THREE ESSAYS IN BANK FINANCIAL REPORTING

THREE ESSAYS IN BANK FINANCIAL REPORTING

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Abstract

This thesis investigates three important issues on bank financial reporting quality: 1) the impact of banks' retail versus wholesale funding structure on their earnings quality, 2) the implications of economic and monetary policy uncertainty for banks' earnings opacity, and 3) the relationship between banks' bad time history and accounting conservatism.

In the first essay, we examine the implications of banks' funding strategies for banks' earnings quality. We find that banks' greater reliance on retail deposits over wholesale funds is negatively and significantly associated with the magnitude of earnings management through discretionary loan loss provisions, the likelihood of meeting-or-beating earnings benchmark, and the extent of income smoothing through loan loss provisions. This finding is consistent with the arguments that retail deposits are relatively more stable and information-insensitive, represent a more conservative business model, and attract more intensive monitoring from the Federal Deposit Insurance Corporation (FDIC) than wholesale funds, thereby improving banks' financial reporting quality.

In the second essay, we investigate whether economic and monetary policy uncertainties affect banks' earnings opacity. When economic and monetary policies are relatively uncertain, it is easier for bank managers to distort financial information, as unpredictable policy changes make assessing the existence and impact of hidden "adverse news" more difficult for investors and creditors. Policy

uncertainty also increases the fluctuation in banks' earnings and cash flows, providing additional incentives for bank managers to engage in earnings management. Our results show that uncertainty in economic and monetary policy is associated with greater magnitude of discretionary loan loss provisions, higher likelihood of just meeting-or-beating the prior year's earnings, and lower levels of accounting conservatism, suggesting that economic and monetary policy uncertainties lead to higher banks' earnings opacity.

In the third essay, we examine the impact of banks' bad times on the conservatism of accounting policy. Specifically, we investigate two types of bad times: banks' own past experiences of undercapitalization and their experiences of witnessing the failures of other banks in state-wide and county-wide crises. We find that both types of banks' bad times are positively related to timelier recognition of earnings decreases versus earnings increases in accounting income. We also find that following exposure to bad times, banks increase their allowance for loan losses. Collectively, our results suggest that bank-specific bad times and macro-level banking crises lead to greater bank accounting conservatism. These findings support the arguments that banks exposed to past crises overweight their bad time history, and become more cautious and pessimistic about their future earnings performance and loan quality.

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Chapter 1: Introduction

This thesis includes three essays in bank financial reporting issues: 1) the impact of banks' retail versus wholesale funding structure on their earnings quality, 2) the implications of economic and monetary policy uncertainty for banks' earnings opacity, and 3) the relationship between banks' bad time history and accounting conservatism. The three essays are presented in Chapters 2, 3 and 4. In this chapter, we will highlight the research background and motivation, as well as the main findings and contributions of each essay.

In the first essay, we examine the implications of banks' funding strategies for banks' earnings quality. This topic is important because banks increasingly borrow short-term wholesale funds to supplement retail deposits, yet we know little about how different funding strategies affect banks' earnings quality. We argue that, due to the distinctive characteristics of retail depositors and wholesale financiers, banks with different funding structures may have different incentives to supply accounting information and thus varying earnings quality.

On the one hand, retail depositors are less financially sophisticated and less incentivized to acquire bank information to assess risk because of explicit protection from deposit insurance, making them at a disadvantage in monitoring banks (Calomiris and Kahn 1991; Demirguc-Kunt and Huizinga 2004). As a result, banks with a higher proportion of retail deposits may simply supply low-quality accounting information to retail depositors. On the other hand, retail deposits are stickier because of the high switching costs for depositors to change transaction services among banks, providing banks with greater stability in rolling over the funds needed to generate expected earnings and cash flows. In addition, retail funding reflects a more conservative business model, leading to less earnings volatility and lower income smoothing. Besides, retail deposits are less sensitive to banks' accounting information and economic policies than wholesale funds (Forti and Schiozer 2015). Thus, bank managers may have fewer incentives to manipulate external financial reports to attract retail deposits. Furthermore, unlike some categories of wholesale funds, retail deposits do not entail covenant restrictions, diminishing bank managers' incentives to engage in earnings or capital management to avoid covenant violations. Finally, banks with higher proportion of retail deposits have higher insurance risk for FDIC, thus FDIC will exercise higher scrutiny over those banks' financial information. Based on the channels outlined above, we expect banks' funding structure to influence their earnings quality. However, given the two conflicting predictions, the association between bank funding structure and earnings quality is ultimately an empirical question.

Following Dagher and Kazimov (2015), we use the ratio of core deposits to total liabilities (CDL) as the proxy for banks' funding structure. The higher the CDL for a bank, the greater the reliance on retail deposits and the less the reliance on wholesale funds. Empirical results indicate that banks relying more on retail deposits than on wholesale funds engage in less earnings management through discretionary loan loss provisions. They are also less likely to smooth earnings in the form of loss avoidance and through the use of loan loss provisions. Collectively, our results indicate that banks' earnings quality is associated with an increase in the proportion of retail deposits.

The evidence documented by the first essay offers important insights for the roles of different suppliers of bank funds in influencing the quality of bank accounting information. Our evidence seems to contradict the bright side of wholesale funding advocated by prior literature which posits that sophisticated wholesale financiers impose market discipline (Calomiris and Kahn 1991). In contrast, our findings are more consistent with the argument that retail deposits add to bank funding stability and reduce banks' opportunistic behaviors. In addition, our results are also relevant to policymakers in their future deliberations related to accounting requirements and monitoring mechanisms. Any rapid shift from traditional retail funding to wholesale funding should draw investors' attention to the quality of banks' financial reporting. This is of particular importance to regulators, given that our evidence shows that banks' earnings quality deteriorates with less reliance on retail funding.

In the second essay, we investigate whether economic and monetary policy uncertainties affect banks' earnings opacity. Economic and monetary policies have been accused of being so discretionary and unpredictable that they may have contributed to the financial crisis and the slow economic recovery in the U.S. (Taylor 2014). Although many policy changes (e.g., the Quantitative Easing, the Troubled Asset Relief Program, and the Dodd-Frank Act) targeted financial institutions, to our knowledge no study has explored the role of economic and monetary policy uncertainty on financial reporting issues in the banking industry. Thus, we aim to fill this gap in the literature. Using the banking industry as our setting, we examine whether banks are more likely to make financial reports opaquer when uncertainties in economic and monetary policies are high.

