabilities measured using Level 1, and Levels 2 and 3, deflated by total assets. These are used as additional control variables. H1 predicts that δ_3 is greater than δ_1 and/or δ_2.

3.2.3 Auditor Expertise and Audit Fees in the Banking Industry (H2)

We investigate the overall effect of auditor industry specialization on bank audit fees using the following model:

$$\begin{aligned} LnAFEES = {} & \phi_0 + \phi_1 ISPEC \\ & + \phi_2 LnASSET + \phi_3 BIGN + \phi_4 LOSS + \phi_5 STDRET + \phi_6 TRANSACCT \\ & + \phi_7 SECURITIES + \phi_8 EFFICIENCY + \phi_9 COMMLOAN + \phi_{10} NONPERFORM \\ & + \phi_{11} CHGOFF + \phi_{12} MTGLOAN + \phi_{13} CAPRATIO + \phi_{14} INTANG \\ & + \phi_{15} SENSITIVE + \phi_{16} SAVINGS + \varepsilon \end{aligned} \quad (3)$$

Based on Mayhew and Wilkins [2003], Fields et al. [2004] examine the effect of banking industry specialization on audit fees. They expect that as the proportion of sample banks, and sample bank assets, audited by a given audit firm increases (their variables NUMPCT and ASSETPC), bank audit fees will decrease due to economies of scale. Their results are consistent with this expectation, but at marginal levels of significance (NUMPCT t-stat = -1.30, ASSETPCT t-stat = -.1.56). Fields et al. expect the industry leading auditor (i.e. having the highest value of NUMPCT or ASSETPCT) to receive higher audit fees due to

product differentiation. The coefficients of their corresponding SPECIALIST variable, proxying for the single industry-leading auditor, are not significant.

Fields et al. [2004] define their ASSETPCT variable as the proportion of sample bank assets audited by a given firm, which does not necessarily capture industry expertise in our view. A Big 4 firm could audit a substantial proportion of *sample* bank assets even if bank clients are a negligible proportion of that firm's global audit business across all industries. Instead we employ the percent-of-assets industry specialist measure used in Behn et al. [2008]. This measure captures the magnitude of client assets in a specific industry relative to the audit firm's total assets audited. We follow Behn et al. [2008] in defining *ISPEC* as the sum of the square root of the total assets of clients that an auditor has in the banking industry each year, deflated by the sum of the square root of the total assets of all clients of the auditor in that year. Client data are for public companies covered by the Audit Analytics database. This measure potentially represents either product differentiation or efficiencies in auditing bank clients. If specialist auditors (large *ISPEC*) charge more (or less) to their banking clients, ϕ_1 will be positive (or negative). We control for possible product differentiation associated with audit firm class using a dichotomous *BIGN* variable.

3.2.4 The Effect of Auditor Expertise on the Relation between Audit Fees and Fair Value Measurements (H3)

To test the effect of banking specialist auditors on the relation between audit fees and fair value measured assets, we regress unexpected (abnormal) audit fees from equation (1), *UNEXPLNAFEES*, on the decile rank of auditor specialist measure (*ISPEC_RANK*), fair value measurements, and the interaction terms of the decile rank measure and fair value measurements. The equation is:

$$UNEXPLNAFEES = \eta_0 + \eta_1 ISPECRANK + \eta_2 FVA1\_TA + \eta_3 FVA2\_TA + \eta_4 FVA3\_TA + \eta_5 FVL\_TA + \eta_6 FVA1\_TA * ISPECRANK + \eta_7 FVA2\_TA * IPSECRANK + \eta_8 FVA3\_TA * ISPECRANK + \eta_9 FVL\_TA * ISPECRANK + \varepsilon \quad (4)$$

Alternatively, we could enter the test variables of interest in equation (1). However, such a regression model is lengthy and complex, is more subject to multicolinearity, and thus could provide inefficient and biased coefficients.[33] The variables of interest in equation (4) are the interaction terms between the decile rank of *ISPEC* and the fair valued asset measurements, especially the interaction terms relating to less reliable fair valued assets (η_7, η_8 and η_9). We use the decile rank of *ISPEC* because it is harder to interpret the interaction term of two continuous variables.

OLS estimations of equations (1), (2), (3) and (4) do not have problems of time or firm clustering (Peterson [2009]). Thus, we simply control for possible heteroskedasticity and adjust the standard errors and related t-statistics, following Rogers [1993], in these estimations.

4. Descriptive Statistics and Empirical Findings

4.1 DESCRIPTIVE STATISTICS

Panel A of Table 2 provides the descriptive statistics of variables used in our tests for 2006 and 2008 respectively. The last two (right-most) columns of Panel A also provide t-statistics and related p-values (two-sided), testing the differences in means of variables across the 2006 and 2008 periods. There are several notable

[33] In untabulated results, the mean variance inflator (VIF) score of such a model exceeds 3.

observations. Reflecting the recent economic downturn in the banking sector, the mean of *LOSS* has dramatically increased from 1% of the sample in 2006 to 29% of the surviving sample in 2008 ($p < 0.0001$). Similarly, the mean standard deviation of 12 month returns (*STDRET*) has increased from 0.046 to 0.14, reflecting increased operating risk as well as overall market turmoil. Reflecting the financial crisis, the mean values of *TRANSACCT* and *SECURITIES* have also decreased over time whereas the ratio of operating expense over total revenue (*EFFICIENCY*) has increased. The mean values of *NONPERFORM* and *CHGOFF* also have increased significantly, exhibiting the economic hardship in the banking industry in the recent data period.

Other variables do not show significant differences in means across the two time periods. Slightly less than the half of the sample firm-years are audited by brand name (Big 4) auditors (46.3% in 2006 and 43.5% in 2008). The mean *ISPEC* values are 0.419 in 2006 and 0.381 in 2008, respectively. Fields et al. [2004] report that more than 70% of their sample firms in 2000 hired brand name auditors. The decreased incidence of Big 4 auditors in our sample possibly reflects client migration to smaller auditors after SOX 404 requirements became effective (Ettredge, Li and Scholz [2007]). Mean fair valued assets by Level 1, Level 2 and Level 3 inputs are 0.011, 0.151, and 0.006 (as proportions of total assets) and are similar to those reported in recent studies (e.g., Kolev [2009], Song et al. [2009]). The scaled amounts of fair valued assets are biggest for Level 2 inputs, probably because the recent economic crisis bumped some Level 1 assets measured using observable fair values (*FVA1_TA*) into the less observable Level 2 category

(*FVA2_TA*). As indicated in recent studies, scaled fair valued liabilities are very small in size (0.000 for Level 1 and 0.012 for the combined Level 2 and Level 3).

[Insert Panel A of Table 2 here]

Panel B of Table 2 provides the Pearson product moment correlation coefficients among variables used in our study. The upper diagonal and the lower diagonal show the correlation coefficients in 2006 and 2008 respectively. In each cell, the upper number and the lower number indicate the coefficient and related p-value. Note that fair value related coefficients are only observed for the 2008 sample. The correlation coefficients of *LnAFEES* and fair valued assets are 0.031 (p-value=0.613), 0.319 (p-value<0.01) and 0.420 (p-value<0.01). This monotonic increase of coefficients from Level 1 to Level 3 fair value inputs appears to indicate that audit fees increase when fair values are based on less observable inputs. The coefficients relating *LnAFEES* and *ISPEC* are negative and significant in both years, indicating that gross bank audit fees are lower for industry specialist auditors whose bank clients' assets are large relative to the total assets they audit.

