# Fair Value Measurements and Auditor versus Management Conservatism: Evidence from the Banking Industry

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**Abstract:** The more subjective nature of fair value measurements, accompanied by economic difficulties during the financial crisis, has increased the risks for bank managers and their auditors (PCAOB 2010). By analyzing a sample of commercial banks for the period of 2007 and 2008 following the adoption of FAS 157 (ASC 820), we provide evidence concerning direct and indirect effects of Level 3 assets on conservative financial reporting (proxied by discretionary loan loss provisions). While we find the direct effect between Level 3 assets and discretionary loan loss provisions to be insignificant, we document a significant indirect effect on this relation through the role of auditors (proxied by higher amounts of audit fees). Our evidence thus suggests that auditors demand more conservative accounting for firms reporting less reliable and less verifiable accounting information during a period of economic crisis.

**Keywords:** Auditor conservatism; Management conservatism; Fair value measurement; Audit fees; Discretionary loan loss provision

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## 1. Introduction

This study investigates auditor and management responses to accounting estimates in light of higher perceived risks in the banking industry, following the adoption of FAS 157 (fair value measurements). FAS 157 (now ASC 820 – see FASB 2006) establishes the fair value hierarchy, which gives the highest priority to quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1) and the lowest priority to unobservable inputs (Level 3). We focus on commercial banks since they are inordinately affected by FAS 157 and its measurement and disclosure requirements for financial assets and liabilities (PCAOB 2010).

Specifically, we analyze the relationship of two significant accounting estimates in bank financial statements, fair value estimates under FAS 157 and discretionary loan loss provisions. Previous research has studied banks' use of loan loss provisions in earnings management (e.g., Beaver and Engel 1996; Ahmed et al. 1999; Beatty et al. 2002) as loan loss provisions are a major form of discretionary accruals in the banking industry (Ryan 2007). However, the recent adoption of fair value measurement by FAS 157, with its acceptance of unobservable inputs, creates potentially more options for banks to manage their earnings and capital ratios. In particular, categorizing and recognizing fair value positions has introduced a potentially new source of discretionary accruals (Fiechter and Meyer 2010). As noted by Ryan (2007), fair value estimates and discretionary loan loss provisions are two mutually exclusive sources of accounting estimates. They potentially may be used in a strategic way by the banking industry (Fiechter and Meyer 2010). Our approach is to study the effect of fair value inputs on loan loss

provisions in the banking industry, and the roles of management and auditors in explaining this relationship during a period of economic and financial crisis.

The implementation of FAS 157 has created more uncertainties and potentially more managerial discretion underlying fair value measurements. During the current economic crisis, these uncertainties have created unprecedented challenges in the implementation of accounting and auditing standards for the banking industry (PCAOB 2010, 4-7). Since higher litigation risk typically occurs for firms with higher business risks and operating in uncertain environments, bank managers are likely to report more conservatively to mitigate litigation risk (Watts 2003).

The adoption of FAS 157 has also created related difficulties for auditors in constraining banks' earnings management (Martin et al. 2006; SEC 2008). The severe financial crisis, as well as illiquidity of markets for Level 3 fair valued securities, has characterized the period immediately following the promulgation of FAS 157, and this greatly increased the risks for auditors during this period (PCAOB 2008). Following the concept of "auditor conservatism" in the prior literature (e.g., Krishnan 1994; DeFond and Subramanyam 1998; Lu and Sapra 2009), we argue that auditors demand more conservative financial reporting when they perceive themselves to be exposed to greater risks in the current uncertain economic environment. Most litigation against auditors involves allegations that clients have artificially inflated earnings or assets (Lys and Watts 1994; Heninger 2001). Because their litigation costs are high, auditors mitigate their risks by a combination of increasing their level of audit effort, incorporating the increased litigation risk in their pricing of the audit fee, and demanding more conservative accounting (Watts 2003; DeFond et al. 2010).

We posit a relation between Level 3 assets/liabilities and conservative financial reporting in the banking industry. We focus on Level 3 securities because they are estimated based on

unobservable inputs and require more judgment from managers and auditors (PCAOB 2010, 7-11). Although we consider both Level 3 assets and liabilities in our empirical analyses, the paucity of Level 3 liability observations limits most of our significant findings to Level 3 assets (this is consistent with Song et al. 2010). Hence we focus on Level 3 assets in the subsequent discussions. Our proxy for conservative financial reporting is higher amounts of discretionary loan loss provisions (DLLP; see Wahlen 1994; Beaver and Engel 1996). We first hypothesize a direct effect of Level 3 assets on DLLP, although the direction of this direct effect can be either way. On the one hand, bank managers might utilize both Level 3 assets and DLLP to manipulate earnings. On the other hand, as banks with more Level 3 assets suggest an elevated risk profile, bank managers might report more conservatively to mitigate litigation risk.

Next, we investigate an indirect effect of Level 3 assets on DLLP via the role of auditors. Auditing standards recognize that such relationships can be important for detecting the strategic management of accounting estimates in financial reporting, and auditors are required to consider such relationships in forming an opinion on the fairness of presentation of the financial reporting of an auditee (see PCAOB Auditing Standards AU 312.36, 316.63 and 342.14; PCAOB 2008). Since bank auditors tend to act conservatively during a banking crisis when they have to accept less verifiable fair value inputs, we hypothesize that the auditors' role can explain the positive relation between Level 3 assets and DLLP. We use audit fees as the proxy for the role of auditors since audit fees are presumed to represent auditors' effort (Caramanis and Lennox 2008) as well as auditors' assessment of litigation risk (e.g., Simunic and Stein 1996; DeFond et al. 2010).

Utilizing various data sets (e.g., Compustat, Audit Analytics, and the Bank Regulatory database), we obtain 457 firm-year observations in 2007 and 2008 that contain fair value measurements as well as other required data following the adoption of FAS 157. We first

document that firms with high Level 3 assets are associated with higher DLLP, but this association is not statistically significant. Then we hypothesize and find evidence that auditors demand conservative financial reporting as there is a strong positive relation between audit fees and DLLP. Finally, building on an augmented model of audit fee determinants for financial institutions from Fields et al. (2004) and Ettredge et al. (2009), as well as the positive relation between audit fees and DLLP, we establish an indirect relation between Level 3 assets and DLLP through the role of auditors. Overall, our results show that there is weak evidence of a direct effect of Level 3 assets on the magnitude of DLLP but a strong indirect effect via audit fees. These results are robust with respect to different measures of auditor conservatism, alternative measures of DLLP, tests using discretionary loan loss allowances, and a variety of approaches in dealing with endogeneity concerns.

Our paper makes the following contributions to the empirical literature on the roles of auditors versus management in financial reporting during a major economic crisis. We provide empirical evidence on auditors' reaction to increased audit risks following the implementation of fair value accounting standards. Although there are concerns of more managerial discretion underlying managers' fair value measurement thus leading to more accounting manipulations (e.g., Martin et al. 2006; Benston 2008; Laux and Leuz 2010), our study provides further evidence on managers' response to FAS 157 by investigating the relation between unverifiable securities and DLLP, and on auditors' reaction to increased audit risks following the implementation of fair value accounting standards. Our results suggest that the above concerns can be mitigated by auditors since auditors can strengthen their role in constraining managers' ability to manage up earnings.

By documenting auditors' demand for more conservative financial reporting following the issuance of FAS 157, our study builds on existing studies that investigate the various aspects of auditors' reaction to FAS 157. Both Goh et al. (2009) and Song et al. (2010) document that the valuation of fair value assets is enhanced when higher-quality auditors are involved. Ettredge et al. (2009) show that audit fees increase with Level 3 assets in bank balance sheets. In contrast, our evidence suggests that auditor conservatism likely influences managers to set aside higher DLLP when the level of less verifiable fair value measurements is higher.

More broadly, our research addresses the call from Francis (2001), Schipper (2003), Nelson (2003), and Vincent et al. (2003) for more archival research on principles-based accounting standards (i.e., judgments and estimates related to implementing GAAP rules).

The remainder of this paper is organized as follows. Section 2 develops the hypotheses. Section 3 discusses data sources and research designs. Section 4 provides the descriptive statistics and empirical findings. Section 5 discusses results of additional tests. We conclude in Section 6.

## 2. Hypotheses Development

### *2.1 The Relation between Fair Value Measurement and Conservative Financial Reporting*

FAS 157 emphasizes the use of market inputs in estimating fair values of firms' assets and liabilities and uses a 3-level fair value hierarchy to reflect the reliabilities and difficulties of judgment involved in estimating fair values. There have been concerns that FAS 157 provides managers with too much leeway in manipulating and/or presenting accounting numbers (Martin et al. 2006; Benston 2008; Laux and Leuz 2010). Findings reported by Kolev (2009), Goh et al. (2009), and Song et al. (2010) suggest that investors perceive banks' measures of Level 3 asset

and liability values to be less reliable and, accordingly, price them at a substantial discount. During our sample period of the financial crisis, managers have incentives to use all available tools to increase earnings and maintain adequate capital (Fiechter and Meyer 2010). Consistent with this reasoning, Huizinga and Laeven (2009) analyze banks' real estate related assets (i.e., mortgages and mortgage-backed securities) during the financial crisis. They find that banks with a larger share of mortgage-backed securities (of which a larger portion are fair value inputs) have smaller loan loss provisions, particularly when these banks are close to financial distress. Following this line of reasoning, we would expect higher Level 3 assets to be associated with lower DLLP during a period of economic crisis.

Even without the presence of intentional misrepresentation by managers (i.e., moral hazard), the more subjective nature of Level 3 fair values potentially leads to greater information asymmetry between investors and managers, as well as greater estimation error by managers. Consequently, both information asymmetry and estimation error increase investors' adverse selection, liquidity risk, and information processing costs, all of which elevate the sample bank's systematic risk (Baiman and Verrecchia 1996; Song et al. 2010). As the existing literature suggests, higher litigation risk typically occurs for firms operating in uncertain economic environments with higher business risks (Qiang 2007; Blunck 2009). In this scenario, bank managers choose to report more conservatively to mitigate litigation risk (Watts 2003). Consequently, we would expect that higher Level 3 assets are related to higher DLLP.

Thus, it remains an empirical question as to whether and how the accounting rules on fair value measurements affect bank managers' financial reporting discretion.

A similar analysis can be applied to Level 3 liabilities.[1] However, Level 3 liabilities are typically small and appear infrequently in our sample as well as in Song et al. (2010). Therefore, our hypothesis focuses on Level 3 assets, and we propose a non-directional hypothesis on the direct effect of Level 3 assets on DLLP as follows:

**H1:** There is a relation between Level 3 assets and discretionary loan loss provisions.

### *2.2 Audi Fees and Conservative Financial Reporting*

Irrespective of the direction of the direct relation between Level 3 assets and DLLP, we are also interested in investigating the monitoring role of auditors (i.e., the indirect relation between the two accounting estimates). Existing studies show that increased audit work can constrain managers' earnings management incentives (Frankel et al. 2002; Ashbaugh et al. 2003). In addition, higher audit effort reduces estimation errors and improves earnings quality (Srinidhi and Gul 2007).

Auditor conservatism can be defined as the auditor's preference for assuring that net assets and income are not overstated (Kim et al. 2003; Lu and Sapra 2009). Most litigation against auditors involves allegations that clients have artificially inflated earnings or assets (Lys and Watts 1994; Heninger 2001). During the period of from 2007 to April 2010, auditors were named as defendants in 24 out of 196 "credit crisis" related class action suits (Cheffers and Kueppers 2010). The most recent inspections of audit firms have resulted in increased referrals to take enforcement actions (PCAOB 2010, 23-24). Major audit firms have paid substantial

[1] On the one hand, since higher Level 3 liabilities reduce earnings, it is likely that managers would estimate lower DLLP to increase earnings when Level 3 liabilities are high. On the other hand, conservative managers might estimate higher Level 3 liabilities and higher DLLP.

amounts to settle for accounting malpractice class action suits.[2] Since the expected litigation and reputation costs of overstatement are higher than those of understatement, auditors have incentives to pressure managers to report conservative values for earnings and net assets (i.e., Watts 2003; DeFond et al. 2010). Conservative accounting choices are expected to protect the auditor against future litigation and any potential damage (Krishnan 1994; DeFond and Subramanyam 1998; Francis and Krishnan 1999; Lee and Mande 2003; Cahan and Zhang 2006). Recent evidence suggests that auditor conservatism intensified after the enactment of the Sarbanes-Oxley Act of 2002 (Geiger et al. 2005; Rama and Read 2006; Myers et al. 2010; Feldmann and Read 2010).