Our results support this criticism of policy uncertainty by documenting a positive association between policy uncertainty and banks' earnings opacity, proxied by the magnitude of discretionary loan loss provisions, the likelihood of just meeting or beating the prior year's earnings, and lower levels of accounting conservatism. We reason that, when economic and monetary policies are uncertain, management's opportunities for distorting earnings are greater. This is because policy uncertainty increases the information asymmetry between managers and external stakeholders, making it more difficult for investors and creditors to assess the existence and magnitude of the hidden "adverse news." To the extent that investors and creditors are unable to see through the businesses' true underlying economic conditions, managers should be more likely to withhold "adverse news" that would otherwise adversely affect their self-interest. Besides, management's incentives for distorting earnings are also greater in high policy uncertainty periods. Policy uncertainty increases the fluctuation in businesses' earnings and cash flows, therefore managers who prefer more stable income are more likely to smooth earnings or take a big bath in earnings.

The second essay provides novel evidence that the opaque framework of economic and monetary policies reduces the predictability of financial performance and increases the risk of unethical financial reporting practices. This is important evidence, given that policymakers have been accused of lacking a clear and consistent framework to enhance bank stability. We therefore express concern about the impact of the unpredictable shifting and implementation of economic and monetary policies, as our evidence indicates that the uncertainty of economic and monetary policies can deteriorate banks' financial reporting environment.

In the third essay, we examine the impact of banks' historical experiences in bad times on the conservatism of their accounting policies. Conservative accounting requires timelier recognizing losses and bad news than recognizing gains and good news (Basu 1997; Beaver and Ryan 2005). This asymmetric timely loss recognition will have a direct impact on the profitability and capital ratios, which would in turn determine the stability of banks and the monitoring intensity imposed by bank regulators (Kanagaretnam et al. 2014). This is particularly salient in the financial crisis, when aggressive reporting banks are more subject to capital crunches and liquidity risk compared to conservative reporting banks (Beatty and Liao 2011; Bushman and Williams 2015). In this essay, we investigate an alternative channel that has largely been understudied but may affect banks' accounting conservatism: bad time experiences. Specifically, we examine two types of bad time experiences: bank-specific bad experiences of undercapitalization, and the experiences of successfully living through times of bank failure in an economic-wide crisis.

The idea that a bank's experiences may affect its accounting policies builds on the organizational learning theory, which posits that an organization can learn from its direct experiences as well as from the successes and mistakes of others (Levitt and March 1988). We argue that, just like most organizational routines and actions, the accounting policy should be rooted in a bank's experiences and represent feedbacks about its past financial outcomes. However, available theories and evidence suggest different predictions regarding the relationship between bad times and accounting conservatism. On the one hand, when a bank has experienced crisis or threat of failure, the bank may reflect on its bad time experience and become more pessimistic about its future, thus recognizing potential losses in a timelier manner. In addition, loss recognition is regarded as providing a cushion against potential crisis and failure (Laeven and Majnoni 2003). Thus, a bank with bad experiences should become more cautious and recognize more allowances to buffer against potential crisis and failure. On the other hand, a bank which successfully lives through times of crisis, may overweigh its good experience of surviving the crisis and build on this experience to become less concerned about future profitability and capital inadequacy issues, thereby adopting a relatively more aggressive accounting policy by delaying loss recognition in the long run. Therefore, the question of whether and how bad times relate to accounting conservatism remains an open question.

Using a sample of U.S. banks over the period 1997-2013, we find that both types of banks' bad time experiences are positively related to timelier recognition of earnings decreases versus earnings increases in accounting income. We also find that following exposure to bad times, banks increase their allowance for loan losses. Collectively, our results suggest that bank-specific bad times and macro-level banking crises lead to greater bank accounting conservatism. These findings are consistent with the arguments that banks exposed to past crises overweight their bad time experiences, and become more cautious/pessimistic about their future earnings performance and loan quality.

The third essay makes contribution to the literature in several important ways. Firstly, we extend prior studies by showing that bad time history as another determinant of bank accounting conservatism. Secondly, our findings add novel evidence to support the organizational learning theory. We show that banks could learn their lessons by reflecting on their own mistakes as well as the mistakes of others. Our evidence implies that accounting policies act as a form of routine to capture the experiential lessons in banks. Third, our findings have important implications for bank managers and regulators. The timely recognition of loan losses is critical to the banking industry because of the importance of exposure to losses from various types of risk as well as capital adequacy regulations, which relate to the ability of a bank to absorb losses and remain solvent for depositors (Kanagaretnam et al. 2014). For managers and regulators of banks that have rarely been exposed to any form of crisis, they should exercise greater caution in monitoring bank financial reporting, as accounting policies within these banks may become less conservative and can harbor potential risks detrimental to the entire banking sector.

The rest of the thesis proceeds as follows. Chapter 2 investigates the impact of banks' retail versus wholesale funding structure on their earnings quality. Chapter 3 examines the influence of economic and monetary policy uncertainty on banks' earnings opacity. Chapter 4 studies the relationship between banks' bad times and accounting conservatism. Finally, Chapter 5 concludes the thesis.

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Chapter 2: Banks' Funding Structure and Earnings Quality

2.1. Introduction

Banks obtain funding through a variety of sources. Traditionally, banks attracted retail deposits, mainly from households. But banks now have increased access to wholesale money market to fund their liquidity through financial and non-financial institutions (Huang and Ratnovski 2011). Van den End and Tabbae (2012) find that banks changed their funding structure to assure themselves of liquidity. Prior literature finds that bank funding structure has important financial implications. For example, during the global financial crisis, wholesale funding was shown to be related to a lower rate of return on assets, greater stock return volatility, and more bank credit supply reduction (Demirguc-Kunt and Huizinga 2010; Dagher and Kazimov 2015). In this paper, we examine an important implication of bank funding structure: the impact of reliance on retail deposits over wholesale funds on banks' earnings quality. Earnings provide information about the features of a firm's financial performance that is relevant to certain decision-making (Dechow et al. 2010). In the banking industry, earnings manipulations can reduce bank stability, the market's valuation of banks, and loan quality (Beatty and Liao 2011; Bushman and Williams 2012; and Huizinga and Laeven 2012). They can also interfere with the private governance and official regulation of banks such as capital requirement violation (Jayaratne and Strahan

1996; Jiang et al. 2016). Nevertheless, little is known on how bank's earnings quality varies with bank's funding structure.