[Insert Panel B of Table 2 here]

4.2 EMPIRICAL FINDINGS

4.2.1 Estimation of the Fields et al. [2004] Base Model

Table 3 presents the results of OLS estimation of equation (1) based on Fields et al. [2004], using our largest available samples for 2006 and 2008.[34] The left-most results

[34] The largest available sample in 2006 (N = 324) exceeds the largest available sample in 2008 (N = 269). The banks that continued into the 2008 sample undoubtedly are healthier than those that dropped out, introducing a survivorship bias. In additional analyses we regress model (1) for 2006 and 2008 using a constant sample, and test whether coefficients differ across years.

columns of our Table 3 provide the estimation results for the 2006 sample. Similar to Table 2 results in Fields et al. [2004], our variables *LnASSET*, *BIGN*, *SECURITIES*, *EFFICIENCY*, *CHGOFF* and *CAPRATIO* have positive and significant coefficients. Unlike Fields et al. [2004], the coefficients of our variables *TRANSACCT*, *COMMLOAN*, *NONPERFORM*, *MTGLOAN*, *INTANG*, and *SAVINGS* are not significant. In addition the coefficient of *STDRET* is positive and significant in our model but not in Fields et al. [2004]. Adjusted R-squared is 0.88 and is very close to the 0.877 reported by Fields et al. The right-most columns in Table 3 provide the estimation results for the 2008 sample. Adjusted R-squared increases by 1% in 2008. *LnASSET*, *BIGN*, *STDRET* continue to exhibit positive and statistically significant coefficients whereas *SECURITIES*, *EFFICIENCY*, *CHGOFF* and *CAPRATIO* are no longer significant. However, *NONPERFORM* now has a positive coefficient (t-stat.=1.65) and *MTGLOAN* has an unexpected and significant negative coefficient (t-stat.=-2.1).[35] Overall, the results in Table 3 differ somewhat from the findings of Fields et al. [2004], especially in 2008. However their model is useful in our context as it explains most of the variance in our dependent variables. This reduces concern that there are important omitted explanatory variables. We employ the Fields et al. model as a baseline model of the banking sector audit fee determinants in our hypothesis testing.[36]

[Insert Table 3 here]

4.2.2 Audit Fees and Fair Value Measurements (H1)

[35] The negative coefficient of *MTGLOAN* does not depend on which variables are entered in the OLS model. The pairwise correlation between *MTGLOAN* and *LnAFEES* for 2008 is negative and significant.

[36] Untablated results show that models with only *LnASSET*, *BIGN*, *LOSS* and *STDRET* have adjusted R^2s of 87% and 88% for 2006 and 2008 datasets, respectively, suggesting that the contribution of other variables to the explanatory power of the model is relatively small.

After estimating the Fields et al. [2004] model using our 2006 and 2008 data, we test our first hypothesis using our 2008 dataset. The hypothesis proposes that the assumed positive association between audit fees and fair valued asset amounts will be more evident (stronger and more significant) for less verifiable fair value asset inputs than for more verifiable fair value asset inputs. Thus, H1 predicts that δ_3 is greater than δ_1 and/or δ_2. Table 4 provides the OLS estimation results of equation (2). The left-most results columns provide the OLS results based on total fair valued assets deflated by total assets (*FVA_TA*) and total fair valued liabilities divided by total assets (*FVL_TA*). The right-most results columns provide the results based on fair valued amounts broken out by the fair value input hierarchy (Level 1, Level 2, and Level 3 fair value measurements). The adjusted R^2 of the models in Table 4 is 90% which is slightly higher than the adjusted R^2 amounts in Table 3.

[Insert Table 4 here]

As expected, the coefficients on fair valued assets are all positive in both estimations. We focus on the interpretation of the right-most results columns for our hypothesis testing. The magnitudes of fair valued asset coefficients increase as fair value inputs become less verifiable. For example, the coefficients on *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are 0.06, 0.56, and 6.89, respectively. This monotonic increase is paralleled by the statistical significance of these coefficients. In particular, t-statistics on the coefficients of *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are 0.09, 1.24, and 3.25, respectively. These patterns suggest that auditors charge more to audit one dollar of less verifiable fair valued assets (*FVA3_TA*) than to audit one dollar of more verifiable fair valued assets (*FVA1_TA*). The coefficients on the two fair value liability levels are not significant. Given the small

amounts and frequent 'zero' observations of fair valued liabilities, we do not place much reliance on those results.[37] The signs of other control variables are similar to their values reported in Table 3. The bottom of Table 4 presents results of formal tests comparing the coefficients of the three fair value input levels. The results indicate that δ_3 is greater than both δ_1 and δ_2 (p-values less than 0.01) whereas δ_1 and δ_2 are not statistically different. Overall, the results in Table 4 confirm the notion that audit efforts likely increase in verifying less observable fair valued assets.

4.2.3 Auditor Expertise and Audit Fees in the Banking Industry (H2)

Table 5 provides the OLS estimation of equation (3) for 2006 and 2008 respectively.[38] In equation (3), the variable of interest is *ISPEC*, which captures the importance of bank industry clients relative to the audit firm's overall client base. As discussed in Section 2, there are credible opposing expectations for the effect of auditor banking specialization on banking client audit fees. If cost savings from specialization are prevalent in our sample, we should see discounted audit fees charged by banking industry specialist auditors (ϕ_1 <0). In contrast, if clients perceive benefits of product differentiation, we should see audit fee premiums charged by such auditors (ϕ_1 >0).

[Insert Table 5 here]

Similar to equation (2) estimation results, the addition of *ISPEC* to the baseline model increases the adjusted R^2 by about 1%. The coefficients on *ISPEC* in both

[37] We note that in the left-most results columns, total fair valued liabilities, divided by total assets (*FVL_TA*), has a positive and significant coefficient. In subsequent models we employ *FVL_TA*.

[38] The largest available sample in 2006 (N = 324) exceeds the largest available sample in 2008 (N = 269). The banks that continued into the 2008 sample undoubtedly are healthier than those that dropped out, introducing a survivorship bias. In additional analyses we regress model (3) for 2006 and 2008 using a constant sample, and test whether coefficients differ across years.

estimations are negative and significant, consistent with auditing efficiencies. In contrast, the coefficients on *BIGN* in both estimations are positive and significant, consistent with Big 4 auditors charging fee premiums. These results are not contradictory because Big 4 auditors are not bank industry specialists when specialization is measured as per Behn et al. [2008]. The coefficients on *ISPEC* in both estimations do not differ in magnitude. Thus, the results in Table 5 suggest that auditors who audit greater amounts of bank client assets, relative to total assets audited, achieve costs savings which are at least partially passed on to their bank clients.

4.2.4 The Effect of Auditor Expertise on the Relation between Audit Fees and Fair Value Measurements (H3)

Table 6 provides the OLS estimation results of equation (4). Note that we calculate the residual value from the OLS estimation of equation (1) and use the value as the dependent variable (*UNEXPLNAFEES*) to avoid possible multicollinearity and to simplify the resulting regression. Also, we use the decile rank variable of *ISPEC* because it is hard to interpret the interaction term of two continuous variables (e.g., *ISPEC*FVA3_TA*). H3 investigates whether industry specialist auditors will charge more (reflecting product differentiation or greater effort) or less (reflecting cost savings from efficiencies) for auditing fair valued assets. Thus, we expect the interaction terms of *ISPECRANK* and fair valued assets (η_6, η_7 and η_8) to be either positive or negative, but not zero.

[Insert Table 6 here]

The adjusted R^2 of the estimated model is 5%. Consistent with the results from Table 5, the coefficient on the decile rank of *ISPEC* (*ISPECRANK*) is negative

and marginally significant (p-value=0.107, both-sided). The variables of interest are *FVA1_TA*ISPECRANK*, *FVA2_TA*ISPECRANK*, and *FVA3_TA*ISPECRANK*. Coefficients on these variables are all positive, suggesting that bank industry specialist auditors charge premiums for auditing fair valued assets in general. The coefficient on *FVA3_TA*ISPECRANK* is statistically different from zero at p-values=0.10 (two-sided). These results indicate that compared to the bottom decile industry specialist auditors, the top decile industry specialist auditors charge more to audit less verifiable fair valued assets. The coefficient of the interaction term relating to fair valued liabilities is negative and significant [See the pdf document. We need a discussion]. Overall, these results suggest that whereas bank specialist auditors charge lower fees to bank clients on average, they charge more for auditing less verifiable fair valued assets. Given that these auditors charge less, on average, for bank audits in total, we speculate that bank specialists devote more effort to auditing less verifiable fair valued assets, and achieve cost savings that are more than offsetting in other aspects of the audit.

4.3 Additional Analyses

The 269 banks in our 2008 sample are audited by 36 accounting firms. When accounting firms are ranked using the Behn et al. [2008] measure, the Big 4 firms rank near the bottom: #31 (KPMG), #33 (Ernst & Young), #34 (Deloitte & Touche), and #35 (PricewaterhouseCoopers). However, this is due to the large numbers and sizes of the Big 4 clients across all industries, not to the small number of their bank clients: the Big 4 audit a total of 117 of our sample banks in 2008. Given the low bank specialist rankings of the Big 4 based on the Behn et al. [2008]

metric, it is possible that *ISPEC* and *ISPECRANK* proxy for residual differences in auditor size, not captured by the dichotomous *BIGN* variable. We undertake additional analysis to investigate this possibility.