Overall, the prior literature shows that auditors have legal incentives to constrain managers' abilities to manage earnings upward. In this study we use audit fees to proxy for the role of auditors since prior research has shown that audit fees are a proxy for audit effort as well as the compensation for risks to auditors (Simunic 1980; Dye 1993, 1995; Bell et al. 2001). We hypothesize:

**H2:** Audit fees are positively associated with discretionary loan loss provisions.

### *2.3 The Indirect Effect of Fair Value Inputs on Conservative Financial Reporting*

Level 3 fair values are subjective and difficult for auditors to verify (Martin et al. 2006; Ryan 2008). Since there are different consequences associated with each of the three levels of the fair value hierarchy, auditors are alerted to circumstances in which managers "may have an incentive to inappropriately classify fair value measurements within the hierarchy" (PCAOB

[2] According to the calculation of accounting malpractice settlements by Audit Analytics (Cheffers and Kueppers 2010), since 1999 Ernst & Young has paid the largest amount in settlements at $2.23 billion. KPMG follows with settlements totaling $1.48 billion, followed by Deloitte & Touche at $1.20 billion, and PricewaterhouseCoopers at $1.17 billion.

2007, 6). Under the PCAOB's existing standards[3], auditors need to understand management's process for developing their fair value estimates. Auditors then must develop audit procedures to properly test those assertions as part of their audit of internal controls over financial reporting. In particular, auditors need new expertise and new forms of evidence to evaluate the reasonableness of fair value estimates for those assets and liabilities that are thinly traded or not traded at all. However, as Nelson et al. (2002, 107) note, managers are "more likely to make attempts (and auditors are less likely to adjust attempts) that are governed by imprecise standards." Specifically, "auditors will be willing to discuss and compromise on interpretations of imprecise rules, and auditors are more likely to permit aggressive accounting positions as the subjectivity of the relevant standard and /or evidence increases" (Nelson et al. 2002, 180-181). In fact, the concern over the inadequate level of technical knowledge of valuation tools among auditors (Martin et al. 2006; SEC 2008) leads some capital market participants to question whether auditors are able to meet the PCAOB's audit standards.[4] Therefore, the use of fair value estimates adds uncertainty and subjectivity to financial reporting and consequently increases audit risk (SEC 2008; Ettredge et al. 2009).

The financial crisis, accompanied by the wide-spread bank failures during our sample period, further increased bank audit risks. In such an environment, auditors, reflecting the concerns of investors, may perceive firms with high Level 3 assets as high risk clients. PCAOB Auditing Standards AU 312.36, 316.63 and 342.14 and PCAOB (2008, 13) stipulate that

[3] PCAOB has issued a series of auditing guidances regarding fair value measurements. These guidances include: PCAOB Staff Audit Practice Alert No. 2, "Matters Related to Auditing Fair Value Measurements of Financial Instruments and the Use of Specialists" (December 10, 2007); and PCAOB Staff Audit Practice Alert No. 3, "Audit Considerations in the Current Economic Environment" (December 5, 2008). Other relevant auditing guidance includes PCAOB Interim Standard AU Section 328, Auditing Fair Value Measurements and Disclosures.

[4] For example, in a CFO.com report (Johnson 2007), Zoe-Vonna Palmrose, SEC deputy chief accountant for auditing and professional practice issues, cautioned that many auditors aren't in a position to challenge management's assumptions for their fair-value calculations. In another Reuter.com report (Wutkowski 2009), Robert Willens, a former KPMG partner, was quoted as saying, "I don't think, based on this new guidance, that auditors will be inclined to challenge managers very actively on this."

"auditors should reconsider as a whole a group of individually reasonable estimates that collectively indicates a bias on the part of management's entity." This requirement indicates that auditors would be especially sensitive to downward revisions of loan loss provisions while approving less reliable fair value assets as a result of adoption of FAS 157 during an economic crisis. Consistent with this reasoning, Gaver et al. (2009) find that when auditors face greater legal liability they have less tolerance for loss reserve understatements by their insurance clients.

Therefore, we hypothesize an indirect relation between Level 3 assets and DLLP. In other words, the role of auditors could help explain the positive relation between the two accounting estimates. Recall that Level 3 liabilities are typically small and appear infrequently in banks' balance sheets. To be consistent with H1, H3 focuses on Level 3 assets.

**H3:** There is an indirect effect of higher Level 3 assets on higher discretionary loan loss provisions via the role of auditors.

## 3. Data Sources and Research Design

### *3.1 Data and Sample Selection*

We focus on publicly listed banks following the implementation of FAS 157. While most firms adopted FAS 157 in 2008, a small percentage of firms adopted FAS 157 early in 2007.[5] We merge our accounting data from Compustat with audit fee data from Audit Analytics. As Table 1 shows, our sample selection process results in two separate samples; the first sample 472 observations for the test of DLLP and fair value measurement, and the second sample of 457 observations for the test related to audit fees and fair value measurement.

[Table 1 about here]

[5] There are 21 observations in 2007 and 540 observations in 2008.

### *3.2 Testing H1 and H2: The Effects of Level 3 Assets and Audit Fees on DLLP*

Our overall experimental design is summarized in Figure 1. We discuss each of the hypotheses, H1-H3, sequentially in the following sections.

[Figure 1 about here]

H1 tests how fair valued inputs directly affect accounting conservatism (as proxied by DLLP), and H2 examines how audit fees would affect DLLP. To examine these two hypotheses, we first identify a proxy of conservative financial reporting in the banking industry. We follow Beaver and Engel (1996) and estimate DLLP. Specifically, we use the residual from the following regression model as an estimate of the discretionary component of the loan loss provision:

$$LLP_{it} = \gamma_0(\frac{1}{GBV_{it}}) + \gamma_1 CO_{it} + \gamma_2 \Delta LOAN_{it} + \gamma_3 \Delta NPA_{it} + \gamma_4 \Delta NPA_{it+1} + \theta_{it}, \quad (1)$$

where $GBV_{it}$ is net book value of common equity plus total allowance for loan losses; $CO_{it}$ is loan charge-offs; $\Delta LOAN_{it}$ is annual change in total loans ($LOAN_{it} - LOAN_{it-1}$); $\Delta NPA_{it}$ is current-year change in nonperforming assets ($NPA_{it} - NPA_{it-1}$); $\Delta NPA_{it+1}$ is the one-year-ahead change in nonperforming assets from year $t$ to year $t$+1. All variables are deflated by $GBV_{it}$. The residual from Eq. (1) is called "discretionary loan loss provision (*DLLP*)."

The independent variables in Eq. (1) have been shown in the prior literature to affect the level of loan loss provision. Current net charge-offs can provide information about future net charge-offs, which then affect expectations of the collectability of current loans. The level of nonperforming loans is an indicator of default risk. In addition, the magnitude of uncollectible loans increases with the size of loans outstanding. Since the loan loss provision is an expense for

a period of time, the changes in loans and nonperforming assets are included instead of the level variables. [6]

Next, we regress DLLP on fair value assets and liabilities and audit fees as follows:

$$DLLP_{it} = \alpha_0 + \alpha_1 Level1AR_{it} + \alpha_2 Level2AR_{it} + \alpha_3 Level3AR_{it} + \alpha_4 Level1LR_{it} + \alpha_5 Level2LR_{it} + \alpha_6 Level3LR_{it} + \alpha_7 EBTP_{it} + \alpha_8 CapR_{it} + \alpha_9 Size_{it} + \alpha_{10} Tax_{it} + \alpha_{11} LnFees_{it} + \varepsilon_{it}, \quad (2)$$

where $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively; $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively; $EBTP_t$ is income before tax and loan loss provision scaled by $GBV_t$; $CapR_t$ is risk-adjusted tier-1 capital ratio; $Size_t$ is firm size measured by natural log of market capitalization of the firm; $Tax_t$ is income tax scaled by $GBV_t$. The latter three variables are used to control for managers' other incentives for discretionary behaviors when reporting loan loss provisions, such as to smooth reported earnings, to satisfy regulatory capital requirements, and to minimize taxes (Moyer 1990; Collins et al. 1995; Ahmed et al. 1999; Liu and Ryan 2006). Finally, $LnFees_t$ is the natural log of audit fees. To test H1, we are interested in knowing the sign and the magnitude of the coefficient estimate, $\alpha_3$. H2 predicts that $\alpha_{11}$ in Eq. (2) to be positive.

### *3.3 Testing H3: The Indirect Effect of Fair Value Inputs on Conservative Accounting*

To investigate an indirect effect of Level 3 assets on DLLP via the role of auditors, we use audit fees as the proxy for the role of auditors. Prior literature indicates that audit fees can be a fairly accurate proxy of the compensation for client risk (e.g., Simunic and Stein 1996; Fields et al. 2004; DeFond et al. 2010) and auditors' effort (Caramanis and Lennox 2008). Fields et al.

[6] There are slightly different models used in the literature (Kanagaretnam et al. 2009, 2010) to estimate DLLP. We employ the DLLP model in Beaver and Engel (1996) in the main analysis, because it provides a better model fit and has the major measures of risk. We conduct the additional analysis by using Kanagaretnam et al. (2009) model.

(2004) find that clients' risk characteristics (i.e., liquidity and credit risks) as well as regulatory capital requirements are important determinants of audit fees paid by U.S. commercial banking firms. In addition, audit fees increase with the amounts of fair valued assets and liabilities (Ettredge et al. 2009).

As show in Figure 1, it takes three steps to compute the indirect effect of Level 3 assets on DLLP. First, as a test of H2, we establish whether higher audit fees are linked to higher DLLP. Second, we examine whether higher Level 3 assets are associated with higher audit fees. Third, we establish the mediating effect of audit fees on the relation between Level 3 assets and DLLP. We describe the research design for the second and third steps in the following paragraphs.

The second step test follows Fields et al. (2004) and Ettredge et al. (2009). We estimate the following OLS regression equation that includes data on fair value measurement input types (Levels 1 to 3 assets and liabilities):

$$\begin{aligned} LnFees_{it} = {} & \beta_0 + \beta_1 Level1AR_{it} + \beta_2 Level2AR_{it} + \beta_3 Level3AR_{it} + \beta_4 Level1LR_{it} + \beta_5 Level2LR_{it} \\ & + \beta_6 Level3LR_{it} + \beta_7 LnAssetRest_{it} + \beta_8 Big4_{it} + \beta_9 Loss_{it} + \beta_{10} Securities_{it} \\ & + \beta_{11} Efficiency_{it} + \beta_{12} NPL_{it} + \beta_{13} CO_{it} + \beta_{14} CapR_{it} + \beta_{15} Intang_{it} + \beta_{16} Savings_{it} + \varepsilon_{it} \end{aligned} \quad , \quad (3)$$

where $LnFees_t$ is the natural log of audit fees; $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively; $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively; $LnAssetRest_t$ is the natural log of total assets after excluding fair valued assets; $Big4_t$ is an indicator variable that equals to 1 if the bank is audited by one of the big-4 audit firms; $Loss_t$ is an indicator variable that equals 1 if the bank incurs losses during the year; $Securities_t$ is defined as one less total securities deflated by total assets; $Efficiency_t$ is the efficiency ratio and is measured by total operating expenses deflated by

total revenue; $NPL_t$ is nonperforming loans divided by gross loans; $CO_t$ is net charge-offs deflated by loan loss reserve; $CapR_t$ is total risk-adjusted tier-1 capital ratio; $Intang_t$ is intangible assets divided by total assets; and $Savings_t$ is coded as 1 if the company is a savings institution, 0 otherwise. Due to data constraints, we mainly focus on the above model. A fully specified model is shown below:

$$\begin{aligned} LnFees_{it} = {} & \beta_0 + \beta_1 Level1AR_{it} + \beta_2 Level2AR_{it} + \beta_3 Level3AR_{it} + \beta_4 Level1LR_{it} + \beta_5 Level2LR_{it} \\ & + \beta_6 Level3LR_{it} + \beta_7 LnAssetRest_{it} + \beta_8 Big4_{it} + \beta_9 Loss_{it} + \beta_{10} Securities_{it} \\ & + \beta_{11} Efficiency_{it} + \beta_{12} NPL_{it} + \beta_{13} CO_{it} + \beta_{14} CapR_{it} + \beta_{15} Intang_{it} + \beta_{16} Savings_{it} \\ & + \beta_{17} StdRet_{it} + \beta_{18} TransAcct_{it} + \beta_{19} CommonLoan_{it} + \beta_{20} MtgLoan_{it} + \beta_{21} Sensitive_{it} \\ & + \varepsilon_{it} \end{aligned} \quad , \quad (3')$$

where $StdRet_t$ is a firm-specific standard deviation of annual stock returns and measures the operating risk of the firm; $TransAcct_t$ is total transaction accounts deflated by total deposits; $CommonLoan_t$ is the sum of commercial and agricultural loans deflated by gross loans; $MtgLoan_t$ is total domestic real estate and home equity loans divided by gross loans; $Sensitive_t$ is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets; other variables are defined as in Eq. (3). The results are shown in Model II of Table 5.