In contrast to non-financial institutions, banks receive funds from two main sources. First, local community households provide banks with a depositor base. Retail deposit accounts are primarily held for their liquidity services, and are typically covered by deposit insurance up to some coverage limit (Demirguc-Kunt and Huizinga 2010).[1] Thus, retail deposits constitute an inexpensive and stable source of long-term funds (Huang and Ratnovski 2008). One drawback of retail deposits, however, is that the local depositor base has a fixed size, and expanding it in the medium term is prohibitively expensive (Flannery 1982; Billett and Garfinkel 2004). To supplement insufficient retail deposits, banks may borrow wholesale funds with instruments such as repurchase agreements, federal funds, and bonds (Demirguc-Kunt and Huizinga 2010; Huang and Ratnovski 2011). Through wholesale money markets, banks can attract cash surpluses not only from households (through money market mutual funds), but also from non-financial firms and other financial institutions (Huang and Ratnovski 2011). However, unlike retail deposits, wholesale funds are usually raised on a short-term rollover basis: they have to be refinanced at the immediate date before final returns are realized, and they do not typically have government deposit insurance coverage. Compared with retail deposits, wholesale funds have several advantages:

[1] A bank's core deposits, or primary deposits, are made by individual or business customers in the bank's market area. In short, they are retail, liquid deposits. Thus, we use the terms core deposits and retail deposits interchangeably.

the amount provided is free from the constraint of local deposit supply, and wholesale lenders can provide market discipline due to their relative sophistication (Calomiris 1999). The dark side of wholesale funds is that they are subject to market-wide liquidity shocks and thus more volatile, and that uninformed wholesale financiers may trigger inefficient bank liquidations (Huang and Ratnovski 2011; Dagher and Kazimov 2015).

Due to distinctive characteristics of retail depositors and wholesale financiers, we posit that banks with different funding structures may have different earnings quality and their incentives to supply high quality accounting information. At first glance, it seems reasonable to predict that bank earnings quality decreases with the share of retail deposits. Generally, retail depositors are less sophisticated and have fewer incentives to acquire bank information to assess risk and to avoid losses because of explicit protection from deposit insurance. Thus, banks with more retail funding may supply lower quality accounting information due to lack of effective monitoring. Although such reasoning seems intuitive, wholesale depositors' ability to understand accounting information is also questionable, and their incentives to monitor bank behaviors may also be mitigated by collateralization. Huang and Ratnovski (2011) even argue that wholesale financiers may have little incentive to conduct costly monitoring, and instead simply withdraw funding on the basis of negative and cheap public signals.

The opposite prediction is also considered. That is, banks' earnings quality increases with higher proportion of retail deposits. Previous studies argue that retail deposits are sticky (Gatev and Strahan 2006; Song and Thakor 2007), because of the high switching costs for depositors to change transaction services among banks, and the safety buffer guaranteed by government deposit insurance (Sharpe 1997; Kim et al. 2003). Unlike wholesale funds that are widely subject to market-wide liquidity shocks (Dagher and Kazimov 2015), retail deposits provide banks with greater stability in rolling over the funds needed to generate expected earnings and cash flows.[2] Because of higher certainty about earnings and cash flows, banks with more retail funding may have a lower propensity to engage in earnings management.

In addition, funding structure reflects different business models. While wholesale funding allows banks to expand rapidly and pursue high returns but risky projects as they arise, banks with a higher proportion of retail deposits are more likely to adopt conservative operation mode and experience less volatile earnings and income smoothing behaviors. Besides, to the extent that retail depositors are stickier and less information-sensitive than wholesale financiers, banks may find it hard to rely on "window" dressed financial information to attract retail deposits. Banks that rely more on retail deposits tend to have strong relationships with their depositors, which may allow them to better assess risk

[2] Köhler (2015) finds that retail-oriented banks will be significantly less stable if they increase their share of non-deposit funds.

(Loutskina and Strahan 2011). Such relationship lending could lead to more financial information being privately communicated; giving these banks fewer incentives to manipulate accounting numbers. Moreover, retail deposits barely entail any covenants, thus incentives to manipulate accounting information to avoid potential violations of covenants may not be prevalent for banks that rely largely on retail deposits. This is in contrast with wholesale funds, some categories (e.g. subordinated debts (Goyal 2005)) of which have stringent covenant restrictions, providing additional incentives for banks to engage in earnings manipulations. Finally, when a bank carries higher proportion of retail deposits, the insurance risk increases for the Federal Deposit Insurance Corporation (FDIC), which will then exercise higher scrutiny over bank financial information. Given the channels outlined above, we expect banks' funding structure to influence their earnings quality. However, given the two conflicting predictions, the association between bank funding structure and earnings quality is ultimately an empirical question.

Following Dagher and Kazimov (2015), we use the ratio of core deposits to total liabilities (*CDL*) as the proxy for banks' retail funding structure.[3] The higher the *CDL* for a bank, the greater the reliance on retail deposits, and the less the reliance on wholesale funds. We calculate core deposits as the sum of retail transaction deposits, small amount time deposits (less than $100,000), money

[3] According to BCBS (2011), bank total liabilities include both core deposits and wholesale funds.

market deposit accounts, and other saving deposits. We use several proxies to measure earnings quality. Our main measure is the magnitude of discretionary loan loss provisions (*DLLP*). Loan loss provisions (*LLP*) is an expense item on the bank income statement, reflecting managers' current assessment of the likely level of future losses from defaults on outstanding loans (Cohen et al. 2014). They are the accruals of fundamental importance to bank performance. Specifically, Beatty and Liao (2014) document that *LLP* has the highest correlation with banks' net income, compared with other net income components (e.g., net interest income, non-interest income and securities gains and losses). And because they are estimates of future loan losses, they also reflect information asymmetry (Beatty and Liao 2014). Often times, managers exploit their information advantage to depart from the normal levels of bank's loan loss provisioning (the single largest accounting accrual estimate in banking) to achieve certain earnings objectives.[4] The departure from normal levels of *LLP* is called discretionary loan loss provision (*DLLP*). If retail deposits are positively associated with bank earnings quality, we should expect banks with higher *CDL* to be associated with smaller magnitude of *DLLP*. In terms of alternative measures, we use income-increasing and income-decreasing *DLLP* (i.e., signed accruals), the likelihood of meeting-or-beating earnings benchmark in the form of loss avoidance, and income smoothing through *LLP*.

[4] Prior research suggests several motives for bank managers' discretionary behavior with respect to *LLP*, including signaling, capital management, management compensation and income smoothing (Wahlen 1994; Collins et al. 1995; Kanagaretnam et al. 2004; Cheng et al. 2011).