We define relative auditor size, *RELAUDSIZE*, as total client assets audited by a given auditor, divided by total client assets audited by the largest auditor. Thus *RELAUDSIZE* falls in the range (0, 1]. We add *RELAUDSIZE* to Model (4) and designate the altered Model as (4)'. Results of estimating Model (4)' are presented in Panel A of Table 7. [Please see my PDF document. We need a discussion]

[Insert Table 7 here]

We also provide results from estimating equations (3) and (4) when *ISPEC* is replaced with alternative auditor industry specialization metrics used in other studies. Results are presented in Panel B of Table 7. For brevity, we only report the coefficients and t-statistics for ϕ_1 (equation (3), Table 5) and η_1, η_6, η_7 and η_8 (equation (4), Table 6). Alternative variables we employ include (1) the national bank market share leader based on audit fees (*NLEADER*), (2) the national and city bank market share leader based on audit fees (*NCLEADER*) and (3) the global bank market leader (*GLEADER*).[39] *NLEADER* is coded as 1 for clients audited by KPMG, which holds about a 20% national bank market share in our sample. Francis et al. [2005] provide evidence that auditors who are market share leaders at both national and city levels in a specific industry charge audit fee premiums. Thus, *NCLEADER*

[39] *NLEADER* is similar to the Fields et al. [2004] auditor *SPECIALIST* variable, and our insignificant coefficient for *NLEADER* is consistent with their results. In contrast our original models (3) and (4) employ specialization metrics *ISPEC* and *ISPECRANK* that are more similar to Fields et al.'s *ASSETPCT* variable.

is coded as 1 if the auditor is the leading bank market share auditor nationally (i.e., KPMG in our case) and is also the leading bank market share auditor in the city where the engagement office is located, 0 otherwise. About 11% of sample firms are audited by such auditors. Finally, following the descriptive statistics of Carson [2009], we define *GLEADER* as 1 if the auditor is either KPMG or PwC, and 0 otherwise.

[Insert Panel B of Table 7 here]

Panel B shows that none of the coefficients of these variables are statistically different from zero in estimations of equation (3). Thus, unlike variable *ISPEC*, none of these specialist metrics is associated with magnitudes of bank audit fees. In addition, none of the aforementioned variables is statistically different from zero in estimations of equation (4), except for the negative and significant coefficient on *FVA2_TA*GLEADER* (t-stat. = -1.66). However, it is hard to interpret the coefficient of *FVA2_TA*GLEADER* because, unlike *ISPECRANK*, *GLEADER* is not significant as a stand-alone variable, and its interaction term with the riskiest fair valued assets (i.e., *FVA3_TA*GLEADER*) has an insignificant coefficient. Thus we conclude that the alternative, conventional measures of auditing expertise are defined too narrowly to be meaningful in the bank industry.[40]

Tables 3 and 5 presented regressions results for models (1) and (3) respectively, estimated for both 2006 and 2008. Those regressions used the largest available samples in each year, resulting in survivorship bias in 2008. We replicate

[40] We note that this conclusion is consistent with Field et al.'s [2004] results as well. Their *ASSETPCT* metric is negatively and significantly associated with bank audit fees whereas the coefficient of their 'narrower' metric, *SPECIALIST*, does not differ from zero.

those estimations in new Tables 8 and 9 using a constant sample of 264 banks for which data are available in both years. Unsurprisingly, these banks are healthier than those that drop out of the sample. Thus variable *LOSS* does not appear in model (1) or model (3) for 2006 since none of the 264 survivor banks experienced a loss in that year.

[Insert Table 8 here]

The Table 8 results, like the Table 3 results, do not test a hypothesis. Instead they investigate the use of the Fields et al. [2004] model with our samples. Our interest centers on the stability of model parameters across the two years of 2006 and 2008. The latter was a year of turmoil in the large bank sector. The right-most column in Table 8 presents Chow test p-values for comparing magnitudes of slope coefficients across the two years. The results indicate that only two variables experience significant parameter shifts from 2006 to 2008. The coefficient of standard deviation of returns, *STDRET*, decreases in 2008 ($p = 0.10$). The coefficient of net charge-offs deflated by loan loss reserve, *CHGOFF*, also decreases in 2008 ($p = 0.00$). Panel A of Table 2 indicates that mean levels of both *STDRET* and *CHGOFF* increased significantly in 2008.[41]

[Insert Table 9 here]

Table 9, similar to Table 5, presents results from estimating model (3), but uses the constant sample of 264 banks. Our interest centers on the test of H2. As in Table 5, the coefficients of *ISPEC* are negative and significant in both years. This

[41] We note that in panel A of Table 2 these two variables exhibit the largest t-values testing for increases over time in variable means.

suggests that greater industry specialization among auditors is associated with reduced audit fees. As in Table 8, slope coefficients are highly stable across years. In Table 8 only *CHGOFF* exhibits a significant decrease from 2006 to 2008.

5. Conclusion

A very large literature investigates the determinants of audit fee levels and of audit fee changes for industrial companies. An extensive literature also studies the determinants and effects of auditor specialization in client industries. However, studies of audit fees routinely exclude client companies belonging to the financial industries. Similarly, studies of auditor industry specialization frequently omit clients in financial industries. We attempt to address these gaps in the literature by extending Fields et al.'s [2004] banking firm audit fee determinant model.s We focus on the role of the client banks' fair valued assets and liabilities, and on the role of the bank auditors' industry expertise.

Using bank holding company data for 2008, we provide three main results. Consistent with the notion that audit risk and efforts increase with the extent of less verifiable assets, we first provide evidence that auditors charge more for "hard-to-verify" fair value assets (i.e., Level 3 assets) than for easier-to-verify fair value assets (i.e., Level 1 assets). Second, we find that auditors having greater bank industry expertise charge lower audit fees to bank clients, on average, after controlling for known fee determinants. This finding is consistent with efficiencies for bank specialist auditors, and with cost savings passed along to bank clients. Finally, we find that industry specialist auditors charge more for auditing less

verifiable fair valued assets. Given that these auditors charge less, on average, for bank audits in total, we speculate that bank specialists devote more effort to auditing less verifiable fair valued assets, and achieve cost savings that are more than offsetting in other aspects of the audit. These findings contribute to our understanding of audit fee determinants in an important economic sector that has been neglected in the audit research literature. They also suggest that additional study of bank specialists' audit planning and performance is warranted.

APPENDIX

Example Bank Fair Value Disclosure

This appendix presents fair value disclosures obtained from the 2008 Form 10-K of First United Corp. of Maryland, CIK: 763907. First United Corp. is close in size (total assets) to the mean of our sample. It discloses fair valued assets among its investment securities, but discloses no fair valued liabilities. It is audited by Beard Miller Company LLP of Pittsburgh.

Investment securities: The Corporation measures fair values of its investments based on the Financial Accounting Standards Board (FASB) Statement No. 157, "Fair Value Measurements" (SFAS 157), which defines fair value, establishes a framework for measuring fair value under GAAP and expands disclosures about fair value measurements. SFAS 157 applies to other accounting pronouncements that require or permit fair value measurements. The Corporation measures fair values based on the fair value hierarchy established in SFAS 157. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to unobservable inputs (Level 3 measurements). The three levels of inputs that may be used to measure fair value under SFAS 157 are as follows:

Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets and liabilities. This level is the most reliable source of valuation.

Level 2: Quoted prices that are not active, or inputs that are observable either directly or indirectly, for substantially the full term of the asset or liability. Level 2 inputs include "inputs other than quoted prices that are observable for the asset or liability (for example, interest rates and yield curves at commonly quoted intervals, volatilities, prepayment speeds, loss severities, credit risks, and default rates)." It also includes "inputs that are derived principally from or corroborated by observable market data by correlation or other means (market-corroborated inputs)." Several sources are utilized for valuing these securities including a contracted valuation service, Standard & Poor's (S&P) evaluations and pricing services, and other valuation matrices.

Level 3: Prices or valuation techniques that require inputs that are both significant to the valuation assumptions and that are not readily observable in the market (i.e., supported with little or no market activity). These Level 3 instruments are valued based on the best available data, some of which is internally developed, and considers risk premiums that a market participant would require.

An asset or liability's level within the fair value hierarchy is based on the lowest level of input that is significant to the fair value measurement.

For assets measured at fair value on a recurring and non-recurring basis, the fair value measurements by level within the fair value hierarchy used at December 31, 2008 are as follows;

		Fair Value Measurements at December 31, 2008 Using (Dollars in Thousands)		
Description	**Assets Measured at Fair Value 12/31/08**	**Quoted Prices in Active Markets for Identical Assets (Level 1)**	**Significant Other Observable Inputs (Level 2)**	**Significant Unobservable Inputs (Level 3)**
Investment securities available-for-sale	$ 354,595	$ —	$ 330,329	$ 24,266
Impaired loans[1]	$ 11,760			$ 11,760
Foreclosed Real Estate	$ 2,424			$ 2,424

[1] The impaired loans fair value consists of the impaired loans with a valuation allowance balance of $16,519 net of the $4,759 valuation allowance.