In our third step, we use path analysis to measure the indirect effect of fair value inputs on conservative financial reporting. This approach has been used in Bushee and Noe (2000) and Bhat (2008).[7] We multiply the coefficients from Eq. (2) ($\alpha_{11}$) and Eq. (3) ($\beta_3$) and test the significance of the multiplicative coefficient using Sobel's test. Details of the testing procedures are presented in Figure 1 and discussed with the results in Table 6.

## 4. Empirical Results

[7] Bushee and Noe (2000) show that a firm's disclosure practices affect the composition of its institutional shareholders, and hence, its stock return volatility. Bhat (2008) shows that corporate governance affects the association between stock returns and fair value gains and losses through the medium of disclosure.

### *4.1 Descriptive Statistics*

Panel A of Table 2 presents the descriptive statistics of variables used in our tests. For the sample used in the DLLP analysis, the mean fair valued assets by Level 1, Level 2 and Level 3 inputs are 0.011, 0.148, and 0.004 (as proportions of total assets) and are similar to those reported in recent studies (e.g., Kolev 2009; Song et al. 2010). The scaled amounts of fair valued assets are biggest for Level 2 inputs. Similar to other recent studies, scaled fair valued liabilities are very small in size (0.000 for Level 1, 0.006 for Level 2, and 0.000 for Level 3).

[Table 2 about here]

For the sample used in the audit fees analysis, the average of audit fees is $821,000, with a large variation in audit fees ranging from $10,000 to $39,800,000. Furthermore, only 30% of banks are audited by a big-4 audit firm and roughly 28% reported accounting losses in 2007 or 2008. In comparison, Fields et al. (2004) report that more than 70% of their sample firms in 2000 hired big-N auditors. However, their sample consists of bank holding companies, which are generally bigger than our sample firms (i.e., commercial banks). We also note that securities account for about 82.3% of total assets. The average ratio of operating expense over total revenue (*Efficiency*) is high at 95.8%. The mean values of *NPA* and *CO* stand at 0.026 and 0.050, respectively.

We report Pearson and Spearman correlations and related p-values of test variables in Panel B of Table 2. The natural log value of audit fees is weakly correlated with Levels 1 and 2 fair valued assets, as the Pearson correlations are only marginally significant, while the Spearman correlation of Level 1 assets and *LnFees* is significant and the Spearman correlation of Level 2 assets and *LnFees* is not significant. However, audit fees are significantly correlated with Level 3 fair value assets at the 1% significance level. Moreover, audit fees are significantly

correlated with fair value liabilities. The univariate correlation results confirm that auditors exerted more verification effort and required higher compensation for potential risk when a firm has more Level 3 assets or more liabilities of different levels in place. The Pearson (Spearman) correlation coefficient between *LnFees* and *Big4* is 0.663 (0.659).

### *4.2 Estimating Discretionary Loan Loss Provisions*

Table 3 presents the results of the estimation of discretionary loan loss provision among our sample of banking firms during 2007-2008. All explanatory variables are winsorized and the regression excludes observations with absolute values of studentized residuals greater than or equal to 3, reducing our sample observation to 502. As expected, all four variables, including loan charge-offs (*CO*), change in loans ($\Delta LOAN$), and current-year and one-year-ahead changes in nonperforming assets ($\Delta NPA$), positively and significantly affect loan loss provisions. The high $R^2$ for the regression shown in Panel A suggests the model of expected loan loss provisions has a good fit. The residual from Eq. (1) is discretionary loan loss provision (*DLLP*), which is used in the rest of this study.

[Table 3 about here]

### *4.3 Results on H1 and H2: The Effects of Level 3 Assets and Audit Fees on DLLP*

We next examine how audit fees and fair value measurements jointly affect the magnitude of DLLP. The regression results are provided in Table 4. In the OLS model, the coefficient estimates on Level 3 assets are positive at 0.219, suggesting that firms with higher Level 3 assets have higher discretionary loan loss provisions as well. However, the coefficient on Level 3 assets is not statistically significant. Thus, although we have identified a positive direct

effect of Level 3 assets on DLLP, the direct relationship is statistically insignificant. The OLS model also shows that the coefficient on *LnFees* is significantly positive, which supports H2.

[Table 4 about here]

One concern arises from Equations (2) and (3): discretionary loan loss provision and audit fees could be endogenously correlated. For example, the sample bank could have complex and risky business transactions, which induce both higher discretionary loan loss provisions and higher audit fees. In other words, it is possible that the variable *LnFees* is correlated with the residual of Eq. (2). To mitigate the concern, following Larcker and Rusticus (2010), we redo all estimations with an instrumental variable approach, where *LnAssetRest* and *Loss* are chosen as instruments for audit fees, since these instrumental variables are highly correlated with audit fees, but are not significantly correlated with the residuals of Eq. (2).

Consistent with the instrumental variable approach, we include all exogenous variables in the first-stage. The $R^2$ of the first-stage model is 6%. However, this overstates the true explanatory power of the instruments as the control variables also contribute to this $R^2$. After removing the contribution of the control variables, the partial $R^2$ is approximately 4% and the partial *F*-statistic of the first-stage model is 10.83 (p-value <0.001). So our instruments are considered to be very strong instruments for audit fees. To justify the use of two-stage least squares (2SLS) rather than OLS regressions, we also perform the standard Hausman test. For our sample, the Hausman test strongly rejects the exogeneity of audit fees (*F*-statistic = 29.01, p-value < 0.002). Thus, the Hausman result suggests that the 2SLS estimate is preferable to the OLS estimate.[8] In the second stage, the coefficient on *LnFees* is positive and significant at the

[8] Following Larcker and Rusticus (2010), we implement an unconstrained second-stage analysis. The model is an OLS regression of DLLP on all the independent variables. Each independent variable is replaced by the product of its original value and its associated first-stage coefficient. The resulting coefficients on *LnAssetRest* and *Loss* are

1% level (coefficient = 0.012, and *t*-statistic = 3.90). Most of the coefficients on fair value inputs are insignificant, except the coefficient on *Level1AR*, which is marginally significant. Thus we obtain consistent results from both OLS and two-stage least squares regression. We are only able to find weak evidence of management conservatism, but we find strong evidence of auditors demanding accounting conservatism.

An alternative explanation for the positive yet insignificant coefficient on *Level3AR* is that management engages in "big bath" charges to loan loss provisions. However, the period covering our sample years 2007-2008 was a period of unusually high risks for the banking sector. Huge losses across banks forced banks to maintain their adequate capital levels. There were unprecedented government interventions to rescue the sector and increased scrutiny of the banking industry. In May 2009, the U.S. Federal Reserve reported the results of "stress tests" for the country's 19 largest banks, in which ten of the banks were told to add capital (Enrich et al. 2009). Given these circumstances, we consider it less plausible that banks would have resorted to a "big bath" strategy for loan loss provisions during this period. In addition, the significantly positive coefficient on risk-adjusted tier-1 capital ratio (*CapR*) suggests that a bank with relatively low tier-1 capital ratio appears to reduce DLLP rather than increase DLLP, which contradicts the big bath conjecture. Moreover, a significantly positive coefficient on *EBTP* would suggest earnings smoothing by managers while a significantly negative coefficient would support the big bath conjecture. However, the coefficient on *EBTP* in the 2SLS regression is positive but insignificant (*t*-statistic = 1.06). Hence, this insignificant coefficient estimate is unable to support either possibility.

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0.955 and 0.973, respectively. The similar coefficient estimates between these two instruments further support the validity of the instruments.

Kanagaretnam et al. (2010) analyze the relation between fees paid to auditors and discretionary loan loss provisions for large vs. small banks in the period of 2000 to 2006. They find greater under-provisioning of loan loss provisions for small banks that pay higher unexpected total and non-audit fees to the auditor, but find no significant relation for large banks. In contrast, we focus on the period of economic crisis from 2007 to 2008 during which period we identify a significant positive relation between audit fees and DLLP. As we have argued, the heightened uncertainty regarding banks' accounting estimates has increased audit risks (PCAOB 2010), and as such, auditor conservatism is more likely to occur.

### *4.4 Results on the Indirect Effect of Level 3 Assets on DLLP via Audit Fees*

As discussed in Section 3.3, we first establish the link between Level 3 assets and audit fees, and then examine the mediating effect of audit fees on the relation between Level 3 assets and DLLP.

Model I of Table 5 presents the OLS estimation results of Eq. (3). As expected, the coefficients on fair valued assets and liabilities are all positive, but only the coefficient estimates on Levels 2 and 3 assets and Level 2 liabilities are statistically significant. Consistent with Ettredge et al. (2009), the magnitudes of fair valued asset coefficients increase as fair value inputs become less verifiable. For example, the coefficients on *Level1AR*, *Level2AR*, and *Level3AR* are 1.533, 1.426, and 7.066, respectively. These coefficient estimates are significant at the 5% levels or better. These patterns suggest that auditors charge more to audit one dollar of less verifiable fair valued assets (i.e., Level 3 assets) than to audit one dollar of more verifiable fair valued assets (i.e., Level 1 assets). The coefficients on fair value liabilities are not significant except the coefficient on *Level2LR*, which is positive and significant at the 5% level. This is

largely because *Level3LR* has small variations and most of the observations are zero. The adjusted $R^2$ of Eq. (3) for Model I is 87.1%. In the expanded model of audit fees (i.e., Model II), we require additional variables, such as *TransAcct, CommonLoan, MtgLoan, and Sensitive*, which are taken from the Bank Regulatory database. The resulting sample has only 251 observations, but we obtain similar results as reported in Model I. To summarize, the results in Table 5 confirm that audit fees increase along with less verifiable and less observable fair valued inputs for our sample firms.

[Table 5 about here]

Table 6 presents the mediating effect of audit fees on the relation between Level 3 assets and DLLP. The multiplicative coefficient $\beta_3 * \alpha_{11}$ is positive and significant for all four sets of regressions (significance levels varying from 5% to 10%). We obtain the most significant results for the larger sample analysis with endogeneity corrections. The results suggest that Level 3 assets have a positive and indirect effect on DLLP, through the intermediary effect of *LnFees*. Thus, our results support H3. Recall that the coefficient on Level 3 assets in Eq. (2), i.e., $\alpha_3$ is insignificant. The insignificant $\alpha_3$ and significant path $\beta_3 * \alpha_{11}$ indicate that Level 3 assets do not have a direct effect on DLLP, but have only an indirect effect via audit fees.

[Table 6 about here]

In summary, we do not find evidence of management conservatism through DLLP. In contrast, our results suggest that auditors play an important role in demanding accounting conservatism.

## 5. Additional Empirical Tests

This section summarizes the additional tests that we have conducted to verify the robustness of our main results. They are as follows.