We collect bank-level accounting data from the Commercial Bank Quarterly Call Reports (aggregated to annual data) available from the Federal Reserve Bank of Chicago to test the relation between bank liability structure and earnings quality. Our sample consists of 12,099 individual U.S. banks (excluding credit unions) with 146,364 bank-year observations spanning from 1993 to 2012. The sample covers 14 pre-crisis years (1993-2006), 3 crisis years (2007-2009), and 3 post-crisis years (2010-2012). Overall, our results confirm a positive association between banks' earnings quality and their reliance on retail funding over wholesale funding. In particular, we find a smaller magnitude of *DLLP* for banks with high *CDL*, suggesting that the funding stability from retail deposits improves banks' earnings quality. Using path analysis, we find that the direct effect of funding structure on bank earnings quality is statistically significant and is considerably larger than its indirect effect through mediating factors. This finding holds in all three sub-periods (i.e., pre-crisis, crisis, and post-crisis), and across both banks subject to the Federal Deposit Insurance Corporation Improvement Act (FDICIA) internal control regulations and banks not subject to FDICIA internal control regulations. In addition, we find that high *CDL* is associated with a smaller magnitude of signed *DLLP*, lower likelihood of avoiding losses, and lower propensity to smooth earnings using *LLP*. Our results are robust to various sensitivity tests, including controlling for additional firm- and macro-level characteristics, and employing instrumental variable to mitigate endogeneity concerns. For the crisis period analysis (2007-2009), we find that higher *CDL* decreases bank exposure to asset deterioration, proxied by lower non-performing loans and loan charge-offs. Collectively, our results indicate that banks' earnings quality is associated with an increase in the proportion of retail deposits.

Our findings contribute to the literature in several important ways. First, we document that reliance on retail deposits over wholesale funds is significantly and positively associated with bank earnings quality. This improves our understanding about the roles of different suppliers of funds in affecting banks' earnings quality. The evidence documented in this paper seems to contrast with the existing banking literature, which generally points to the bright side of wholesale funding that wholesale financiers are sophisticated and can provide market discipline (Calomiris and Kahn 1991). In contrast, our findings are more in line with the argument that retail deposits increase the banks' financial stability and diminish opportunistic incentives of bank managers. Second, given that accounting numbers convey important information to a variety of stakeholders, our evidence implies that the banks' funding strategy has externality on other parties (e.g., investors, financial intermediaries, and regulators) beyond retail and wholesale creditors. In this regard, the affected parties may consider alternative ways to be more informative about banks' financial condition. Any rapid shift from traditional retail funding to wholesale funding should draw investors' attention to the quality of banks' financial reporting. This is of particular importance to regulators, given that our evidence shows that banks' earnings quality deteriorates with less reliance on retail funding.

The rest of the paper is organized as follows. Section 2.2 reviews the literature and develops our hypothesis on the relationship between banks' funding structure and earnings quality. Section 2.3 explains our research design, including the measures and choices of empirical models to test our hypothesis. Section 2.4 describes our sample selection and data, including descriptive statistics and Pearson correlations. Section 2.5 discusses our main results and endogeneity issues. Section 2.6 provides additional robustness checks. Finally, Section 7 presents our conclusions.

2.2. Literature Review and Hypothesis Development

There are two competing arguments on how banks' funding structure could affect their earnings quality. On the one hand, higher proportion of retail deposits is potentially negatively associated with banks' earnings quality if retail depositors have a lower demand for information about bank managerial behaviors. This is likely because, compared with wholesale depositors, retail depositors have fewer incentives and resources to monitor and discipline bank behaviors (Calomiris and Kahn 1991). In contrast to wholesale depositors who are typically uninsured, retail depositors benefit from explicit government deposit insurance. For example, FDIC covers traditional retail deposit accounts such as checking and savings accounts, money market deposit accounts, and certificates of deposits up to $250,000 per depositor, per FDIC-insured bank, per ownership category (FDIC 2015).[5] Therefore, retail depositors are at lower risk of realizing losses, and may be less incentivized to utilize bank financial information and assess risk than wholesale depositors. Moreover, retail depositors may not possess the sophisticated financial skills to gather and process bank financial information as wholesale depositors (Macey and Miller 1988; Calomiris and Kahn 1991; Demirguc-Kunt and Huizinga 2004), making them at a disadvantage in monitoring banks. As a result, banks with a higher proportion of retail deposits may simply supply low-quality accounting information to retail depositors.

On the other hand, we argue that wholesale depositors may not be effective in imposing financial reporting discipline on banks.[6] The banking literature shows that even sophisticated depositors may be fooled by bank opacity. Drawing on the evidence of Iyer et al. (2013), Gallemore (2013) argues that despite their knowledge, sophisticated depositors are unable to deduce the bank problems from released financial information, thus they continue to roll over their debt funding to the troubled banks without inducing any bank run. In addition, some types of lending are not really risky (and sometimes safer) to wholesale

[5] In 2008, Congress passed a law increasing the FDIC coverage from $100,000 to $250,000, but only through 2013. Then in 2010, the lawmakers approved a permanent increase to the $250,000 coverage amount (FDIC 2015).

[6] Drawing on the evidence of the subprime crisis, Ackermann (2008) argues that a robust deposit base combined with a funding structure that avoids significant currency and maturity mismatches has proven to be beneficial for the stability of financial institutions.

lenders, even if they are not insured. For example, the repurchase agreement (repo), one type of wholesale lending, is a collateralized transaction. If the bank defaults on the borrowing, the repo lenders have the right to terminate the agreement and keep or sell the collateral, the value of which is usually higher than the amount of repo deposit itself (Gorton and Metrick 2012). Given this haircut, repo lenders may have very little incentive to monitor banks through complicated process of financial reporting examination, as they can simply sell the underlying collateral to compensate for any of the losses that they may incur. Furthermore, even wholesale financiers, whose transactions are not collateralized, may not bother going through complicated bank financial reports and instead, they may just withdraw funding in response to negative public signals, triggering inefficient bank liquidations (Huang and Ratnovski 2011).

Given the counter arguments, we expect that the opposite scenario is more likely to hold empirically. That is, higher proportion of retail deposits would be positively associated with higher earnings quality. To the extent that deposit insurance funds are generally not enough to cover all deposits, retail depositors may still have some concerns or incentives to monitor banks. In addition, previous studies document that retail deposits are a more stable source of funding for banks (Gatev and Strahan 2006; Song and Thakor 2007), because retail depositors face higher turnover costs to change transaction services among banks (Sharpe 1997; Kim et al. 2003). The government deposit insurance coverage also adds to retail depositors' stickiness to their current banks. This is in contrast with wholesale funds, which are usually raised on a short-term (often daily) rollover basis, and more vulnerable to market-wide liquidity shocks (Dagher and Kazimov 2015). Given the bank funding stability arising from retail depositors, we posit that banks with a greater reliance on retail deposits should have a lower propensity to engage in earnings management and have fewer problems in rolling over the funds needed to generate expected earnings and cash flows than their counterparts that rely more on wholesale funds. [7]

Additionally, bank funding structure reflects different business models. For example, while listed banks, in general, and investment banks, in particular, are more dependent on wholesale funding, which is characteristic of banks with an investment-oriented business model, unlisted banks such as savings and cooperative banks are more retail-oriented and fund most of their activities by customer deposits (Kohler 2015).