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Table 1
Sample Selection

Procedure	Year 2006	2008	Total
December year end firms that have non-missing assets (BHCK2170) in the FR-Y9C reports and have valid PERCO information from the CRSP-FRB link provided by the New York Fed.	349	308	657
Less firms that do not have CIK (central index key) from the merged Compustat-CRSP Research File.	(17)	(28)	(45)
	332	280	612
Less firms that do not have valid returns data for the construction of the standard deviation of returns from the CRSP database	(6)	(5)	(11)
	326	275	601
Less firms that do not have valid audit fee disclosure data from Audit Analytics	(2)	(6)	(8)
Final Sample	**324**	**269**	**593**

Note: This table delineates the sample selection procedure. We start from the December year end bank holding company's regulatory filing information (FR-Y9C reports) with non-missing total assets (BHCK2170) and non-missing PERMCO information from the CRSP-FRB link provided by the New York Fed (available at http://www.newyorkfed.org/research/banking_research/datasets.html). We obtain the CIK (central index key) information from the merged CRSP-Compustat Research file using the PERMCO-LPERMCO link. We require firm-year observations to have valid returns data for the construction of the standard deviation of returns. In addition, we require firm-year observations to have non-missing, non-zero audit fee disclosure data from the Audit Analytics database. These procedures leave us 593 firm-year observations.

Table 2
Descriptive Statistics

Panel A. Descriptive Statistics

	(a) Year=2006 (N=324)					(b) Year=2008 (N=269)					T-test ((a)-(b), Pooled)	
Variable	**Mean**	**Std Dev**	**25th Pctl**	**50th Pctl**	**75th Pctl**	**Mean**	**Std Dev**	**25th Pctl**	**50th Pctl**	**75th Pctl**	**t-value**	**Pr > |t|**
AFEES	1,058,094	3,465,764	181,500	334,250	685,747	1,282,674	5,167,002	204,559	390,000	767,300	-0.630	0.529
LnAFEES	12.889	1.132	12.109	12.720	13.438	13.015	1.106	12.229	12.874	13.551	-1.360	0.175
LnASSET	14.787	1.478	13.708	14.478	15.514	14.960	1.482	13.870	14.681	15.548	-1.420	0.156
BIGN	0.463	0.499	0.000	0.000	1.000	0.435	0.497	0.000	0.000	1.000	0.680	0.496
LOSS	0.009	0.096	0.000	0.000	0.000	0.290	0.455	0.000	0.000	1.000	-10.830	<.0001
STDRET	0.046	0.018	0.033	0.042	0.055	0.140	0.063	0.092	0.128	0.170	-25.750	<.0001
TRANSACCT	0.551	0.147	0.472	0.551	0.641	0.520	0.145	0.431	0.519	0.617	2.520	0.012
SECURITIES	0.812	0.114	0.774	0.832	0.883	0.829	0.094	0.779	0.844	0.894	-1.880	0.061
EFFICIENCY	1.064	0.194	0.958	1.062	1.167	1.213	0.438	1.001	1.120	1.265	-5.520	<.0001
COMMLOAN	0.167	0.099	0.098	0.150	0.217	0.170	0.102	0.097	0.151	0.215	-0.410	0.684
NONPERFORM	0.006	0.007	0.002	0.005	0.008	0.028	0.031	0.010	0.020	0.037	-11.830	<.0001
CHGOFF	0.150	0.203	0.032	0.104	0.188	0.473	0.396	0.189	0.366	0.612	-12.780	<.0001
MTGLOAN	0.740	0.145	0.677	0.766	0.837	0.744	0.144	0.673	0.772	0.848	-0.280	0.776
CAPRATIO	13.135	2.349	11.545	12.500	13.895	13.056	2.279	11.520	13.100	14.360	0.410	0.681
INTANG	0.021	0.021	0.004	0.016	0.031	0.020	0.019	0.003	0.015	0.031	0.840	0.400
SENSITIVE	0.076	0.171	-0.021	0.067	0.174	0.060	0.175	-0.048	0.055	0.172	1.130	0.260
SAVINGS	0.025	0.155	0.000	0.000	0.000	0.026	0.159	0.000	0.000	0.000	-0.100	0.918
FVA1_TA	N/A	N/A	N/A	N/A	N/A	0.011	0.034	0.000	0.000	0.004	N/A	N/A
FVA2_TA	N/A	N/A	N/A	N/A	N/A	0.151	0.127	0.085	0.139	0.195	N/A	N/A
FVA3_TA	N/A	N/A	N/A	N/A	N/A	0.006	0.012	0.000	0.000	0.004	N/A	N/A
FVL1_TA	N/A	N/A	N/A	N/A	N/A	0.000	0.002	0.000	0.000	0.000	N/A	N/A
FVL23_TA	N/A	N/A	N/A	N/A	N/A	0.012	0.093	0.000	0.000	0.002	N/A	N/A
ISPEC	0.419	0.381	0.055	0.103	0.830	0.424	0.381	0.070	0.202	0.790	-0.170	0.866

Note: This panel provides the descriptive statistics of variables used in our tests for 2006 and 2008 respectively. The last two columns provide both t-statistics and related p-values (two-sided) of comparing the mean difference of variables across 2006 and 2008. Note that fair value related variables are only available for 2008. *AFEES* are dollar values of audit fees from Audit Analytics. *LnAFEES* is transformed value of audit fees. *LnASSET* is log transformed total assets (BHCK2170). *BIGN* is a dichotomous variable coded as 1 for firms audited by 4 brand name auditors (PwC, KPMG, Deloitte and E&Y), 0 otherwise. *LOSS* is a dummy variable coded as 1 for firms with net income (BHCK4340) less than zero, 0 otherwise. *STDRET* is a firm specific

standard deviation of 12 month returns ending upon the fiscal year end and measures the operating risk of the firm. *TRANSACCT* is total transaction accounts deflated by total deposits ([BHCB2210+ BHCB2389+BHCB3187]/[BHDM6631+BHDM6636+BHFN6631+BHFN6636]). *SECURITIES* is defined as one less total securities deflated by total assets (1 – [BHCK1754 + BHCK1773]/BHCK2170). *EFFICIENCY* is the efficiency ratio and is measured by total operating expenses deflated by total revenue ([BHCK4135+BHCK4217+BHCK4093]/[BHCK4079+BHCK4107-BHCK4073]). *COMMLOAN* is the sum of commercial and agricultural loans deflated by gross loans ([BHCK1590+BHCK1763+BHCK1764]/[BHCK2122+BHCK2123]). *NONPERFORM* is nonperforming loans divided by gross loans ([BHCK5526 + BHCK5525]/[BHCK2122+BHCK2123]). *CHGOFF* is net charge-offs deflated by loan loss reserve ([BHCK4635-BHCK4605]/BHCK3123). *MTGLOAN* is total domestic real estate and home equity loans divided by gross loans (BHCK1410/[BHCK2122+BHCK2123]). *CAPRATIO* is total risk-adjusted capital ratio (BHCK7205). *INTANG* is intangible assets divided by total assets ([BHCK3163+BHCK0426]/BHCK2170). *SENSITIVE* is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets ([BHCK3197-BHCK3296-BHCK3298]/BHCK2170). *SAVINGS* is coded as 1 if the company is a savings institution (SIC codes 6035 and 6036), 0 otherwise. *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are fair value assets using Level 1, Level 2, and Level 3 inputs deflated by total assets, respectively. Their Compustat Expressfeed variable names (before scaling) are AQPL1, AOL2, and AUL3, respectively. *FVL1_TA* and *FVL23_TA* are total fair value liabilities by Level 1 and Levels 2 and 3 deflated by total assets. Their Compustat Expressfeed variable names (before scaling) are LQPL1 and [LOL2 + LUL3]. *ISPEC* is the sum of the square root of the total assets of clients that an auditor has in the banking industry each year deflated by the sum of the square root of the total assets of all clients of the auditor in that year.