***Testing the relation between auditors' industry expertise and conservative financial reporting.*** Auditors' knowledge of the client's industry improves their audit risk assessments and the perceived quality of audit planning decisions (Solomon et al. 1999; Low 2004). The verification of fair value measurements requires auditors' expertise. Due to economies of scale, bank specialist auditors are likely to require less effort to audit these numbers. Since audit fees are charged to compensate for both audit effort and risks, a further analysis on bank audit specialists can provide more evidence to the risk-based story.

Following Mayhew and Wilkins (2003), Fields et al. (2004), and Ettredge et al. (2009), we identify specialist auditors using both the market share approach and the portfolio method. [9] Under the first approach, we calculate the percentage of total sample bank assets audited by each accounting firm and use their decile ranks with value ranging between 0 and 1 as the specialist measure, denoted by *RSpec_MS*. Under the portfolio method, we calculate the sum of square root of total assets in banking firms audited by the same auditor each year, divided by the sum of square root of total assets of all clients audited by the same auditor in that year. This measure of an auditor's concentration ratio may be biased through classification of small auditors as bank audit specialists. Small auditors with few clients tend to have very small denominators, and by default have higher concentration ratios. We thus truncate the measure to zero regarding small auditors with less than 50 clients.[10] Next we employ the decile ranks of the computed values as our second bank specialist auditor measure, denoted by *RSpec_PM*.

[9] Prior literature also measures "industry specialization" using client sales to estimate industry market share of the auditors (Dunn and Mayhew 2002; Krishnan 2003; Lim and Tan 2008). However, unlike industrial firms, sales are less meaningful to financial firms.

[10] Our main results hold when we choose to truncate at auditors with 30 (20) clients.

We examine the relation between bank audit specialists and DLLP in the following regression:

$$\begin{aligned} DLLP_{it} = {} & \alpha_0 + \alpha_1 Level1AR_{it} + \alpha_2 Level2AR_{it} + \alpha_3 Level3AR_{it} + \alpha_4 Level1LR_{it} + \alpha_5 Level2LR_{it} \\ & + \alpha_6 Level3LR_{it} + \alpha_7 EBTP_{it} + \alpha_8 CapR_{it} + \alpha_9 Size_{it} + \alpha_{10} Tax_{it} + \alpha_{11} LnFees_{it} \\ & + \alpha_{12} RSpec_{it} + \alpha_{13} RSpec * LnFees_{it} + \varepsilon_{it} \end{aligned} , \quad (4)$$

The variable *RSpec* has two measures, *RSpec_MS* and *RSpec_PM*. Table 7, Panel A shows that the coefficient on the interaction term, *RSpec*LnFees* is positive and significant at the 5% level, suggesting that higher audit fees charged by bank audit specialists are associated with higher DLLP.[11] When we use *RSpec_MS* measure, the coefficient on *LnFees* is negative and significant, which suggests that higher audit fees charged by non-specialist auditors are related to lower DLLP. It is likely that when non-specialist auditors charge higher audit fees, they are compensated by the risks involving with lower DLLP. But the coefficient is insignificant when we use *RSpec_PM*, so we caution readers in interpreting our results. In order to examine whether audit specialists have impact on the relation between Level 3 assets and DLLP, we interact *RSpec* with Level 3 assets and interact *RSpe*c with *Level3R*LnFees*. The coefficients on these variables are insignificant (not tabulated). Moreover, Table 7, Panel B shows that banks audited by audit specialists are charged significantly higher audit fees, even though we do not observe a significantly positive interaction between Level 3 assets and audit specialists.[12]

[Table 7 about here]

Overall, the results suggest that bank audit specialists charge higher audit fees and are more conservative in their loan loss provision adjustments. The lack of an incremental impact of

[11] The coefficient of interaction term remains significant if we correct for the endogeneity of audit fees.
[12] We also perform an analysis using Eq. (3) and include the interaction terms with all the fair value measurements and audit specialist measures. We find the coefficient on *RSpec* remains significantly positive while the coefficient on *Level3AR*RSpec* is insignificant (untabulated).

bank audit specialists on the relation between Level 3 assets and audit fees and between Level 3 assets and DLLP is possibly due to the recency of the fair value measurement standard.

***Direct measures of auditor conservatism.*** In the main analysis, we conjecture auditor conservatism through the indirect effect of Level 3 assets on DLLP via audit fees. In this section, we present two direct measures of auditor conservatism. First, we construct the time-series auditor's conservatism measure as follows: we calculate DLLP for all the banking clients of our sample auditors two years prior to our sample period (2007-2008) and rank all the auditors based on average DLLP of their respective client pool. By regressing DLLP on Level 3 assets and this rank measure of auditor conservatism, we find the coefficient on the rank variable is significantly positive while the coefficient on Level 3 assets is marginally significant.

Second, we adopt the *CScore* from Khan and Watts (2009). The measure is based on Basu's (1997) measure of the asymmetric timeliness method, but adds firm-specific characteristics, including size, market-to-book ratio, and leverage, into the annual cross-sectional Basu (1997) regression. According to Khan and Watts' model, the coefficient on the interaction term *NegRet*Return* is the *CScore* measure. Such a conservatism measure has been utilized in the banking context (e.g., Beatty and Liao 2009). For each sample auditor, we first calculate the average *CScore* of its bank clients in 2007 and 2008 respectively. Then we rank the average *CScore* to construct the *RCScore* as the alternative auditor conservatism measure. Our untabulated results are consistent but weaker compared to our main findings, likely due to the fact that *CScore* is not an industry-specific measure of accounting conservatism for the banking industry.

***Tests using discretionary loan loss allowances.*** An income statement based measure (i.e., discretionary loan loss provision) is better at capturing financial reporting discretion in a

particular period, while the balance sheet based measure (i.e., discretionary allowance for loan loss) captures accumulated earnings management up to a particular period. Hence, we adopt DLLP in the main analysis, but we also conduct additional analysis using discretionary loan loss allowances for 2008. Following the methodology of Beaver and Engel (1996), we estimate the discretionary component of loan loss allowance (DALL) as the residuals from regressing the allowance for loan losses (ALL) on loan charge-offs, total loans, nonperforming loans, earnings before loan loss provision, and total risk-adjusted capital ratio. We obtain results similar to those already reported. That is, we find the direct effect of Level 3 assets on DALL to be weak, but significant indirect effect via audit fees.

***An alternative measure of discretionary loan loss provision.*** We also follow Kanagaretnam et al. (2009) to estimate an alternative measure of discretionary loan loss provisions. The DLLP is the residual from the following regression equation:

$$LLP_{it} = \gamma_0 + \gamma_1 CapR_{it-1} + \gamma_2 TCap_{it-1} + \gamma_3 \Delta LOAN_{it} + \gamma_4 LLA_{it-1} + \gamma_5 EBTP_{it} + \gamma_6 NPL_{it-1} + \gamma_7 \Delta NPL_{it} + \gamma_8 CO_{it} + \theta_{it}, \quad (5)$$

where *LLP* is loan loss provision in period *t*; $CapR_{t-1}$ is Tier 1 risk adjusted capital at *t*-1; $TCap_{t-1}$ is total risk adjusted capital at *t*-1; $\Delta LOAN_t$ changes in total loans outstanding from time *t-1* to *t*; $LLA_{t-1}$ is loan loss allowance at *t*-1; $EBTP_t$ is earnings before tax and loan loss provisions; $NPL_{t-1}$ is nonperforming loans at *t*-1; $\Delta NPL_t$ is change in nonperforming loans from *t*-1 to *t*; and $CO_t$ is net charge-offs at *t*. All of these variables are scaled by beginning market value of equity. The resulting $R^2$ is 0.255, which is substantially lower than the $R^2$ reported in Table 3. Our subsequent analyses (untabulated) render similar results when using this alternative measure of DLLP.

***The interaction term of Level 3 assets/liabilities and audit fees.*** We also add the interaction terms between *LnFees* and fair value measurements, *LnFees*Level1AR,*

*LnFees*Level2AR, LnFees*Level3AR, LnFees*Level1LR*, *LnFees*Level2LR* and *LnFees*Level3LR* to Eq. (2). Our untabulated results show that the coefficient on *LnFees*Level3AR* is 0.757 (*t*-stat. = 2.07) and the coefficient becomes 0.811 (*t*-stat. = 2.17) after correcting for the endogeneity concern regarding *LnFees*. The coefficients on other interaction terms are insignificant. Thus, for firms with higher levels of Level 3 fair value measurements, we find weak evidence that suggests a marginal strengthening effect of audit fees on the relation between Level 3 assets/liabilities and DLLP.

## 6. Conclusion

The more subjective nature of fair value measurements, accompanied by worsening economic conditions during the financial crisis, has heightened the risks for both management and auditors of banks. Prior studies show that litigation risk concerns provide incentives for management and auditors to prefer conservative accounting choices. In this study, we identify and analyze whether banks with less verifiable fair value inputs tend to report higher discretionary loan loss provisions.

Our results show that the indirect effect of Level 3 assets on DLLP via audit fees is significant while the direct effect of Level 3 assets is insignificant at conventional levels. Thus, we fail to find significant evidence of management conservatism. Rather, our results suggest that auditors play an important role in constraining upward earnings management by demanding higher DLLP. Overall, our evidence suggests that auditors demand more conservative accounting for firms reporting less reliable and less verifiable accounting information during a period of economic crisis. These results are robust with respect to different measures of auditor

conservatism, alternative measures of DLLP, tests using discretionary loan loss allowances, and a variety of approaches in dealing with endogeneity concerns.

We caution that our findings are limited to the period of economic crisis because the adoption of FAS 157 coincided with the economic crisis. Our study provides evidence on the role of auditor in mitigating the agency problem between managers and shareholders and analyzes the impact of FAS 157 on auditors and managers. By documenting auditor conservatism for firms with high Level 3 assets, our study also contributes to the earnings management literature in the banking industry that could have policy implications for regulators (e.g., PCAOB 2010, 23).

**References**


Ahmed, A.S., C. Takeda, and S. Thomas. 1999. Bank loan loss provisions: A reexamination of capital management, earnings management and signaling effects. *Journal of Accounting and Economics* 28 (1): 1-25.

Ashbaugh, H., R. LaFond, and B. W. Mayhew. 2003. Do non-audit services compromise auditor independence: Further evidence. *The Accounting Review* 78 (3): 611-639.

Baiman, S., and R. E. Verrecchia. 1996. The relation among capital markets, financial disclosure, production efficiency, and insider trading. *Journal of Accounting Research* 34 (1): 1-22.

Baron R. M., and D. A. Kenny. 1986. The moderator-mediator distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology* 51 (6): 1173-1182.

Basu, S. 1997. The conservatism principle and asymmetric timeliness of earnings. *Journal of Accounting and Economics* 24 (1): 3-37.

Beatty, A. L., B. Ke, and K. R. Petroni. 2002. Earnings management to avoid earnings declines across publicly and privately held banks. *The Accounting Review* 77 (3): 547-570.

Beatty, A., and S. Liao. 2009. Regulatory capital ratios, loan loss provisioning and pro-cyclicality. Working paper, Ohio State University and University of Toronto.

Beaver, W. H., and E. E. Engel. 1996. Discretionary behavior with respect to allowances for loan losses and the behavior of security prices. *Journal of Accounting and Economics* 22 (1-3): 177-206.

Bell, T. B., W. R. Landsman, and D. A. Shackelford. 2001. Auditors' perceived business risk and audit fees: Analysis and evidence. *Journal of Accounting Research* 39 (1): 35-43.

Benston, G. J. 2008. The shortcomings of fair-value accounting described in SFAS 157. *Journal of Accounting and Public Policy* 27 (2): 101–114.

Bhat, G. 2008. Impact of disclosure and corporate governance on the association between fair value gains and losses and stock returns in the commercial banking industry. Working paper, Washington University.

Blunck, R. 2009. Does conservative accounting reduce litigation costs? Working paper, University of Iowa.

Bushee, B. F., and C. F. Noe. 2000. Corporate disclosure practices, institutional market participants, and stock return volatility. *Journal of Accounting Research* 38 (supplement): 171 – 202.