Under wholesale funding strategy, banks could expand rapidly without being constrained by the local deposit supply. For example, Demirguc-Kunt and Huizinga (2010) find that wholesale funding is associated with larger and fast-growing institutions. This would make banks exploit valuable investment opportunities as they arise (Huang and Ratnovski 2011). But at the same time,

[7] While we emphasize the stability of retail deposits, the competition for retail deposits should not be neglected. For example, because of comparative advantages in serving some depositor groups, banks operating in the same local market face different intensities of competition (Craig and Dinger 2013).

wholesale funding may also affect the riskiness of banks. This is evidenced by Demirguc-Kunt and Huizinga (2010), who document that wholesale funding increases the stock volatility of banks, and Kohler (2015), who finds that banks' income volatility increases with a larger share of non-deposit funding. As earnings become volatile, bank with a higher proportion of wholesale funding would have more incentives to manipulate accounting numbers to smooth their earnings.

In comparison, retail deposit funding strategy leads banks to pursue more conservative expansion by taking a branch-centric approach, including in-store branches (Hirtle and Stiroh 2006). Furthermore, Hirtle and Stiroh (2006) find that an increased focus on retail banking across U.S. banks is linked with significantly lower equity market and accounting returns for all banks, and lower volatility for large bank holding companies. This implies that retail banking is a low return, but a stable line of business. When banks with retail deposit funding structure have less volatile earnings, they are less incentivized to engage in income smoothing and earnings management activities.

Moreover, to the extent that retail depositors are more stable and less sensitive to information than wholesale depositors (Forti and Schiozer 2015), banks should have fewer incentives to manipulate accounting information when they largely rely on retail depositors. Retail banks that rely more on core deposits tend to have strong relationships with their depositors, which may allow the depositors to better assess risk (Loutskina and Strahan 2011). Such relationship lending is usually based on ‘‘soft’’ data such as personal connections and reputation (Allen et al. 2004), and could lead bank managers to disclose more private financial information to their major depositors. As a result, the strong relationship lending could reduce the information asymmetry between banks and their major depositors. For example, Puri and Rocholl (2008) find that instead of discriminating against retail depositors, banks tend to treat their retail depositors well by informing their customers of good deals. Specifically, they find that lead underwriters' retail customers benefit as they demand and end up with significantly more of the highly underpriced issues.

In an attempt to understand why bank managers have greater incentives to pass on high-quality accounting information and financial disclosures to retail depositors, Puri and Rocholl (2008) find that banks' incentives come from the benefits banks obtain through retail cross-selling, i.e., both brokerage accounts and consumer loans increase significantly. Collectively, we argue that the relationship lending that banks develop with their major retail customers leads to high-quality accounting information and disclosures that can help banks maintain such important relationships.

Furthermore, from the perspective of debt covenant, banks may manipulate accounting information in order to avoid triggering potential covenant violations. Since retail deposits barely attach any covenants, banks may have very little incentive to manipulate accounting numbers to avoid covenant violations and to please retail depositors. In contrast, some categories of wholesale funds (e.g., subordinated debt contracts) entail very stringent covenant restrictions (Goyal 2005), providing additional motivation for banks to manipulate accounting information.

Finally, when a bank carries higher proportion of retail deposits, the insurance risk increases for FDIC and the bank may be subject to greater monitoring by FDIC. According to FDIC (2016), "the amount each institution is assessed is based upon statutory factors that include the balance of insured deposits as well as the degree of risk the institution poses to the insurance fund." Higher proportion of retail funds will automatically increase the balance of insured funds and pose greater risk to FDIC. To reduce its risk, FDIC will exercise higher scrutiny over banks and, therefore, monitor the financial information more closely.

Our hypothesis is: given the competing arguments outlined above, the association between bank funding structure and earnings quality is ultimately an empirical question.

2.3. Research Design

Following Dagher and Kazimov (2015), we employ the core deposits to liabilities ratio (CDL_{it}) as the measure of retail deposits.[8] However, our results remain

[8] Note that Dagher and Kazimov (2015) use the term core deposits for retail deposits. Also note that BCBS (2011) use the wholesale funds to liabilities ratio (*WDL*) to measure bank funding

robust even if we scale core deposits by total assets. *CDL* is defined as the sum of retail deposits (including certificates of deposit) and debt securities issued that are held by retail customers scaled by total liabilities. We calculate retail deposits as the sum of transaction deposits, small amount time deposits (less than $100,000), money market deposit accounts, and other saving deposits. The higher the *CDL*, the greater reliance on retail deposits and the less reliance on wholesale funds by banks.

To proxy for bank earnings quality, we primarily focus on the magnitude of discretionary loan loss provisions (*DLLP*). Loan loss provisions (*LLP*) are an expense item in a typical bank income statement, reflecting bank managers' current estimates of future losses from defaults on outstanding loans (Cohen et al. 2014). They are also the largest component among accruals in banks, thus affording bank managers wide latitude in its use (Kanagaretnam et al. 2010a; Beatty and Liao 2014). Prior banking research finds that financial institutions may deviate from their normal levels of loan loss provisioning to employ abnormal loss provisioning for opportunistic reasons of managing earnings (Kanagaretnam et al. 2010b; Cohen et al. 2014; Kanagaretnam et al. 2015). The abnormal (or discretionary) component of loan loss provisions is also called *DLLP*. Beatty and Liao (2014) document that *DLLP* is likely to be an earnings management tool, as

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structure, where the wholesale deposits to liabilities ratio is defined as the sum of wholesale funds (total liabilities less retail deposits) scaled by total liabilities. But since there is a mechanically inverse relationship between *CDL* and *WDL*, we only focus on *CDL* as our main proxy for bank funding structure.

they document that a greater magnitude of $DLLP$ is associated with increased earnings restatements and comment letters from the U.S. Securities and Exchange Commission (SEC).