Panel B. Pearson Correlation Coefficients (2008 in the Upper Diagonal and 2006 in the Lower Diagonal)

Pearson Correlation Coefficients (2006 in the Lower Diagonal, N=324 / 2008 in the Upper Diagonal, N = 269)
Prob > |r| under H0: Rho=0

	Variables	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	k.	l.	m.	n.	o.	p.	q.	r.	s.	t.	u.	v.
a.	LOGAFEES	1.000	0.925	0.130	0.668	0.280	0.167	0.010	-0.063	0.273	0.071	0.182	-0.465	0.148	0.359	0.363	-0.048	0.031	0.319	0.420	0.444	0.435	-0.647
			<.0001	0.033	<.0001	<.0001	0.006	0.874	0.301	<.0001	0.246	0.003	<.0001	0.015	<.0001	<.0001	0.432	0.613	<.0001	<.0001	<.0001	<.0001	<.0001
b.	LOGASS	0.916	1.000	0.060	0.590	0.198	0.174	-0.010	-0.128	0.244	0.012	0.122	-0.446	0.151	0.411	0.347	-0.041	0.052	0.318	0.383	0.456	0.437	-0.552
		<.0001		0.325	<.0001	0.001	0.004	0.870	0.035	<.0001	0.842	0.045	<.0001	0.013	<.0001	<.0001	0.508	0.398	<.0001	<.0001	<.0001	<.0001	<.0001
c.	LOSS	-0.025	-0.041	1.000	0.018	0.567	-0.293	0.230	0.469	-0.110	0.442	0.541	0.176	-0.153	-0.096	0.020	-0.053	-0.053	-0.190	0.121	-0.040	-0.057	-0.028
		0.653	0.459		0.772	<.0001	<.0001	0.000	<.0001	0.073	<.0001	<.0001	0.004	0.012	0.118	0.749	0.387	0.385	0.002	0.047	0.514	0.354	0.653
d.	BIGN	0.671	0.579	0.039	1.000	0.097	0.235	-0.133	-0.099	0.282	-0.031	0.099	-0.394	0.100	0.234	0.265	-0.049	-0.056	0.182	0.132	0.122	0.128	-0.821
		<.0001	<.0001	0.479		0.111	<.0001	0.029	0.104	<.0001	0.608	0.107	<.0001	0.102	0.000	<.0001	0.422	0.363	0.003	0.030	0.046	0.036	<.0001
e.	STDRET	0.002	-0.062	0.079	0.021	1.000	-0.346	0.286	0.250	-0.036	0.421	0.490	0.092	-0.105	-0.066	0.085	-0.050	-0.081	-0.160	0.235	0.054	0.044	-0.136
		0.966	0.268	0.154	0.704		<.0001	<.0001	<.0001	0.557	<.0001	<.0001	0.131	0.087	0.280	0.166	0.412	0.186	0.008	<.0001	0.381	0.472	0.026
f.	TRANSACCT	0.192	0.154	-0.129	0.227	0.025	1.000	-0.143	-0.167	0.342	-0.313	-0.143	-0.334	0.175	0.221	0.404	-0.041	0.039	0.125	-0.108	0.042	0.000	-0.158
		0.001	0.006	0.020	<.0001	0.650		0.019	0.006	<.0001	<.0001	0.019	<.0001	0.004	0.000	<.0001	0.499	0.525	0.040	0.077	0.491	0.999	0.009
g.	SECURITIES	-0.079	-0.062	-0.149	-0.174	-0.148	-0.069	1.000	0.206	0.005	0.176	0.188	0.152	-0.319	-0.039	0.105	0.052	-0.115	-0.483	-0.108	0.053	0.047	0.056
		0.158	0.265	0.007	0.002	0.008	0.217		0.001	0.936	0.004	0.002	0.013	<.0001	0.527	0.085	0.399	0.060	<.0001	0.077	0.388	0.444	0.358
h.	EFFICIENCY	-0.177	-0.248	0.338	-0.114	-0.065	0.054	-0.072	1.000	-0.109	0.233	0.353	0.171	-0.223	-0.166	-0.065	-0.006	0.043	-0.165	-0.094	-0.047	-0.044	0.100
		0.001	<.0001	<.0001	0.040	0.245	0.329	0.199		0.073	0.000	<.0001	0.005	0.000	0.006	0.289	0.917	0.485	0.007	0.125	0.438	0.476	0.101
i.	COMMLOAN	0.249	0.191	-0.063	0.210	-0.014	0.290	0.018	-0.011	1.000	-0.139	-0.043	-0.743	0.065	-0.005	0.354	-0.137	0.032	0.048	0.042	0.051	0.033	-0.286
		<.0001	0.001	0.258	0.000	0.799	<.0001	0.754	0.842		0.023	0.478	<.0001	0.287	0.941	<.0001	0.025	0.598	0.429	0.495	0.404	0.592	<.0001
j.	NONPERFORM	0.020	0.003	0.142	0.030	0.053	-0.259	0.003	0.069	-0.009	1.000	0.416	0.174	-0.153	-0.166	-0.005	-0.005	-0.046	-0.087	0.089	0.016	0.026	0.030
		0.714	0.964	0.010	0.585	0.342	<.0001	0.951	0.216	0.870		<.0001	0.004	0.012	0.007	0.940	0.940	0.450	0.157	0.145	0.793	0.671	0.622
k	CHGOFF	0.174	0.147	-0.005	0.043	-0.017	-0.095	0.034	-0.006	0.075	0.387	1.000	0.073	-0.077	-0.074	0.008	-0.033	0.033	-0.102	0.076	0.036	0.012	-0.068
		0.002	0.008	0.925	0.437	0.762	0.086	0.537	0.908	0.179	<.0001		0.233	0.206	0.228	0.891	0.588	0.596	0.095	0.212	0.558	0.851	0.268
l.	MTGLOAN	-0.473	-0.432	0.077	-0.341	-0.010	-0.232	0.253	-0.033	-0.668	-0.009	-0.192	1.000	-0.211	-0.061	-0.362	0.168	-0.092	-0.223	-0.204	-0.165	-0.183	0.352
		<.0001	<.0001	0.169	<.0001	0.862	<.0001	<.0001	0.559	<.0001	0.869	0.001		0.001	0.321	<.0001	0.006	0.132	0.000	0.001	0.007	0.003	<.0001
m.	CAPRATIO	-0.109	-0.172	0.176	-0.070	0.114	-0.013	-0.474	0.088	-0.119	0.092	-0.058	0.008	1.000	-0.027	0.146	-0.043	0.006	0.254	0.181	0.035	0.056	-0.046
		0.050	0.002	0.002	0.209	0.041	0.819	<.0001	0.113	0.032	0.097	0.301	0.884		0.655	0.016	0.485	0.928	<.0001	0.003	0.563	0.364	0.450
n.	INTANG	0.404	0.414	-0.073	0.277	-0.117	0.195	0.127	-0.054	0.045	-0.032	-0.036	-0.049	-0.136	1.000	0.036	0.049	-0.074	0.077	0.084	0.157	0.104	-0.238
		<.0001	<.0001	0.193	<.0001	0.035	0.000	0.022	0.336	0.418	0.566	0.516	0.376	0.015		0.555	0.419	0.229	0.206	0.168	0.010	0.088	<.0001
o.	SENSITIVE	0.256	0.238	-0.089	0.184	0.104	0.346	0.082	-0.165	0.282	-0.104	-0.029	-0.265	-0.058	0.045	1.000	-0.019	-0.010	0.037	0.092	0.124	0.091	-0.207
		<.0001	<.0001	0.110	0.001	0.063	<.0001	0.141	0.003	<.0001	0.061	0.604	<.0001	0.296	0.421		0.751	0.866	0.544	0.131	0.043	0.136	0.001
p.	SAVINGS	-0.043	-0.041	0.192	0.012	-0.025	-0.061	0.030	0.057	-0.147	0.035	0.041	0.155	0.086	0.024	-0.054	1.000	0.196	-0.107	-0.043	-0.021	-0.020	0.031
		0.445	0.464	0.001	0.832	0.660	0.273	0.593	0.310	0.008	0.530	0.464	0.005	0.124	0.666	0.329		0.001	0.079	0.486	0.731	0.740	0.607
q.	FVA1_TA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.000	0.048	0.079	0.161	0.221	0.052
																			0.429	0.196	0.008	0.000	0.396
r.	FVA2_TA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.000	0.271	0.659	0.730	-0.146
																				<.0001	<.0001	<.0001	0.017
s.	FVA3_TA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.000	0.299	0.347	-0.125
																					<.0001	<.0001	0.040
t.	FVL1_TA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.000	0.887	-0.127
																						<.0001	0.038
u.	FVL23_TA	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.000	-0.115
																							0.060
v.	ISPEC	-0.648	-0.549	-0.023	-0.840	-0.056	-0.247	0.126	0.138	-0.232	0.018	-0.005	0.314	0.110	-0.248	-0.151	-0.035	N/A	N/A	N/A	N/A	N/A	1.000
		<.0001	<.0001	0.683	<.0001	0.317	<.0001	0.024	0.013	<.0001	0.741	0.922	<.0001	0.048	<.0001	0.007	0.529						

Note: This panel provides the Pearson product moment correlation coefficients among variables used in our tests for 2006 and 2008 respectively. The lower and upper diagonals provide the correlation coefficients for 2006 and 2008, respectively. In each cell, the number above indicates the correlation coefficients whereas the number below indicates p-value. Note that fair value related coefficients are only available for 2008.