Cahan, S. F., and W. Zhang. 2006. After Enron: Auditor conservatism and ex-Andersen clients. *The Accounting Review* 81 (1): 49-82.

Caramanis, C., and C. Lennox. 2008. Audit effort and earnings management. *Journal of Accounting and Economics* 45 (1): 116–138.

Cheffers, M., and R. Kueppers. 2010. Accounting professional liability: Scorecards and commentary. Presentation at the 2010 ALI-ABA Conference.

Collins, J., D. Shackelford, and J. Wahlen. 1995. Bank differences in the coordination of regulatory capital, earnings and taxes. *Journal of Accounting Research* 33 (2): 263-291.

DeFond, M. L., and C. Y. Lim, Y. Zang. 2010. Do auditors value client conservatism? Working paper, University of Southern California and Singapore Management University.

DeFond, M. L., and K. R. Subramanyam. 1998. Auditor changes and discretionary accruals. *Journal of Accounting and Economics* 25 (1): 35-67.

Dunn, K. A., and B. W. Mayhew. 2002. Auditor firm industry specialization and client disclosure quality. *Review of Accounting Studies* 9 (1): 35–58.

Dye, R. A. 1993. Auditing standards, legal liability, and auditor wealth. *Journal of Political Economy* 101 (5): 887–914.

Dye, R. A. 1995. Incorporation and the audit market. *Journal of Accounting and Economics* 19 (1): 75–114.

Enrich, D., R. Sidel, and D. Solomon. 2009. Fed sees up to $599 billion in bank losses. *The Wall Street Journal* May 8, 2009.

Ettredge, M., Y. Xu, and H. Yi. 2009. Fair value measurements, auditor industry expertise and audit fees: Evidence from the banking industry. Working Paper, University of Kansas and University of Oklahoma.

Feldmann, D. A., and W. J. Read. 2010. Auditor conservatism after Enron. *Auditing: A Journal of Practice and Theory* 29 (1): 267-278.

Fiechter, P., and C. Meyer. 2010. Big bath accounting using fair value measurement discretion during the financial crisis. Working Paper, University of Zurich.

Fields, L. P., D. R. Fraser, and M. S. Wilkins. 2004. An investigation of the pricing of audit services for financial institutions. *Journal of Accounting and Public Policy* 23 (1): 53-77.

Financial Accounting Standards Board (FASB). 2006. *Fair Value Measurements.* Statement of Financial Accounting Standards No. 157. Norwalk, CT.

Francis, J. 2001. Discussion of empirical research on accounting choice. *Journal of Accounting and Economics* 31: 309-319.

Francis, J. R., and J. Krishnan. 1999. Accounting accruals and auditor reporting conservatism. *Contemporary Accounting Research* 16 (1): 135-165.

Frankel, R. M., M. E. Johnson, and K. K. Nelson. 2002. The relation between auditors' fees for nonaudit services and earnings management. *The Accounting Review* 77 (supplement): 71-105.

Gaver, J. J., J. S. Paterson, and C. Pacini. 2009. The influence of auditor legal liability on conservative financial reporting in the property-casualty insurance industry. Working paper, University of Georgia.

Geiger, M. A., K. Raghunandan, and D. V. Rama. 2005. Recent changes in the association between bankruptcies and prior audit opinions. *Auditing: A Journal of Practice and Theory* 24 (1): 21-35.

Goh, B., J. Ng, and K. Tong. 2009. Market pricing of banks' fair value assets reported under SFAS 157 during the 2008 economic crisis. Working Paper, MIT.

Heninger, W. 2001. The association between auditor litigation and abnormal accruals. *The Accounting Review* 76 (1): 111-126.

Huizinga, H., and L. Laeven. 2009. Accounting discretion of banks during a financial crisis. Working Paper, International Monetary Fund.

Johnson, S. 2007. Fair Value Stumps Auditors, PCAOB Told. Available at http://www.cfo.com/article.cfm/9388735.

Kanagaretnam, K., G. V. Krishnan, and G. J. Lobo. 2009. Is the market valuation of banks' loan loss provision conditional on auditor reputation? *Journal of Banking and Finance* 33: 1039–1047.

Kanagaretnam, K., G. V. Krishnan, and G. J. Lobo. 2010. An empirical analysis of auditor independence in the banking industry. *The Accounting Review* 85 (6): 2011-2046.

Khan, M., and R. L. Watts. 2009. Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics* 48 (2-3): 132-150.

Kim, J. B., R. Chung, and M. Firth. 2003. Auditor conservatism, asymmetric monitoring, and earnings management. *Contemporary Accounting Research* 20: 323-359.

Kolev, K. 2009. Do investors perceive marking-to-model as marking-to-myth? Early evidence from FAS 157 disclosure. Working Paper, New York University.

Krishnan, G. 2003. Does Big 6 Auditor industry expertise constrain earnings management? *Accounting Horizons* 17 (Supplement): 1-16.

Krishnan, J. 1994. Auditor switching and conservatism. *The Accounting Review* 69 (1): 200-215.

Larcker, D. F., and T. Rusticus. 2010. On the use of instrumental variables in accounting research. *Journal of Accounting and Economics* 49: 186-205.

Laux, C., and C. Leuz. 2010. Did fair-value accounting contribute to the financial crisis? *Journal of Economic Perspectives* 24 (1): 93-118.

Lee, H., and V. Mande. 2003. The effect of the Private Securities Litigation Reform Act of 1995 on accounting discretion of client managers of Big 6 and Non-big 6 auditors. *Auditing: A Journal of Practice and Theory* 22 (2): 93-108.

Lim, C. and H. Tan. 2008. Non-audit service fees and audit quality: the impact of auditor specialization. *Journal of Accounting Research* 46 (1): 199-246.

Liu, C. C., and S. G. Ryan. 2006. Income smoothing over the business cycle: Changes in banks' coordinated management of provisions for loan losses and loan charge-offs from the pre-1990 bust to the 1990s boom. *The Accounting Review* 81 (2): 421-441.

Low, K. 2004. The effects of industry specialization on audit risk assessments and audit-planning decisions. *The Accounting Review* 79 (1): 201-219.

Lu, T., and H. Sapra. 2009. Auditor conservatism and investment efficiency. *The Accounting Review* 84 (6): 1933-1958.

Lys, T., and R. Watts. 1994. Lawsuits against auditors. *Journal of Accounting Research* 32 (Supplement): 65-93.

Martin, R. D., J. S. Rich., and T. J. Wilks. 2006. Auditing fair value measurements: A synthesis of relevant research. *Accounting Horizons* 20: 287-303.

Mayhew, B.W, and M.S. Wilkins. 2003. Audit firm industry specialization as a differentiation strategy: Evidence from fees charged to firms going public. *Auditing: A Journal of Practice & Theory* 22(2):33-52.

Moyer, S. 1990. Capital adequacy ratio regulations and accounting choices in commercial banks. *Journal of Accounting and Economics* 13: 123-154.

Myers, L., J. Schmidt, and M. Wilkins. 2010. An investigation of recent changes in going concern reporting decisions among Big N and Non-Big N auditors. Working Paper, University of Arkansas and Texas A&M University.

Nelson, M. W. 2003. Behavioral evidence on the effects of principles- and rules-based standards. *Accounting Horizons* 17 (1): 91-104.

Nelson, M. W., J. A. Elliott, and R. L. Tarpley. 2002. Evidence from auditors about managers' and auditors' earnings management decisions. *The Accounting Review* 77 (Supplement): 175-202.

PCAOB. 2003. *AU Section 312: Audit Risk and Materiality in Conducting an Audit.* http://pcaobus.org/Standards/Auditing/Pages/AU312.aspx (Accessed in December 2010).

PCAOB. 2003. *AU Section 316: Consideration of Fraud in a Financial Statement Audit.* http://pcaobus.org/Standards/Auditing/Pages/AU316.aspx (Accessed in December 2010).

PCAOB. 2003. *AU Section 342: Auditing Accounting Estimates.* http://pcaobus.org/Standards/Auditing/Pages/AU342.aspx (Accessed in December 2010).

PCAOB (Public Company Accounting Oversight Board). 2007. PCAOB Staff Audit Practice Alert No. 2, *Matters Related to Auditing Fair Value Measurements of Financial Instruments and the Use of Specialists*.

PCAOB. 2008. PCAOB Staff Audit Practice Alert No. 3, *Audit Considerations in the Current Economic Environment.*

PCAOB. 2010. *Report on Observations of PCAOB Inspectors Related to Audit Risk Areas Affected by the Economic Crisis.* PCAOB Release No. 2010-006.

Qiang, X. 2007. The effects of contracting, litigation, regulation, and tax costs on conditional and unconditional conservatism: Cross-sectional evidence at the firm level. *The Accounting Review* 82: 759-796.

Rama, D., and W. Read. 2006. Resignations by the Big 4 and the market for audit services. *Accounting Horizons* 20 (2): 97–109.

Ryan, S. G. 2007. *Financial Instruments and Institutions: Accounting and Disclosure Rules*, Second Edition. John Wiley & Sons, Inc. Hoboken, New Jersey.

Ryan, S. G. 2008. Accounting in and for the subprime crisis. *The Accounting Review* 83 (6): 1605–1638.

Schipper, K. 2003. Principles-based accounting standards. *Accounting Horizons* 17 (1): 61-72.

SEC (United States Securities and Exchange Commission). 2008. *Report and Recommendations Pursuant to Section 133 of the Emergency Economic Stabilization Act of 2008: Study on Mark-to-Market Accounting.* Office of the Chief Accountant. Division of Corporation Finance. Available at: http://www.sec.gov/news/studies/2008/marktomarket123008.pdf.

Simunic, D. A. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161-190.

Simunic, D., and M. Stein. 1996. The impact of litigation risk on audit pricing: A review of the economics and the evidence. *Auditing: A Journal of Practice and Theory* 15: 119-134.

Solomon, I., M. D. Shields, and O. R. Whittington. 1999. What do industry-specialist auditors know? *Journal of Accounting Research* 37 (1): 191-208.

Song, C. J., W. Thomas, and H. Yi. 2010. Value relevance of FAS 157 fair value hierarchy information and the impact of corporate governance mechanisms. *The Accounting Review* 85: 1375-1410.

Srinidhi, B. N., and F. A. Gul. 2007. The differential effects of auditors' nonaudit and audit fees on accrual quality. *Contemporary Accounting Research* 24 (2): 595-629.

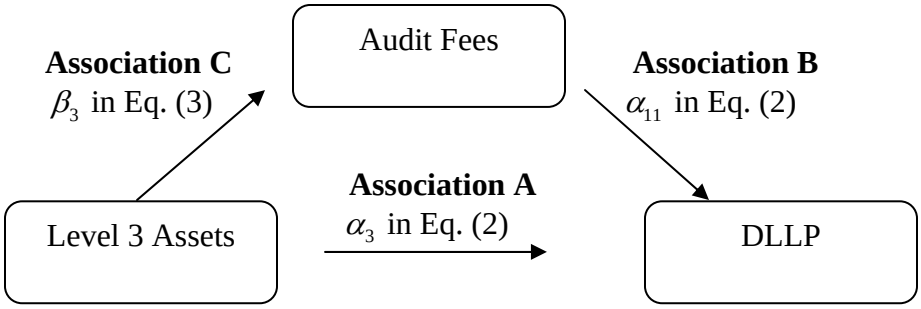
Vincent, L., L. A. Maines, E. Bartov, P. Fairfield, D. E. Hirst, T. E. Iannaconi, R. Mallett, C. M. Schrand, and D. J. Skinner. 2003. Evaluating concepts-based vs. rules-based approaches to standard setting. *Accounting Horizons* 17 (1): 73-89.

Wahlen, J. M. 1994. The nature of information in commercial bank loan loss disclosures. *The Accounting Review* 69: 455-478.

Watts, R. 2003. Conservatism in accounting Part I: Explanations and implications. *Accounting Horizons* 17: 207–221.

Wutkowski, K. 2009. Mark-to-market changes seen reassuring auditors. Retrieved from http://uk.reuters.com/article/idUKN0226528020090402.