To empirically measure $DLLP$, we first estimate the non-discretionary component of LLP by regressing LLP on a number of variables that account for bank's normal loan loss provisioning behavior. The part of LLP unaccounted for by these determinants is taken as $DLLP$ (i.e., the residuals from the first stage regression). Specifically, we follow the model from Beatty and Liao (2014) to run the OLS regressions of LLP using Equation (2.1a).[9]

$$LLP_{it} = \alpha_0 + \alpha_1 \Delta NPL_{it+1} + \alpha_2 \Delta NPL_{it} + \alpha_3 \Delta NPL_{it-1} + \alpha_4 \Delta NPL_{it-2} + \alpha_5 SIZE_{it-1} + \alpha_6 \Delta LOAN_{it} + \alpha_7 \Delta ST\_GDP_{it} + \alpha_8 \Delta ST\_HPI_{it} + \alpha_9 \Delta ST\_UR_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.1a)$$

where LLP_{it} is loan loss provisions scaled by beginning total loans for bank i in year t; ΔNPL_{it} is change in non-performing loans during year t scaled by beginning total loans; $SIZE_{it}$ is natural logarithm of total assets in year t; $\Delta LOAN_{it}$ is change in total loans during year t scaled by beginning total assets; ΔST_GDP_{it} is change in GDP of the state where the bank's headquarter is located during year t; ΔST_HPI_{it} is change in the return of the house price index of the state where the bank's headquarter is located during year t; ΔST_UR_{it} is change in

[9] Our main regression results still hold if Equation (2.1a) includes LLA_{it-1} and CO_{it} in estimating *DLLP*. Including LLA_{it-1} and CO_{it} would increase the Adj. R^2 of Equation (2.1a) to 0.577.

the state unemployment rate of the state where the bank's headquarter is located during year t; $ST\_DUMMIES$ and $YEAR\_DUMMIES$ are state and year dummy variables to account for state and year fixed effects. The fitted value in Equation (2.1a) represents the non-discretionary LLP, and the residual is treated as $DLLP$. This model allows for changes in non-performing loans in four consecutive periods (i.e., ΔNPL_{it+1}, ΔNPL_{it}, ΔNPL_{it-1}, and ΔNPL_{it-2}), because an increase in non-performing loans will require a higher LLP and banks might use historical, current and forward-looking information on non-performing loans to select LLP. The model also includes bank size ($SIZE_{it-1}$) and change in loans ($\Delta LOAN_{it}$), because official supervisory oversight and private sector monitoring could vary with banks size and an increase in loans might be associated with a decrease in loan quality.

And to further corroborate that our results are not driven by the choice of this model, we also employ an alternative form, Equation (2.1b), proposed by Kanagaretnam et al. (2010a), which relies on largely different determinant variables.

$$LLP_{it} = \alpha_0 + \alpha_1 LOAN_{it} + \alpha_2 \Delta LOAN_{it} + \alpha_3 LLA_{it-1} + \alpha_4 CO_{it} + \alpha_5 NPL_{it-1} + \alpha_6 \Delta NPL_{it} + \alpha_7 CL_{it} + \alpha_8 RL_{it} + \alpha_9 IL_{it} + \alpha_{10} AL_{it} + \alpha_{11} DL_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.1b)$$

where $LOAN_{it}$ is total loans scaled by total assets in year t; LLA_{it-1} is loan loss allowance scaled by total loans in year $t-1$; CO_{it} is loan charge-offs scaled by beginning total loans in year t; NPL_{it-1} is non-performing loans scaled by total loans in year $t-1$; CL_{it} to DL_{it} are loan categories, including commercial and industrial loans (CL_{it}), real estate loans (RL_{it}), individual loans (IL_{it}), agriculture loans (AL_{it}), and loans to depository institutions (DL_{it}). Beginning balance of non-performing loans (NPL_{it-1}) accounts for the fact that problems with the loan portfolio will require higher loss provisions. Current loan charge-offs (CO_{it}) are included because they can influence expectations of the collectability of current loans and hence current LLP. $LOAN_{it}$ is included because higher level of loans will require higher provisions. The model also includes loan category variables to control for differences in loan composition that also likely contribute to differences in risk. For example, banks with a higher proportion of commercial and real estate loans are likely to have higher *LLP* than banks with a higher proportion of consumer loans (Kanagaretnam et al. 2010a).

The residuals of Equations (2.1a) and (2.1b) are computed as *DLLP*. We use the absolute value of the residuals ($ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$) from Equations (2.1a) and (2.1b) as our main proxies for bank earnings quality. The higher the value of $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$, the lower the earnings quality of banks. In our baseline analysis, we focus on the absolute value of the residuals. But in the additional analysis, we further divide *DLLP* based on their signs, and investigate the funding implication for both income-increasing and income-decreasing *DLLP*, respectively.

To test the influence of bank funding strategy on earnings quality, we estimate the following regression models.

$$ABSDLLP\_A_{it} = \alpha_0 + \alpha_1 CDL_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 SIZE_{it}^2 + \alpha_4 LOAN_{it} + \alpha_5 CAPR_{it} + \alpha_6 EBP_{it} + \alpha_7 LLP_{it-1} + \alpha_8 LIQUID_{it} + \alpha_9 PUBLIC_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.2a)$$

$$ABSDLLP\_B_{it} = \alpha_0 + \alpha_1 CDL_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 SIZE_{it}^2 + \alpha_4 LOAN_{it} + \alpha_5 CAPR_{it} + \alpha_6 EBP_{it} + \alpha_7 LLP_{it-1} + \alpha_8 LIQUID_{it} + \alpha_9 PUBLIC_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.2b)$$

where $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ are the absolute value of discretionary LLP from Equation (2.1a) or Equation (2.1b), respectively. Our primary variable of interest is the bank funding structure variable, CDL_{it-1}, defined as the ratio of core deposits to total liabilities in year $t-1$. We use CDL_{it-1}, because we expect the funding structure to affect bank earnings quality with a lag. In addition, CDL_{it-1} helps to mitigate concerns resulting from reverse causality. Based on the prediction that banks have fewer incentives to use discretionary LLP to attract retail deposits and to avoid covenants violations, we expect that the coefficient on CDL_{it-1} is significantly negative. Following Altamuro and Beatty (2010) and Kanagaretnam et al. (2014), we include a set of financial variables to control for bank characteristics, such as bank size ($SIZE_{it}$), bank loans ($LOAN_{it}$), leverage ratio ($CAPR_{it}$), earnings before LLP (EBP_{it}), lagged LLP (LLP_{it-1}), liquid assets ($LIQUID_{it}$), and public bank listing status ($PUBLIC_{it}$). Following Altamuro and

Beatty (2010), we include the square of bank size ($SIZE_{it}^2$) to control for the non-linearity in the relationship between bank size and earnings quality in our model.[10] In addition, we control for both state and year fixed effects. To account for the possibility that the error terms might be correlated, we cluster the standard errors at the bank level.