Table 3
Estimation of the Fields at al. [2004]) Model for 2006 and 2008: Largest available sample

$$LnAFEES = \beta_0 + \beta_1 LnASSET + \beta_2 BIGN + \beta_3 LOSS + \beta_4 STDRET + \beta_5 TRANSACCT + \beta_6 SECURITIES + \beta_7 EFFICIENCY + \beta_8 COMMLOAN + \beta_9 NONPERFORM + \beta_{10} CHGOFF + \beta_{11} MTGLOAN + \beta_{12} CAPRATIO + \beta_{13} INTANG + \beta_{14} SENSITIVE + \beta_{15} SAVINGS + \varepsilon \quad (1)$$

DV = *LnAFEES*		**Year = 2006**				**Year = 2008**			
Variables	**Expected Signs from Fields et al. (2004)**	**Coef.**	**Robust Std. Err.**	**Robust T**		**Coef.**	**Robust Std. Err.**	**Robust T**	
INTERCEPT		2.70	0.57	4.75	***	4.13	0.57	7.20	***
LnASSET	+	0.60	0.02	28.19	***	0.56	0.03	20.70	***
BIGN	+	0.47	0.05	9.16	***	0.40	0.06	7.15	***
LOSS	+	-0.17	0.32	-0.53		0.04	0.08	0.55	
STDRET	+	3.38	1.20	2.82	***	1.62	0.53	3.07	***
TRANSACCT	+	-0.05	0.17	-0.28		0.11	0.17	0.67	
SECURITIES	+	0.51	0.24	2.16	**	0.26	0.28	0.91	
EFFICIENCY	+	0.29	0.13	2.25	**	0.08	0.06	1.46	
COMMLOAN	+	0.30	0.38	0.77		-0.24	0.40	-0.59	
NONPERFORM	+	-3.02	4.43	-0.68		1.20	0.73	1.65	*
CHGOFF	+	0.29	0.18	1.61	*	-0.01	0.08	-0.07	
MTGLOAN	+	-0.34	0.25	-1.37		-0.66	0.31	-2.16	**
CAPRATIO	+	0.03	0.01	3.20	***	0.01	0.01	1.27	
INTANG	+	1.84	1.22	1.52		1.10	1.32	0.84	
SENSITIVE	-	0.10	0.15	0.67		0.07	0.14	0.52	
SAVINGS	+	-0.08	0.12	-0.66		0.06	0.09	0.67	
N		324				269			
Adj. R^2		0.88				0.89			

Note: This table presents the results of OLS regression of log of audit fees (*LnAFEES*) on the determinants of banking audit fees for 2006 and 2008, following Fields et al. [2004]. *LnAFEES* is transformed value of audit fees. *LnASSET* is log transformed total assets. *BIGN* is a dichotomous variable coded as 1 for firms audited by Big 4 auditors, 0 otherwise. *LOSS* is a dummy variable coded as 1 for firms with net income less than zero, 0 otherwise. *STDRET* is a firm specific standard deviation of 12 month returns ending upon the fiscal year end and measures the operating risk of the firm. *TRANSACCT* is total transaction accounts deflated by total deposits. *SECURITIES* is defined as one less total securities deflated by total assets. *EFFICIENCY* is the efficiency ratio and is measured by total operating expenses deflated by total revenue. *COMMLOAN* is the sum of commercial and agricultural loans deflated by gross loans. *NONPERFORM* is nonperforming loans divided by gross loans. *CHGOFF* is net charge-offs deflated by loan loss reserve. *MTGLOAN* is total domestic real estate and home equity loans divided by gross loans. *CAPRATIO* is total risk-adjusted capital ratio. *INTANG* is intangible assets divided by total assets. *SENSITIVE* is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets. *SAVINGS* is coded as 1 if the company is a savings institution, 0 otherwise. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, **, and *** indicate the statistical significance at 0.1, 0.05, and 0.01 levels (two-sided) respectively.

Table 4
Association of Audit Fees and Fair Value Measurements

$$LnAFEES = \delta_0 + \delta_1 FVA1\_TA + \delta_2 FVA2\_TA + \delta_3 FVA3\_TA + \delta_4 FVL1\_TA + \delta_5 FVL23\_TA + \delta_6 LnASSET + \delta_7 BIGN + \delta_8 LOSS + \delta_9 STDRET + \delta_{10} TRANSACCT + \delta_{11} SECURITIES + \delta_{12} EFFICIENCY + \delta_{13} COMMLOAN + \delta_{14} NONPERFORM + \delta_{15} CHGOFF + \delta_{16} MTGLOAN + \delta_{17} CAPRATIO + \delta_{18} INTANG + \delta_{19} SENSITIVE + \delta_{20} SAVINGS + \varepsilon \quad (2)$$

DV = *LnAFEES*	**Expected**		**Robust**			**Robust**		
Variables	**Signs (H1)**	**Coef.**	**Std. Err.**	**Robust T**		**Coef.**	**Std. Err.**	**Robust T**	
INTERCEPT		4.00	0.60	6.63	***	4.28	0.64	6.65	***
FVA_TA		0.78	0.42	1.85	*				
FVA1_TA	δ_1 : +					0.06	0.68	0.09	
FVA2_TA	δ_2 : +					0.56	0.45	1.24	
FVA3_TA	δ_3 : +					6.89	2.12	3.25	***
FVL_TA		7.47	2.50	2.99	***				
FVL1_TA						11.26	14.22	0.79	
FVL23_TA						-0.04	0.57	-0.06	
LnASSET		0.52	0.03	20.54	***	0.51	0.02	20.58	***
BIGN		0.43	0.06	7.53	***	0.45	0.06	8.17	***
LOSS		0.07	0.07	0.97		0.05	0.08	0.64	
STDRET		1.85	0.49	3.80	***	1.49	0.52	2.87	***
TRANSACCT		0.21	0.20	1.05		0.18	0.16	1.12	
SECURITIES		0.71	0.41	1.72	*	0.70	0.39	1.78	*
EFFICIENCY		0.07	0.06	1.11		0.10	0.06	1.51	
COMMLOAN		0.00	0.35	-0.01		-0.10	0.39	-0.26	
NONPERFORM		1.04	0.84	1.24		1.04	0.62	1.67	*
CHGOFF		-0.01	0.07	-0.08		0.00	0.08	0.03	
MTGLOAN		-0.41	0.27	-1.48		-0.54	0.30	-1.82	*
CAPRATIO		0.01	0.01	0.91		0.01	0.01	0.88	
INTANG		1.91	1.38	1.39		1.61	1.27	1.28	
SENSITIVE		0.10	0.15	0.62		0.09	0.14	0.64	
SAVINGS		0.08	0.14	0.55		0.09	0.09	1.07	
N		269				269			
Adj. R^2		0.90				0.90			

	P-values (two-sided)	
Test of FVA1_TA=FVA2_TA	0.48	
Test of FVA1_TA=FVA3_TA	0.00	Rejected
Test of FVA2_TA=FVA3_TA	0.00	Rejected

Note: This table presents the results of OLS regression of log of audit fees (*LnAFEES*) on fair value measurements. The left columns provide the estimation based on total fair value assets and liabilities deflated by total assets (*FVA_TA* and *FVL_TA*). The right side columns provide the estimation based on fair value assets and liabilities by fair value hierarchy. *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are fair value assets using Level 1, Level 2, and Level 3 inputs deflated by total assets, respectively. *FVL1_TA* and *FVL23_TA* are total fair value liabilities by Level 1 and Levels 2 and 3 deflated by total assets. Other variables are identical to ones in equation (1) of Table 3. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, **, and *** indicate the statistical significance at 0.1, 0.05, and 0.01 levels (two-sided) respectively.