**Figure 1: The Effects of Level 3 Assets and Audit Fees on DLLP**




H1: The coefficient $\alpha_3$ in Equation (2) is significantly negative or positive.
H2: The coefficient $\alpha_{11}$ in Equation (2) is positive and significant.
H3: The multiplicative coefficient $\beta_3 * \alpha_{11}$ is positive and significant.

$$DLLP_{it} = \alpha_0 + \alpha_1 Level1AR_{it} + \alpha_2 Level2AR_{it} + \alpha_3 Level3AR_{it} + \alpha_4 Level1LR_{it} + \alpha_5 Level2LR_{it} + \alpha_6 Level3LR_{it} + \alpha_7 EBTP_{it} + \alpha_8 CapR_{it} + \alpha_9 Size_{it} + \alpha_{10} Tax_{it} + \alpha_{11} LnFees_{it} + \varepsilon_{it}, \quad (2)$$

$$LnFees_{it} = \beta_0 + \beta_1 Level1AR_{it} + \beta_2 Level2AR_{it} + \beta_3 Level3AR_{it} + \beta_4 Level1LR_{it} + \beta_5 Level2LR_{it} + \beta_6 Level3LR_{it} + \beta_7 LnAssetRest_{it} + \beta_8 Big4_{it} + \beta_9 Loss_{it} + \beta_{10} Securities_{it} + \beta_{11} Efficiency_{it} + \beta_{12} NPL_{it} + \beta_{13} CO_{it} + \beta_{14} CapR_{it} + \beta_{15} Intang_{it} + \beta_{16} Savings_{it} + \beta_{17} StdRet_{it} + \beta_{18} TransAcct_{it} + \beta_{19} CommonLoan_{it} + \beta_{20} MtgLoan_{it} + \beta_{21} Sensitive_{it} + \varepsilon_{it}, \quad (3)$$

Based on Baron and Kenny (1986) and Bhat (2008), we test the direct and indirect effects of Level 3 assets on DLLP as follows:

For the direct effect, we estimate Association A ($\alpha_3$) controlling for audit fees. A significant coefficient would suggest that Level 3 assets have a direct effect on the DLLP.

For the indirect effect, we take the following steps:

Step 1: Estimate Association B ($\alpha_{11}$) controlling for Level 3 assets. A significant positive coefficient would suggest that audit fees have a positive effect on DLLP.
Step 2: Estimate Association C ($\beta_3$) and establish whether audit fees are positively related with Level 3 assets.
Step 3: Combine results of Associations C and B ($\beta_3 * \alpha_{11}$) and test the significance using Sobel test. A significant positive coefficient ($\beta_3 * \alpha_{11}$) would suggest that Level 3 assets have a positive and indirect effect on DLLP (via audit fees).

If both $\beta_3 * \alpha_{11}$ and $\alpha_3$ are significant, then Level 3 assets have a direct effect on DLLP as well as an indirect effect via audit fees. Conversely, if the multiplicative coefficient $\beta_3 * \alpha_{11}$ is significant but $\alpha_3$ is not significant, then Level 3 assets do not have a direct effect on DLLP but have only an indirect effect via audit fees.

## Table 1: Sample Selection

| | Observations |
|---|---|
| Initial sample with available fair value measurement data in years 2007 and 2008 | 561 |
| Less: | |
| Bank-years with missing data on the conservative reporting proxy (i.e., *DLLP*) | 59 |
| Bank-years with missing data on control variables in Eq. (2) | 30 |
| Sample used in Table 4 | 472 |
| Less: | |
| Bank-years with missing data on control variables in Eq. (3) | 15 |
| Sample used in Table 5 | 457 |

This table describes the sample selection process for the samples of banking firms used in the tests.

## Table 2: Descriptive Statistics

### Panel A: Summary Statistics

| Variables | N | Mean | Std. Dev. | 25% | 50% | 75% | Min | Max |
|---|---|---|---|---|---|---|---|---|
| ***Sample used in the DLLP analysis*** | | | | | | | | |
| *DLLP* | 472 | 0.001 | 0.024 | -0.010 | 0.001 | 0.010 | -0.091 | 0.101 |
| *Fee (in '000$)* | 472 | 1,041 | 4,758 | 125 | 240 | 526 | 10 | 58,700 |
| *LnFees* | 472 | 12.557 | 1.151 | 11.738 | 12.388 | 13.180 | 10.657 | 16.696 |
| *Level1AR* | 472 | 0.011 | 0.031 | 0.000 | 0.000 | 0.004 | 0.000 | 0.195 |
| *Level2AR* | 472 | 0.148 | 0.102 | 0.078 | 0.135 | 0.201 | 0.000 | 0.540 |
| *Level3AR* | 472 | 0.004 | 0.010 | 0.000 | 0.000 | 0.003 | 0.000 | 0.058 |
| *Level1LR* | 472 | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.012 |
| *Level2LR* | 472 | 0.006 | 0.032 | 0.000 | 0.000 | 0.000 | 0.000 | 0.286 |
| *Level3LR* | 472 | 0.001 | 0.003 | 0.000 | 0.000 | 0.000 | 0.000 | 0.018 |
| *EBTP* | 472 | 0.074 | 0.158 | 0.047 | 0.106 | 0.158 | -0.712 | 0.302 |
| *CapR* | 472 | 11.34 | 2.82 | 9.52 | 10.89 | 12.60 | 6.39 | 22.96 |
| *Size* | 472 | 4.817 | 1.848 | 3.612 | 4.309 | 5.922 | 1.410 | 11.508 |
| *Tax* | 472 | 0.004 | 0.045 | -0.010 | 0.013 | 0.029 | -0.157 | 0.085 |
| ***Sample used in the audit fees analysis*** | | | | | | | | |
| *Fee (in '000$)* | 457 | 821 | 3,073 | 130 | 246 | 533 | 10 | 39,800 |
| *LnFees* | 457 | 12.565 | 1.142 | 11.782 | 12.414 | 13.204 | 10.350 | 17.499 |
| *AssetRest ('000$)* | 457 | 11,534 | 65,061 | 538 | 1,068 | 2,783 | 92 | 893,403 |
| *Big4* | 457 | 0.304 | 0.461 | 0 | 0 | 1 | 0 | 1 |
| *Loss* | 457 | 0.276 | 0.447 | 0 | 0 | 1 | 0 | 1 |
| *Securities* | 457 | 0.823 | 0.100 | 0.775 | 0.841 | 0.891 | 0.442 | 0.989 |
| *Efficiency* | 457 | 0.958 | 0.227 | 0.823 | 0.889 | 1.000 | 0.662 | 1.825 |
| *NPL* | 457 | 0.026 | 0.025 | 0.010 | 0.020 | 0.035 | 0.000 | 0.261 |
| *CO* | 457 | 0.050 | 0.066 | 0.010 | 0.025 | 0.059 | 0.000 | 0.556 |
| *Intang* | 457 | 0.016 | 0.019 | 0.000 | 0.009 | 0.026 | 0.000 | 0.084 |
| *Savings* | 457 | 0.195 | 0.396 | 0 | 0 | 0 | 0 | 1 |
| *StdRet* | 402 | 0.048 | 0.017 | 0.037 | 0.046 | 0.057 | 0.014 | 0.095 |
| *TransAcct* | 268 | 0.531 | 0.147 | 0.436 | 0.526 | 0.628 | 0.156 | 0.864 |
| *CommonLoan* | 268 | 0.168 | 0.096 | 0.095 | 0.153 | 0.213 | 0.023 | 0.556 |
| *MtgLoan* | 268 | 0.752 | 0.132 | 0.682 | 0.777 | 0.847 | 0.343 | 0.970 |
| *Sensitive* | 268 | 0.051 | 0.164 | -0.053 | 0.045 | 0.164 | -0.338 | 0.452 |

**Panel B: Correlation Matrix**

| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | *DLLP* | 1 | **0.121** | -0.013 | -0.052 | **0.098** | 0.041 | **0.093** | **0.102** | 0.032 | 0.06 | *0.086* | -0.069 | **0.129** | **0.136** | 0.076 | 0.05 | **0.108** | -0.054 | -0.052 | 0.025 | 0.046 |
| 2 | *LnFees* | **0.157** | 1 | **0.291** | 0.042 | **0.404** | **0.362** | **0.498** | **0.361** | **0.145** | **-0.116** | **0.761** | *0.085* | **0.888** | **0.659** | 0.073 | 0.034 | 0.011 | 0.03 | **0.289** | **0.523** | **-0.103** |
| 3 | *Level1AR* | *-0.083* | *0.08* | 1 | -0.011 | **0.214** | **0.249** | **0.157** | **0.227** | 0.069 | -0.037 | **0.268** | 0.013 | **0.253** | **0.218** | -0.048 | *-0.079* | *-0.09* | -0.068 | 0.037 | **0.236** | *-0.085* |
| 4 | *Level2AR* | -0.029 | *0.087* | **-0.147** | 1 | **0.123** | 0.063 | **0.101** | 0.07 | **0.124** | **0.253** | **0.179** | **0.124** | -0.018 | **0.105** | **-0.193** | **-0.783** | **-0.28** | **-0.215** | **-0.173** | 0.049 | -0.044 |
| 5 | *Level3AR* | *0.078* | **0.371** | **0.125** | **0.174** | 1 | **0.305** | **0.315** | **0.383** | **0.124** | **-0.097** | **0.335** | 0.049 | **0.4** | **0.257** | -0.007 | *-0.084* | -0.019 | -0.039 | **0.171** | **0.282** | -0.062 |
| 6 | *Level1LR* | -0.011 | **0.408** | **0.177** | **0.19** | **0.291** | 1 | **0.398** | **0.442** | **0.106** | -0.041 | **0.377** | 0.017 | **0.375** | **0.275** | 0.037 | *0.088* | -0.007 | -0.042 | **0.143** | **0.289** | **-0.106** |
| 7 | *Level2LR* | -0.005 | **0.386** | **0.171** | **0.214** | **0.27** | **0.6** | 1 | **0.396** | **0.157** | -0.066 | **0.444** | 0.069 | **0.505** | **0.387** | -0.001 | 0.016 | -0.011 | -0.044 | **0.167** | **0.348** | **-0.165** |
| 8 | *Level3LR* | -0.033 | **0.24** | *0.086* | *0.087* | **0.348** | **0.247** | **0.35** | 1 | **0.148** | -0.039 | **0.311** | 0.026 | **0.357** | **0.24** | 0.045 | 0.047 | 0.013 | -0.006 | **0.18** | **0.211** | **-0.104** |
| 9 | *EBTP* | 0.035 | 0.05 | 0.072 | **0.139** | -0.006 | 0.057 | *0.081* | -0.016 | 1 | 0.056 | **0.387** | **0.706** | **0.236** | **0.196** | **-0.592** | **-0.098** | **-0.615** | **-0.242** | -0.034 | 0.053 | **-0.249** |
| 10 | *CapR* | 0.045 | **-0.158** | -0.076 | **0.269** | -0.002 | *-0.087* | -0.055 | -0.039 | **0.098** | 1 | 0.077 | 0.05 | **-0.153** | -0.037 | **-0.17** | **-0.298** | **-0.22** | **-0.165** | **-0.203** | *-0.09* | **-0.23** |
| 11 | *Size* | **0.132** | **0.827** | 0.075 | **0.193** | **0.297** | **0.389** | **0.329** | **0.18** | **0.304** | -0.007 | 1 | **0.355** | **0.836** | **0.582** | **-0.229** | **-0.13** | **-0.381** | **-0.292** | -0.003 | **0.521** | **-0.104** |
| 12 | *Tax* | 0.017 | **0.093** | 0.036 | **0.135** | 0.009 | 0.072 | 0.058 | -0.037 | **0.639** | **0.097** | **0.35** | 1 | **0.158** | **0.18** | **-0.626** | **-0.141** | **-0.753** | **-0.471** | **-0.356** | 0.049 | -0.049 |
| 13 | *LnAssetRest* | **0.168** | **0.915** | 0.062 | 0.012 | **0.327** | **0.382** | **0.323** | **0.203** | **0.108** | **-0.189** | **0.897** | **0.149** | 1 | **0.603** | 0.03 | 0.071 | -0.043 | -0.013 | **0.29** | **0.553** | **-0.128** |
| 14 | *Big4* | **0.125** | **0.663** | -0.029 | **0.127** | **0.152** | **0.148** | **0.155** | 0.03 | **0.115** | -0.065 | **0.613** | **0.159** | **0.631** | 1 | -0.035 | -0.036 | **-0.107** | **-0.093** | **0.126** | **0.335** | -0.013 |
| 15 | *Loss* | *0.089* | 0.071 | -0.039 | **-0.195** | 0.023 | -0.044 | -0.024 | 0.032 | **-0.606** | **-0.173** | **-0.213** | **-0.666** | 0.03 | -0.035 | 1 | **0.247** | **0.702** | **0.452** | **0.48** | *-0.092* | 0.068 |
| 16 | *Securities* | 0.034 | 0.064 | -0.006 | **-0.789** | **-0.135** | 0.043 | 0.056 | 0.043 | **-0.115** | **-0.377** | *-0.091* | **-0.146** | **0.092** | -0.053 | **0.238** | 1 | **0.334** | **0.266** | **0.287** | 0.003 | -0.032 |
| 17 | *Efficiency* | 0.042 | **0.105** | -0.033 | **-0.261** | -0.017 | -0.039 | -0.024 | 0.047 | **-0.713** | **-0.221** | **-0.246** | **-0.636** | 0.06 | -0.03 | **0.74** | **0.313** | 1 | **0.643** | **0.593** | *-0.084* | 0.038 |
| 18 | *NPL* | -0.057 | -0.016 | 0.032 | **-0.157** | 0.04 | *-0.091* | -0.015 | 0.067 | **-0.234** | **-0.162** | **-0.286** | **-0.421** | -0.075 | **-0.098** | **0.438** | **0.178** | **0.544** | 1 | **0.588** | -0.07 | -0.073 |
| 19 | *CO* | -0.043 | **0.212** | 0.013 | **-0.18** | 0.039 | -0.002 | 0.01 | 0.064 | **-0.266** | **-0.238** | -0.059 | **-0.353** | **0.207** | **0.102** | **0.549** | **0.261** | **0.655** | **0.491** | 1 | 0.07 | **-0.26** |
| 20 | *Intang* | 0.016 | **0.482** | 0.033 | 0.008 | **0.156** | **0.267** | **0.155** | **0.11** | 0.054 | **-0.126** | **0.531** | *0.09* | **0.525** | **0.304** | **-0.109** | 0.038 | **-0.101** | **-0.157** | -0.061 | 1 | **-0.172** |
| 21 | *Savings* | 0.062 | **-0.113** | -0.055 | -0.024 | *-0.089* | -0.074 | *-0.078* | -0.073 | **-0.098** | **-0.162** | **-0.108** | -0.011 | **-0.121** | -0.013 | 0.068 | -0.055 | -0.016 | -0.04 | **-0.102** | **-0.096** | 1 |