In addition to the magnitude of $DLLP$, we use the magnitude of signed accruals including income-increasing $DLLP$ ($ABSIIDLLP\_A_{it}$ and $ABSIIDLLP\_B_{it}$) and income-decreasing $DLLP$ ($ABSIDDLLP\_A_{it}$ and $ABSIDDLLP\_B_{it}$), the incidence of loss avoidance ($LSAV_{it}$) to capture whether a bank meets-or-beats earnings benchmark, and the contemporaneous relationship between LLP_{it} and EBP_{it} to measure the extent to which LLP is used to smooth earnings.

2.4. Sample and Data

Banks' financial data are obtained from the Call Reports (Report of Condition and Income) that banks file with the Federal Reserve, the Federal Deposit Insurance Corporation, or the Office of the Comptroller of the Currency. The Call Reports data have the advantage of providing financial information not only for public banks but also for private banks, which comprise the majority of banks in our study. The data are available at the Federal Reserve Bank of Chicago website. We

[10] Prior literature has studied potential non-linearities of firm size in various regression models (e.g., Bertschek and Entorf 1996; Siggelknow 2003; Amato and Amato 2007, 2012). These studies suggest that the effect of size on various dependent variables is non-linear and recommend adding linear and squared terms in the regressions.

omit all credit unions, as they typically receive no wholesale funds. The sample encompasses the period 1993-2012, including 14 pre-crisis years (1993-2006), 3 crisis years (2007-2009), and 3 post-crisis years (2010-2012). In our baseline analysis, we focus on the entire period of 20 years. In additional analyses, we will look at the three sub-periods separately. We then delete observations without enough financial information to construct our variables, and all bank-level continuous variables are winsorized at the top and bottom 1 percentiles to mitigate the effects of any outliers. Our final sample consists of 12,099 individual banks and 146,364 bank-year observations.

We report the descriptive statistics for the variables used in the regression analysis in Table 2.1. During the whole sample period, the mean of absolute values of $DLLP$ ($ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$) calculated from Equations (2.1a) and (2.1b) are 0.002 and 0.001, respectively. The mean values of the magnitude of income-increasing $DLLP$ ($ABSIIDLLP\_A_{it}$ and $ABSIIDLLP\_B_{it}$) are 0.001 and 0.001, whereas the mean values of the magnitude of income-decreasing $DLLP$ ($ABSIDDLLP\_A_{it}$ and $ABSIDDLLP\_B_{it}$) are 0.003 and 0.001. Amongst the sample banks, 6.3% of them report small positive earnings. On the liability side of the sample banks, similar to Dagher and Kazimov (2015), we find that the average ratio of core deposits to total liabilities (CDL_{it-1}) is 81.2%, suggesting that banks are largely funded by retail deposits rather than wholesale deposits. On the asset side, we find that loans ($LOAN_{it}$) account for a large portion (61.1%) of bank assets, and that 5.8% of bank assets are liquid assets ($LIQUID_{it}$).

[Table 2.1]

We present the Pearson correlation matrix of the dependent and independent variables in Panel A of Table 2.2. The core deposit ratio CDL_{it-1} is negatively and significantly correlated with $ABSDLLP\_A_{it}$, $ABSDLLP\_B_{it}$, $ABSIIDLLP\_A_{it}$, $ABSIIDLLP\_B_{it}$, $ABSIDDLLP\_A_{it}$, $ABSIDDLLP\_B_{it}$, and $LSAV_{it}$ at the 1% level, suggesting that banks with heavy reliance on retail deposits are associated with less earnings management through discretionary LLP (either income-increasing or income-decreasing), and lower propensity of avoiding losses. Furthermore, we find that the measures of $DLLP$ and loss avoidance have a significantly positive correlation with each other, consistent with low earnings quality banks engaging in more loss provision management, and meeting-or-beating earnings benchmarks.

In the previous section, we argue that retail deposits are relatively sticky, providing a stable source of funds for banks. To illustrate this point, we compare the Pearson correlation matrix of unscaled core deposits (*CD*) and wholesale funds (*WF*), and their forward and lagged values in Panel B of Table 2.2. As shown in the table, CD_{it} has a Pearson correlation coefficient of 0.95 with CD_{it-1}, 0.88 with CD_{it-2}, and 0.97 with CD_{it+1}. This is in contrast with WF_{it}, which has a correlation coefficient of 0.93 with WF_{it-1}, 0.83 with WF_{it-2}, and 0.94 with

WF_{it+1}. Based on the Pearson correlations of their serial values, it is reasonable to argue that core deposits are more stable than wholesale funds for banks.

[Table 2.2]

In Table 2.3, we present the univariate comparisons of the mean of the absolute value of *DLLP* and signed *DLLP*, and the incidence of loss avoidance for banks with above median *CDL* and those below median *CDL* for different sample partitions. We find that the mean values of $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$, $ABSIIDLLP\_A_{it}$ and $ABSIIDLLP\_B_{it}$, $ABSIDDLLP\_A_{it}$ and $ABSIDDLLP\_B_{it}$, and $LSAV_{it}$ are lower for banks with high *CDL* than for banks with low *CDL*. We next discuss the results of the multivariate analysis.

[Table 2.3]

2.5. Regression Results

2.5.1. Main Regression Results

We provide the main regression results for estimating *DLLP* in Table 2.4. Panels A and B report the regression results of using Equations (2.1a) and (2.1b) to estimate *DLLP*, respectively. Most estimated coefficients are consistent with those reported in Beatty and Liao (2014) and Kanagaretnam et al. (2010a). In Panel A, we find significant coefficients on NPL_{it+1}, NPL_{it}, NPL_{it-1}, and NPL_{it-2}, suggesting that banks use both forward-looking and past information on non-performing loans in estimating normal portion of *LLP*. Panel B reports that LLA_{it-1} is negatively associated with LLP_{it} at the 1% level, in line with the argument that a high level of beginning loan loss allowance will require a bank to recognize a lower level of *LLP* in the current period. The residuals from Equations (2.1a) and (2.1b) represent *DLLP_A* and *DLLP_B*, respectively. And negative (positive) residuals represent the income-increasing (income-decreasing) *DLLP*.