Table 5
Association of Audit Fees and Bank Industry Specialist Auditors:
Largest available sample

$$LnAFEES = \phi_0 + \phi_1 ISPEC + \phi_2 LnASSET + \phi_3 BIGN + \phi_4 LOSS + \phi_5 STDRET + \phi_6 TRANSACCT + \phi_7 SECURITIES + \phi_8 EFFICIENCY + \phi_9 COMMLOAN + \phi_{10} NONPERFORM + \phi_{11} CHGOFF + \phi_{12} MTGLOAN + \phi_{13} CAPRATIO + \phi_{14} INTANG + \phi_{15} SENSITIVE + \phi_{16} SAVINGS + \varepsilon \quad (3)$$

		Year=2006				Year=2008			
DV = *LnAFEES*	**Expected**		**Robust**				**Robust**		
Variables	**Signs (H2)**	**Coef.**	**Std. Err.**	**Robust T**		**Coef.**	**Std. Err.**	**Robust T**	
INTERCEPT		3.18	0.59	5.38	***	4.60	0.59	7.77	***
ISPEC	*φ1: + or -*	-0.39	0.11	-3.58	***	-0.39	0.10	-3.95	***
LnASSET		0.58	0.02	27.25	***	0.55	0.03	19.94	***
BIGN		0.24	0.08	3.14	**	0.17	0.08	2.30	**
LOSS		-0.18	0.31	-0.59		0.04	0.08	0.56	
STDRET		2.93	1.19	2.45	**	1.49	0.55	2.71	***
TRANSACCT		-0.12	0.18	-0.65		0.15	0.17	0.85	
SECURITIES		0.50	0.23	2.13	**	0.20	0.27	0.75	
EFFICIENCY		0.32	0.13	2.49	**	0.09	0.06	1.55	
COMMLOAN		0.19	0.39	0.49		-0.37	0.40	-0.95	
NONPERFORM		-2.64	4.52	-0.58		1.29	0.74	1.73	*
CHGOFF		0.32	0.17	1.85	*	0.01	0.07	0.15	
MTGLOAN		-0.37	0.25	-1.47		-0.69	0.30	-2.29	**
CAPRATIO		0.04	0.01	3.53	***	0.02	0.01	1.47	
INTANG		2.05	1.19	1.71	*	0.91	1.29	0.70	
SENSITIVE		0.16	0.14	1.11		0.11	0.14	0.78	
SAVINGS		-0.12	0.14	-0.88		0.05	0.06	0.75	
N		324				269			
Adj. R2		0.88				0.90			

Note: This table presents the results of OLS regression of log of audit fees (*LnAFEES*) on the auditor's specialization in the banking industry (*ISPEC*) for 2006 and 2008, respectively. *ISPEC* is the sum of the square root of the total assets of clients that an auditor has in the banking industry each year deflated by the sum of the square root of the total assets of all clients of the auditor in that year. Other variables are identical to ones in equation (1) of Table 3. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, **, and *** indicate the statistical significance at 0.1, 0.05, and 0.01 levels (two-sided) respectively.

Table 6
The Effect of Bank Industry Specialist Auditors on the Relation between Audit Fees and Fair Value Measurement Inputs

$$UNEXPLNAFEES = \eta_0 + \eta_1 ISPECRANK + \eta_2 FVA1\_TA + \eta_3 FVA2\_TA + \eta_4 FVA3\_TA + \eta_5 FVL\_TA + \eta_6 FVA1\_TA * ISPECRANK + \eta_7 FVA2\_TA * IPSECRANK + \eta_8 FVA3\_TA * ISPECRANK + \eta_9 FVL\_TA * ISPECRANK + \varepsilon \quad (4)$$

DV = *UNEXPLNAFEES* Variables	Expected Signs (H3)	Coef.	Robust Std. Err.	Robust T	
INTERCEPT		0.01	0.06	0.21	
ISPECRANK		-0.19	0.12	-1.62	
FVA1_TA		-0.85	1.37	-0.62	
FVA2_TA		0.11	0.32	0.33	
FVA3_TA		-0.80	3.82	-0.21	
FVL_TA		6.55	3.79	1.73	*
FVA1_TA*ISPECRANK	η_6: + or -	1.35	1.79	0.75	
FVA2_TA*ISPECRANK	η_7: + or -	0.53	0.64	0.83	
FVA3_TA*ISPECRANK	η_8: + or -	10.82	5.68	1.90	*
FVL_TA*ISPECRANK		-18.00	9.23	-1.95	*
N		269			
Adj. R^2		0.05			

Note: This panel provides the results of OLS regression of unexpected audit fees (*UNEXPLNAFEES*) on the decile rank of auditor specialist measure, fair value measurements, and the interaction terms of the decile rank measure and fair value measurements. *UNEXPLNAFEES* is the residual from the estimation of equation (1) in Table 3. *ISPECRANK* is the decile rank variable, the value of which ranges from zero to one. *ISPECRANK* is based on *ISPEC*, which is defined as the sum of the square root of the total assets of clients that an auditor has in the banking industry each year deflated by the sum of the square root of the total assets of all clients of the auditor in that year. *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are fair value assets using Level 1, Level 2, and Level 3 inputs deflated by total assets, respectively. *FVL_TA* is total fair value liabilities deflated by total assets. Note that we use the decile rank variable of *ISPEC* for the interaction terms because it is not straightforward to interpret the interaction terms of two continuous variables. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, ** indicate the statistical significance at 0.1, 0.05 levels (two-sided) respectively.

Table 7
Results for Modified versions of Model (4)

Panel A: Model (4) Results Controlling for Relative Auditor Size

$$UNEXPLNAFEES = \eta_0 + \eta_1 ISPECRANK + \eta_2 RELAUDSIZE + \eta_3 FVA1\_TA + \eta_4 FVA2\_TA + \eta_5 FVA3\_TA + \eta_6 FVL\_TA + \eta_7 FVA1\_TA * ISPECRANK + \eta_8 FVA2\_TA * IPSECRANK + \eta_9 FVA3\_TA * ISPECRANK + \eta_{10} FVL\_TA * ISPECRANK + \varepsilon \quad (4)'$$

DV = *UNEXPLNAFEES* Variables	Expected Signs (H3)	Coef.	Robust Std. Err.	Robust T	
INTERCEPT		0.26	0.10	2.71	***
ISPECRANK		-0.49	0.15	-3.30	***
RELAUDSIZE		-0.31	0.10	-3.21	***
FVA1_TA		-1.50	0.96	-1.56	
FVA2_TA		0.20	0.31	0.66	
FVA3_TA		-0.51	3.41	-0.15	
FVL_TA		7.23	3.70	1.95	**
FVA1_TA*ISPECRANK	η_6: + or -	2.22	1.42	1.56	*
FVA2_TA*ISPECRANK	η_7: + or -	0.43	0.62	0.69	
FVA3_TA*ISPECRANK	η_8: + or -	10.05	5.38	1.87	*
FVL_TA*ISPECRANK		-20.74	9.21	-2.25	**
N		269			
Adj. R^2		0.09			

Note: This panel provides the results of OLS regression of unexpected audit fees (*UNEXPLNAFEES*) on the decile rank of auditor specialist measure, fair value measurements, and the interaction terms of the decile rank measure and fair value measurements. *UNEXPLNAFEES* is the residual from the estimation of equation (1) in Table 3. *ISPECRANK* is the decile rank variable, the value of which ranges from zero to one. *ISPECRANK* is based on *ISPEC*, which is defined as the sum of the square root of the total assets of clients that an auditor has in the banking industry each year deflated by the sum of the square root of the total assets of all clients of the auditor in that year. *RELAUDSIZE* equals total client assets audited by a given auditor, divided by total client assets audited by the largest auditor. *FVA1_TA*, *FVA2_TA*, and *FVA3_TA* are fair value assets using Level 1, Level 2, and Level 3 inputs deflated by total assets, respectively. *FVL_TA* is total fair value liabilities deflated by total assets. Note that we use the decile rank variable of *ISPEC* for the interaction terms because it is not straightforward to interpret the interaction terms of two continuous variables. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, ** indicate the statistical significance at 0.1, 0.05 levels (two-sided) respectively.

Table 7 (continued)

Panel B: Model (4) Regression Results using Other Auditor Characteristics

Auditor Chracteristics Examined	% share of 2008 sample (N=269)	Equation (3)	Equation (4)			
		φ_1 (t-stat)	η_1 (t-stat)	η_7 (t-stat)	η_8 (t-stat)	η_9 (t-stat)
NLEADER	20.07%	0.00	0.11	0.83	-0.73	2.49
(National market share leader)		(1.00)	(0.92)	(0.49)	(-1.26)	(0.38)
NCLEADER	11.10%	-0.01	0.08	2.22	-0.67	2.19
(National & city level market share leader)		(-0.16)	(-0.56)	(0.76)	(-0.97)	(0.25)
Global Leader	25.60%	0.05	0.17	0.59	-0.90	-5.92
(Global market share leader)		(0.61)	(0.163)	(0.36)	(-1.66) *	(-1.11)

Note: This panel provides the estimation of coefficients of alternative industry specialist auditors with t-statistics in the parentheses. The estimations are based on 2008 data. *NLEADER* is a dummy for national market share leader, which is coded as 1 if the auditor is KPMG, 0 otherwise. The market share calculation is based on audit fees in the financial sector (SIC two digit = 60). *NCLEADER* is a dummy variable for national level as well as city level market leader. *NCLEADER* is coded as 1 if the auditor is KMPG and the engagement office of KPMG is a leading market share office in the financial sector in the city. *GLEADER* is coded as 1 if the auditor is either PwC or KPMG.