This table presents descriptive statistics of sample firms in the banking industry that have fair value inputs data from 2007 to 2008. In Panel B, Pearson (Spearman) correlations for the variables are reported below (above) the diagonal. The italic fonts are those significant at the 10% level and bold fonts are those significant at the 5% level or better. Variables are defined as follows. $DLLP_t$ is discretionary loan loss provision. $LnFees_t$ is the natural log of audit fees. $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $LnAssetRest_t$ is the natural log of total assets after excluding fair valued assets. $EBTP_t$ is income before tax and loan loss provision scaled by gross book value of equity. $CapR_t$ is risk-adjusted tier-1 capital ratio. $Size_t$ is firm size measured by natural

log of market capitalization of the firm, and $Tax_t$ is income tax scaled by gross book value of equity. $Big4_t$ is a dummy that equals to 1 if the bank is audited by one of the big-4 audit firms. $Loss_t$ is a dummy that equals to 1 if the bank incurs losses during the year. $Securities_t$ is defined as one less total securities deflated by total assets. $Efficiency_t$ is the efficiency ratio and is measured by total operating expenses deflated by total revenue. $NPL_t$ is nonperforming loans divided by gross loans. $CO_t$ is net charge-offs deflated by loan loss reserve. $Intang_t$ is intangible assets divided by total assets. $CommonLoan_t$ is the sum of commercial and agricultural loans deflated by gross loans), $StdRet_t$ is a firm specific standard deviation of 12 month returns ending upon the fiscal year end. $TransAcct_t$ is total transaction accounts deflated by total deposits. $MtgLoan_t$ is total domestic real estate and home equity loans scaled by gross loans. $Sensitive_t$ is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets. $Savings_t$ is coded as 1 if the company is a savings institution, 0 otherwise. In Panel A, *Fees* and *AssetRest* are actual values of audit fees and total assets after excluding fair valued assets, respectively.

**Table 3: The Estimation of Discretionary Loan Loss Provision Using the Beaver and Engel (1996) approach**

$$LLP_{it} = \gamma_0(\frac{1}{GBV_{it}}) + \gamma_1 CO_{it} + \gamma_2 \Delta LOAN_{it} + \gamma_3 \Delta NPA_{it} + \gamma_4 \Delta NPA_{it+1} + \theta_{it}, \quad (1)$$

| Variables | Predicted Signs | Coef. | t-stat. |
|---|---|---|---|
| *Intercept* | ? | -0.089 | -1.20 |
| $CO_{it}$ | + | 1.225 | 68.74*** |
| $\Delta LOAN_{it}$ | + | 0.007 | 5.41*** |
| $\Delta NPA_{it}$ | + | 0.115 | 14.13*** |
| $\Delta NPA_{it+1}$ | + | 0.012 | 1.96** |
| N | | 502 | |
| Adj. $R^2$ | | 0.958 | |

This table presents regression results of sample firms in the banking industry from 2007 to 2008. Variables are defined as follows. $LLP_t$ is loan loss provision. $GBV_{it}$ is net book value of common equity plus total allowance for loan losses. $CO_{it}$ is loan charge-offs; $\Delta LOAN_{it}$ is annual change in total loans ($LOAN_{it} - LOAN_{it-1}$). $\Delta NPA_{i,t}$ is current year change in nonperforming assets ($NPA_{it} - NPA_{it-1}$). $\Delta NPA_{it+1}$ is one-year-ahead change in nonperforming assets ($NPA_{it} - NPA_{it-1}$). All variables are deflated by $GBV_{it}$. Note that this model follows Beaver and Engel (1996). *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests.

## Table 4: The Relation between Level 3 Assets, Audit Fees and DLLP

$$DLLP_{it} = \alpha_0 + \alpha_1 Level1AR_{it} + \alpha_2 Level2AR_{it} + \alpha_3 Level3AR_{it} + \alpha_4 Level1LR_{it} + \alpha_5 Level2LR_{it} + \alpha_6 Level3LR_{it} + \alpha_7 EBTP_{it} + \alpha_8 CapR_{it} + \alpha_9 Size_{it} + \alpha_{10} Tax_{it} + \alpha_{11} LnFees_{it} + \varepsilon_{it} \quad (2)$$

| | | OLS | | 2SLS | | | |
|---|---|---|---|---|---|---|---|
| | | | | 1st-Stage | | 2nd-Stage | |
| **Variables** | **Predicted Signs** | **Coef.** | **t-stat.** | **Coef.** | **t-stat.** | **Coef.** | **t-stat.** |
| *Intercept* | | -0.053 | -2.34** | -0.046 | -3.83*** | -0.143 | -4.12*** |
| *Level1AR* | | -0.078 | -2.03** | -0.067 | -1.77* | -0.068 | -1.78* |
| *Level2AR* | | -0.016 | -1.29 | -0.004 | -0.28 | -0.004 | -0.28 |
| *Level3AR* | +/- | 0.219 | 1.64 | 0.187 | 1.43 | 0.179 | 1.36 |
| *Level1LR* | | -0.323 | -0.28 | -0.494 | -0.43 | -0.701 | -0.61 |
| *Level2LR* | | 0.018 | 0.34 | -0.003 | -0.06 | -0.007 | -0.12 |
| *Level3LR* | | -0.666 | -1.33 | -0.670 | -1.36 | -0.695 | -1.40 |
| *LnFees* | + | 0.004 | 1.98** | | | 0.012 | 3.90*** |
| **Instruments** | | | | | | | |
| *LnAssetRest* | | | | 0.007 | 2.92*** | | |
| *Loss* | | | | 0.010 | 2.69*** | | |
| **Control variables** | | | | | | | |
| *EBTP* | | 0.006 | 0.60 | 0.016 | 1.62 | 0.010 | 1.06 |
| *CapR* | | 0.001 | 1.26 | 0.001 | 2.26** | 0.001 | 2.34** |
| *Size* | | 0.000 | -0.14 | -0.003 | -1.73* | -0.004 | -2.45** |
| *Tax* | | -0.009 | -0.25 | 0.048 | 1.30 | 0.015 | 0.45 |
| N | | 472 | | 472 | | 472 | |
| Adj. $R^2$ | | 0.029 | | 0.060 | | 0.052 | |
| Partial F-Stat | | | | 10.83 (p-value <0.001) | | | |
| Partial $R^2$ | | | | 0.040 | | | |
| Hausman Test | | | | *F*=29.01 (p-value =0.002) | | | |

This table presents regression results of sample firms in the banking industry that have fair value inputs from 2007 to 2008. Variables are defined as follows. $DLLP_t$ is discretionary loan loss provision, measured as the residuals of Eq. (1). $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $EBTP_t$ is income before tax and loan loss provision scaled by the gross book value of equity. $CapR_t$ is risk-adjusted tier-1 capital ratio. $Size_t$ is firm size measured by natural log of market capitalization of the firm. $Tax_t$ is income tax scaled by the gross book value of equity. $LnFees_t$ is the natural log of audit fees. The 2SLS regression presents results with the endogeneity correction of $LnFees_t$, where the variables *LnAssetRest* and *Loss* are used as the instruments for *LnFees*. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests.

## Table 5: The Relation between Fair Value Measurement and Audit Fee

$$LnFees_{it} = \beta_0 + \beta_1 Level1AR_{it} + \beta_2 Level2AR_{it} + \beta_3 Level3AR_{it} + \beta_4 Level1LR_{it} + \beta_5 Level2LR_{it} + \beta_6 Level3LR_{it} + \beta_7 LnAssetRest_{it} + \beta_8 Big4_{it} + \beta_9 Loss_{it} + \beta_{10} Securities_{it} + \beta_{11} Efficiency_{it} + \beta_{12} NPL_{it} + \beta_{13} CO_{it} + \beta_{14} CapR_{it} + \beta_{15} Intang_{it} + \beta_{16} Savings_{it} + \beta_{17} StdRet_{it} + \beta_{18} TransAcct_{it} + \beta_{19} CommonLoan_{it} + \beta_{20} MtgLoan_{it} + \beta_{21} Sensitive_{it} + \varepsilon_{it} \quad (3')$$

| | Predicted | Model I | | Model II | |
|---|---|---|---|---|---|
| **Variables** | **Signs** | **Coef.** | **t-stat.** | **Coef.** | **t-stat.** |
| *Intercept* | | 6.553 | 14.42*** | 7.249 | 10.67*** |
| *Level1AR* | | 1.533 | 2.12** | 1.918 | 2.36** |
| *Level2AR* | | 1.426 | 3.60*** | 0.969 | 1.83* |
| *Level3AR* | + | 7.066 | 3.05*** | 9.533 | 3.82*** |
| *Level1LR* | | 12.305 | 0.58 | 6.536 | 0.26 |
| *Level2LR* | | 2.121 | 2.15** | 3.375 | 2.07** |
| *Level3LR* | | 8.689 | 0.99 | 11.085 | 1.16 |
| *LnAssetRest* | | 0.588 | 26.67*** | 0.507 | 18.96*** |
| *Big4* | | 0.404 | 7.20*** | 0.453 | 7.12*** |
| *Loss* | | 0.036 | 0.56 | 0.158 | 1.88* |
| *Securities* | | 1.007 | 2.60*** | 1.033 | 1.98** |
| *Efficiency* | | 0.339 | 2.30** | 0.312 | 1.64 |
| *NPL* | | 1.626 | 1.67* | 1.614 | 1.48 |
| *CO* | | -0.466 | -1.11 | -0.472 | -0.89 |
| *CapR* | | 0.010 | 1.21 | 0.012 | 0.99 |
| *Intang* | | 1.555 | 1.24 | 1.331 | 0.93 |
| *Savings* | | 0.019 | 0.37 | -0.013 | -0.11 |
| *StdRet* | | | | -2.046 | -1.05 |
| *TransAcct* | | | | 0.425 | 2.15** |
| *CommonLoan* | | | | -0.174 | -0.44 |
| *MtgLoan* | | | | -0.181 | -0.57 |
| *Sensitive* | | | | 0.169 | 0.99 |
| N | | 457 | | 251 | |
| Adj. $R^2$ | | 0.871 | | 0.891 | |