Table 8
Estimation of the Fields at al. [2004] Model for 2006 and 2008: Constant sample

$$LnAFEES = \beta_0 + \beta_1 LnASSET + \beta_2 BIGN + \beta_3 LOSS + \beta_4 STDRET + \beta_5 TRANSACCT + \beta_6 SECURITIES + \beta_7 EFFICIENCY + \beta_8 COMMLOAN + \beta_9 NONPERFORM + \beta_{10} CHGOFF + \beta_{11} MTGLOAN + \beta_{12} CAPRATIO + \beta_{13} INTANG + \beta_{14} SENSITIVE + \beta_{15} SAVINGS + \varepsilon \quad (1)$$

DV = *LnAFEES*		**Year = 2006**				**Year = 2008**				
	Expected Signs from		**Robust**				**Robust**			**Chow Test**
Variables	**Fields et al. [2004]**	**Coef.**	**Std. Err.**	**Robust T**		**Coef.**	**Std. Err.**	**Robust T**		**p-value**
INTERCEPT		3.17	0.64	4.99	***	4.23	0.59	7.18	***	
LnASSET	+	0.58	0.02	24.10	***	0.56	0.03	20.00	***	0.62
BIGN	+	0.45	0.06	8.21	***	0.41	0.06	6.96	***	0.56
LOSS	+	(dropped - all firms have LOSS=0)				0.05	0.08	0.62		0.53
STDRET	+	3.84	1.30	2.94	***	1.59	0.54	2.96	***	0.10
TRANSACCT	+	-0.06	0.21	-0.29		0.08	0.18	0.44		0.60
SECURITIES	+	0.57	0.27	2.11	**	0.29	0.29	0.99		0.46
EFFICIENCY	+	0.26	0.14	1.88	*	0.06	0.05	1.04		0.16
COMMLOAN	+	0.12	0.43	0.28		-0.25	0.41	-0.60		0.53
NONPERFORM	+	-3.55	5.10	-0.70		1.13	0.74	1.53		0.35
CHGOFF	+	0.51	0.16	3.19	***	0.00	0.08	0.04		0.00
MTGLOAN	+	-0.52	0.29	-1.80	*	-0.69	0.33	-2.13	**	0.68
CAPRATIO	+	0.03	0.01	2.15	*	0.01	0.01	1.16		0.38
INTANG	+	2.21	1.41	1.57		1.00	1.32	0.76		0.52
SENSITIVE	-	0.10	0.15	0.64		0.08	0.15	0.51		0.93
SAVINGS	+	-0.05	0.13	-0.38		0.06	0.09	0.68		0.48
N		264				264				
Adj. R^2		0.88				0.89				

Note: This table presents the results of OLS regression of log of audit fees (*LnAFEES*) on the determinants of banking audit fees for 2006 and 2008, following Fields et al. [2004] for the 264 constant sample firms (firms that have valid observations in both 2006 and 2008). *LnAFEES* is transformed value of audit fees. *LnASSET* is log transformed total assets. *BIGN* is a dichotomous variable coded as 1 for firms audited by Big 4 auditors, 0 otherwise. *LOSS* is a dummy variable coded as 1 for firms with net income less than zero, 0 otherwise. Note that all constant sample firms (i.e., firms that survive the recent financial crisis and thus remain in the 2008 sample) have *LOSS*=0 in 2006 and *LOSS* is dropped in the 2006 estimation. *STDRET* is a firm specific standard deviation of 12 month returns ending upon the fiscal year end and measures the operating risk of the firm. *TRANSACCT* is total transaction accounts deflated by total deposits. *SECURITIES* is defined as one less total securities deflated by total assets. *EFFICIENCY* is the efficiency ratio and is measured by total operating expenses deflated by total revenue. *COMMLOAN* is the sum of commercial and agricultural loans deflated by gross loans. *NONPERFORM* is nonperforming loans divided by gross loans. *CHGOFF* is net charge-offs deflated by loan loss reserve. *MTGLOAN* is total domestic real estate and home equity loans divided by gross loans. *CAPRATIO* is total risk-adjusted capital ratio. *INTANG* is intangible assets divided by total assets. *SENSITIVE* is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets. *SAVINGS* is coded as 1 if the company is a savings institution, 0 otherwise. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, **, and *** indicate the statistical significance at 0.1, 0.05, and 0.01 levels (two-sided) respectively. The last column provides the p-value (both-sided) of Chow test, comparing the difference of coefficients across two estimations.

Table 9
Association of Audit Fees and Bank Industry Specialist Auditors: Constant sample

$$LnAFEES = \phi_0 + \phi_1 ISPEC + \phi_2 LnASSET + \phi_3 BIGN + \phi_4 LOSS + \phi_5 STDRET + \phi_6 TRANSACCT + \phi_7 SECURITIES + \phi_8 EFFICIENCY + \phi_9 COMMLOAN + \phi_{10} NONPERFORM + \phi_{11} CHGOFF + \phi_{12} MTGLOAN + \phi_{13} CAPRATIO + \phi_{14} INTANG + \phi_{15} SENSITIVE + \phi_{16} SAVINGS + \varepsilon \quad (3)$$

		Year=2006				Year=2008				
DV = *LnAFEES*	**Expected**		**Robust**				**Robust**			**Chow Test**
Variables	**Signs (H2)**	**Coef.**	**Std. Err.**	**Robust T**		**Coef.**	**Std. Err.**	**Robust T**		**P-value**
INTERCEPT		3.75	0.65	5.76	***	4.75	0.61	7.81	***	
ISPEC	*φ1: + or -*	-0.42	0.12	-3.61	***	-0.42	0.10	-4.21	***	0.98
LnASSET		0.56	0.02	23.52	***	0.55	0.03	19.16	***	0.71
BIGN		0.20	0.08	2.56	**	0.16	0.08	2.05	**	0.66
LOSS		(dropped: all firms have LOSS=0)				0.05	0.08	0.63		0.52
STDRET		3.26	1.33	2.46	**	1.38	0.56	2.48	**	0.18
TRANSACCT		-0.12	0.21	-0.56		0.06	0.18	0.34		0.51
SECURITIES		0.57	0.27	2.14	**	0.25	0.28	0.88		0.39
EFFICIENCY		0.28	0.14	2.02	**	0.07	0.06	1.18		0.15
COMMLOAN		0.00	0.43	0.01		-0.37	0.40	-0.92		0.51
NONPERFORM		-2.23	5.17	-0.43		1.19	0.75	1.59		0.50
CHGOFF		0.54	0.16	3.42	***	0.02	0.08	0.29		0.00
MTGLOAN		-0.57	0.28	-2.02	**	-0.72	0.32	-2.24	**	0.72
CAPRATIO		0.03	0.01	2.40	**	0.01	0.01	1.35		0.36
INTANG		2.59	1.36	1.90	*	0.81	1.29	0.63		0.33
SENSITIVE		0.17	0.14	1.15		0.13	0.15	0.87		0.87
SAVINGS		-0.10	0.16	-0.66		0.04	0.06	0.70		0.37
N		264				264				
Adj. R2		0.88				0.90				

Note: This table presents the results of OLS regression of log of audit fees (*LnAFEES*) on the auditor's specialization in the banking industry (*ISPEC*) for 2006 and 2008, respectively, using a constant sample of 263 bank clients (banks that have valid observations in both 2006 and 2008). *ISPEC* is the sum of the square root of the total assets of clients that an auditor has in the banking industry each year deflated by the sum of the square root of the total assets of all clients of the auditor in that year. Other variables are identical to ones in equation (1) of Table 3. Standard errors and t-statistics are adjusted for heteroskedasticity, following Rogers [1993]. *, **, and *** indicate the statistical significance at 0.1, 0.05, and 0.01 levels (two-sided) respectively. The last column provides the p-value (both-sided) of Chow test, comparing the difference of coefficients across two estimations.