This table presents regression results of sample firms in the banking industry that have fair value inputs from 2007 to 2008. Variables are defined as follows. $LnFees_t$ is the natural log of audit fees. $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $LnAssetRest_t$ is the natural log of total assets after excluding fair valued assets. $Big4_t$ is a dummy that equals to 1 if the bank is audited by one of the big-4 audit firms. $Loss_t$ is a dummy that equals to 1 if the bank incurs losses during the year. $Securities_t$ is defined as one less total securities deflated by total assets. $Efficiency_t$ is the efficiency ratio and is measured by total operating expenses deflated by total revenue. $CommonLoan_t$ is the sum of commercial and agricultural loans deflated by gross loans), $NPL_t$ is nonperforming loans divided by gross loans. $CO_t$ is net charge-offs deflated by loan loss reserve. $CapR_t$ is total risk-adjusted capital ratio or tier-

1 risk-adjusted capital ratio. $Intang_t$ is intangible assets divided by total assets. $Savings_t$ is coded as 1 if the company is a savings institution, 0 otherwise. $StdRet_t$ is a firm specific standard deviation of 12 month returns ending upon the fiscal year end. $TransAcct_t$ is total transaction accounts deflated by total deposits. $MtgLoan_t$ is total domestic real estate and home equity loans scaled by gross loans. $Sensitive_t$ is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests.

## Table 6: The Indirect Effect of Level 3 Assets on DLLP via Audit Fees

| No. Obs. | Source Table | Level 3 Assets | Audit Fees | Association C | SE | Source Table | Variable | Association B | SE | Association C*B |
|---|---|---|---|---|---|---|---|---|---|---|
| 453 | Table 5 Model I | *Level3AR* | *LnFees* | 6.975*** | 2.313 | Table 4 OLS | *DLLP* | 0.005** | 0.002 | 0.033* |
| 251 | Table 5 Model II | *Level3AR* | *LnFees* | 9.533*** | 2.496 | Table 4 OLS | *DLLP* | 0.006* | 0.003 | 0.062* |
| 453 | Table 5 Model I | *Level3AR* | *LnFees* | 6.975*** | 2.313 | Table 4 2SLS | *DLLP* | 0.011*** | 0.003 | 0.076** |
| 251 | Table 5 Model II | *Level3AR* | *LnFees* | 9.533*** | 2.496 | Table 4 2SLS | *DLLP* | 0.009** | 0.005 | 0.087* |

This table reports the computation and the statistical significance of the indirect effect of Level 3 Assets on DLLP via *LnFees* based on the analyses in Tables 4 and 5, but with consistent samples. Association C is the relation between audit fees and Level 3 assets. Association B is the direct effect of audit fees on DLLP. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively. SE is standard error. The significance for the association C*B is based on Sobel test. The exact formula, given multivariate normality for the standard error of the indirect effect or C*B, is the square root of $B^2SE_C^2 + C^2SE_B^2 + SE_B^2SE_C^2$. $LnFees_t$ is the natural log of audit fees. $Level3AR_t$ is fair value assets measured using Level 3 inputs scaled by total assets.

## Table 7: The Effect of Bank Audit Specialists on the Relation between Fair Value Measurements, Audit Fees, and DLLP

### Panel A: Bank Audit Specialists, Fair Value Measurements, and DLLP

$$DLLP_{it} = \alpha_0 + \alpha_1 Level1AR_{it} + \alpha_2 Level2AR_{it} + \alpha_3 Level3AR_{it} + \alpha_4 Level1LR_{it} + \alpha_5 Level2LR_{it} + \alpha_6 Level3LR_{it} + \alpha_7 EBTP_{it} + \alpha_8 CapR_{it} + \alpha_9 Size_{it} + \alpha_{10} Tax_{it} + \alpha_{11} LnFees_{it} + \alpha_{12} RSpec_{it} + \alpha_{13} RSpec * LnFees_{it} + \varepsilon_{it} \quad (4)$$

| | ***RSpec* measured as *RSpec_MS*** | | ***RSpec* measured as *RSpec_PM*** | |
|---|---|---|---|---|
| **Variables** | **Coef.** | **t-stat.** | **Coef.** | **t-stat.** |
| *Intercept* | 0.199 | 1.93* | 0.076 | 1.25 |
| *Level1AR* | -0.069 | -1.80* | -0.067 | -1.73* |
| *Level2AR* | -0.017 | -1.34 | -0.015 | -1.21 |
| *Level3AR* | 0.217 | 1.62 | 0.216 | 1.61 |
| *Level1LR* | -0.454 | -0.39 | -0.483 | -0.42 |
| *Level2LR* | 0.013 | 0.25 | 0.018 | 0.33 |
| *Level3LR* | -0.643 | -1.29 | -0.740 | -1.48 |
| *LnFees* | -0.018 | -1.98** | -0.007 | -1.31 |
| *RSpec* | -0.265 | -2.49** | -0.160 | -2.17** |
| *LnFees*RSpec* | 0.023 | 2.50** | 0.013 | 2.22** |
| *EBTP* | 0.008 | 0.85 | 0.007 | 0.75 |
| *CapR* | 0.000 | 1.14 | 0.001 | 1.28 |
| *Size* | -0.001 | -0.63 | -0.001 | -0.59 |
| *Tax* | -0.011 | -0.31 | -0.007 | -0.20 |
| N | 471 | | 471 | |
| Adj. $R^2$ | 0.038 | | 0.036 | |

**Panel B: Bank Audit Specialists, Fair Value Measurements, and Audit Fees**

$$\begin{aligned} LnFees_{it} = {} & \beta_0 + \beta_1 Level1AR_{it} + \beta_2 Level2AR_{it} + \beta_3 Level3AR_{it} + \beta_4 Level1LR_{it} + \beta_5 Level2LR_{it} \\ & + \beta_6 Level3LR_{it} + \beta_7 RSpec_{it} + \beta_8 Level3AR * RSpec_{it} + \beta_9 LnAssetRest_{it} + \beta_{10} Big4_{it} \\ & + \beta_{11} Loss_{it} + \beta_{12} Securities_{it} + \beta_{13} Efficiency_{it} + \beta_{14} NPL_{it} + \beta_{15} CO_{it} + \beta_{16} CapR_{it} \\ & + \beta_{17} Intang_{it} + \beta_{18} Savings_{it} + \beta_{19} StdRet_{it} + \beta_{20} TransAcct_{it} + \beta_{21} CommonLoan_{it} \\ & + \beta_{22} MtgLoan_{it} + \beta_{23} Sensitive_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

| | ***RSpec* measured as *RSpec_MS*** | | ***RSpec* measured as *RSpec_PM*** | |
|---|---|---|---|---|
| **Variables** | **Coef.** | **t-stat.** | **Coef.** | **t-stat.** |
| *Intercept* | 7.075 | 10.65*** | 7.083 | 10.67*** |
| *Level1AR* | 1.845 | 2.35** | 2.239 | 2.85*** |
| *Level2AR* | 0.799 | 1.55 | 1.019 | 1.99** |
| *Level3AR* | -1.952 | -0.13 | 10.359 | 1.30 |
| *Level1LR* | 6.247 | 0.26 | 1.867 | 0.08 |
| *Level2LR* | 4.064 | 2.53** | 3.869 | 2.45** |
| *Level3LR* | 10.003 | 1.08 | 5.964 | 0.64 |
| *RSpec* | 0.587 | 3.81*** | 0.469 | 4.22** |
| *Level3AR*RSpec* | 12.217 | 0.74 | -0.946 | -0.10 |
| *LnAssetRest* | 0.488 | 18.51*** | 0.493 | 18.94*** |
| *Big4* | 0.380 | 5.90*** | 0.363 | 5.56*** |
| *Loss* | 0.188 | 2.29** | 0.170 | 2.09** |
| *Securities* | 0.853 | 1.68* | 1.018 | 2.01** |
| *Efficiency* | 0.227 | 1.23 | 0.251 | 1.37 |
| *NPL* | 1.796 | 1.69* | 2.266 | 2.13** |
| *CO* | -0.329 | -0.64 | -0.446 | -0.87 |
| *CapR* | 0.014 | 1.16 | 0.013 | 1.11 |
| *Intang* | 1.368 | 0.99 | 1.873 | 1.36 |
| *Savings* | -0.039 | -0.36 | -0.014 | -0.13 |
| *StdRet* | -2.666 | -1.41 | -2.253 | -1.20 |
| *TransAcct* | 0.347 | 1.79* | 0.304 | 1.57 |
| *CommonLoan* | -0.027 | -0.07 | -0.156 | -0.41 |
| *MtgLoan* | -0.076 | -0.24 | -0.162 | -0.52 |
| *Sensitive* | 0.189 | 1.14 | 0.225 | 1.36 |
| N | 250 | | 250 | |
| Adj. $R^2$ | 0.898 | | 0.899 | |

Panel A reports the effects of fair value measurements, audit fees, and audit specialists on DLLP. Panel B reports the effects of fair value measurements and audit specialists on audit fees. Variables are defined as follows. $Level1AR_t$, $Level2AR_t$, and $Level3AR_t$ are fair value assets measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $Level1LR_t$, $Level2LR_t$, and $Level3LR_t$ are fair value liabilities measured using Level 1, Level 2, and Level 3 inputs scaled by total assets, respectively. $LnFees_t$ is the natural log of audit fees. *RSpec* is measured as *RSpec_MS* and *RSpec_PM*. *RSpec_MS* is the decile rank of the percentage of total sample bank assets audited by each accounting firm. *RSpec_PM* is the decile rank of the sum of square root of total assets in banking firms audited by the same auditor each year, divided by the sum of square root of total assets of all clients audited by the same auditor in that year, with truncation to zero for auditors of 50 clients or less. $EBTP_t$ is income before tax and loan loss

provision scaled by gross book value of equity. $CapR_t$ is risk-adjusted tier-1 capital ratio. $Size_t$ is firm size measured by natural log of market capitalization of the firm. $Tax_t$ is income tax scaled by gross book value of equity. $LnAssetRest_t$ is the natural log of total assets after excluding fair valued assets. $Big4_t$ is a dummy that equals to 1 if the bank is audited by one of the big-4 audit firms. $Loss_t$ is a dummy that equals to 1 if the bank incurs losses during the year. $Securities_t$ is defined as one less total securities deflated by total assets. $Efficiency_t$ is the efficiency ratio and is measured by total operating expenses deflated by total revenue. $NPL_t$ is nonperforming loans divided by gross loans. $CO_t$ is net charge-offs deflated by loan loss reserve. $Intang_t$ is intangible assets divided by total assets. $Savings_t$ is coded as 1 if the company is a savings institution, 0 otherwise. $StdRet_t$ is a firm specific standard deviation of 12 month returns ending upon the fiscal year end. $TransAcct_t$ is total transaction accounts deflated by total deposits. $CommonLoan_t$ is the sum of commercial and agricultural loans deflated by gross loans. $MtgLoan_t$ is total domestic real estate and home equity loans scaled by gross loans. $Sensitive_t$ is the ratio of rate-sensitive assets minus rate-sensitive liabilities to total assets. *, **, and *** represent significance at the 10%, 5%, and 1% levels, respectively, using two-tailed tests.