[Table 2.4]

Table 2.5 presents the OLS estimation relating bank funding structure to *ABSDLLP*. Panel A provides the regression results of *ABSDLLP_A* on *CDL* using Equation (2.2a) and Panel B provides the regression results of *ABSDLLP_B* on *CDL* using Equation (2.2b). In both panels, we control for state and year fixed effects in the regression model reported in Column 1, and we control for state, year, and bank fixed effects in the regression model reported in Column 2.[11] Of primary interest is the coefficient of α_1 on CDL_{it-1}. A negative sign for α_1 indicates that retail deposits are negatively associated with earnings management. Consistent with this expectation, we find that CDL_{it-1} is negatively and significantly related with $ABSDLLP\_A_{it}$ at the 1% level in Columns 1 and 2 of Panel A (*t*-value = -11.16 and -11.83, respectively). We also find that CDL_{it-1} is negatively and significantly related with $ABSDLLP\_B_{it}$ at the 1% level in

[11] Banks may possess some static innate characteristics that are unobservable and hence not captured by any of the control variables included in our main regressions. To the extent that bank earnings quality and funding strategy are simultaneously determined by the omitted static innate characteristics, the coefficients reported in our main results may be biased. To mitigate this concern, we estimate the baseline regressions by controlling for bank fixed effects.

Columns 1 and 2 of Panel B (t-value = -13.89 and -9.77, respectively). The results support the arguments that retail deposits represent a more stable source of funds for banks and that banks have fewer incentives to distort accounting information to contract with retail depositors. With regard to the control variables, we find that $CAPR_{it}$, EBP_{it}, LLP_{it-1}, and $LIQUID_{it}$ have a significantly positive relationship with the two accruals manipulation measures, indicating that banks with more equity capital funding, pre-accruals earnings, lagged loan loss provisions, and liquid assets engage in more accruals manipulation. In contrast, we find that $SIZE_{it}$ is negatively associated with $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$, implying that large banks conduct less accruals management than small banks.

[Table 2.5]

2.5.2. Endogeneity Tests

It is possible that influences on banks' earnings quality could cause banks to adjust their funding structure. In this case, the OLS estimation of our empirical models may have endogeneity bias due to reverse causality. Although in the baseline regressions we use the lagged value of *CDL* which mitigates some of the endogeneity concern, we employ an instrumental variable approach to further address endogeneity issues.

Prior accounting and finance literature usually regards organization age as a valid instrument (e.g., Harjoto and Jo 2011; DeFond et al. 2016). We argue that a bank's age can be viewed as exogenous, given that the bank's establishment was a decision made in prior years. Furthermore, we argue that long insured banks should be more effective in attracting retail depositors and maintain a relatively high percentage of retail deposit funding for two reasons. First, long-lived banks are more reliable and have less financial risks than younger banks in the eyes of retail depositors. Second, retail customers find it costly to walk away from a well-established lending relationship due to the high switching cost. Following this line of reasoning, we use the bank age (AGE_{it}) as our instrumental variable for retail deposit funding variable (CDL_{it}). More specifically, we define AGE_{it} as the natural logarithm of 1 plus the number of years since the bank became active. We then estimate the first-stage regression model using Equation (2.3) to predict the endogenous retail deposit funding variable CDL_{it}, and use the predicted value of CDL_{it} from the first-stage regression to test the relationship between bank funding structure and earnings quality in the second stage regression. We expect AGE_{it} to have a significant and positive relationship with CDL_{it} in Equation (2.3).

$$CDL_{it} = \alpha_0 + \alpha_1 AGE_{it} + \alpha_2 SIZE_{it} + \alpha_3 SIZE_{it}^2 + \alpha_4 LOAN_{it} + \alpha_5 CAPR_{it} + \alpha_6 EBP_{it} + \alpha_7 LLP_{it-1} + \alpha_8 LIQUID_{it} + \alpha_9 PUBLIC_{it} + TYPE\_DUMMIES + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \tag{2.3}$$

where AGE_{it} is defined as the natural logarithm of 1 plus the number of years since the bank became active; $TYPE\_DUMMIES$ are an array of dummy variables that represent different bank charter types. Bank charter types in our study include commercial bank, non-deposit trust company, savings bank, savings and loan association, cooperative bank, and industrial bank.[12] Demirguc-Kunt and Huizinga (2010) find that banks of different types differ materially in their funding shares, with investment banks, for instance, being restricted from attracting retail deposits, which naturally increases their wholesale funding share.

The results of the instrumental variable regression are reported in Table 2.6, where we tabulate both the first-stage (Panel A) and the second-stage regression results (Panel B). We also conduct Hausman (1978) tests to verify the existence of endogeneity. In the first-stage regression, as we have predicted, AGE_{it} is positively and significantly associated with CDL_{it} at the 1% level, implying that long-lived banks have higher proportion of retail deposits than younger banks. Turning attention to the second stage, Panel B reports a negative and significant coefficient (t-value = -8.51 and -10.30, respectively) on the predicted value of core deposit ratio, $PRED\_CDL_{it}$, in regressions of $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$. The results show that the reliance on retail funding relative to wholesale funding is associated with higher earnings quality, consistent with the argument that retail deposits represent a more healthy and stable source of funds for banks. Therefore, bank managers have less incentives to manipulate earnings numbers to attract funding from retail depositors.

[12] Following Calomiris and Wilson (2004), we include charter type to capture potential differences in depositor preferences related to deposit composition (which may have differed across charter types). For example, a commercial bank or a savings and loan association engages in more financial services such as accepting deposits than a nondeposit trust company, which usually acts as a trustee, fiduciary, or agent in the administration of trust funds, estates, custodial arrangements, stock transfer and registration, and other related services. Therefore, commercial banks and savings and loan associations should have higher *CDL*.

[Table 2.6]

However, one concern with bank age as an instrument is that age might capture factors that are not necessarily related to bank funding structure. For example, a long-lived bank tends to be bigger in size than a newly founded bank. To mitigate this concern, we remove the impact of the cofounding factors by regressing AGE_{it} on $SIZE_{it}$, $LOAN_{it}$, $CAPR_{it}$, EBP_{it}, $LIQUID_{it}$ and $PUBLIC_{it}$, and using the residual from the regression as an alternative instrument. Untabulated results demonstrate that the predicted value of core deposit ratio calculated using the residual of the AGE_{it} regression is still negatively and significantly correlated with $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$, suggesting that the cofounding factors would not invalidate our results.

2.6. Additional Analyses

2.6.1. FDIC Regulation Change

In 2008, Congress passed a law increasing the FDIC coverage from $100,000 to $250,000. We argue that increasing the deposit insurance coverage limit would make retail depositors feel safer, and, hence, retail funding would become more stable. In addition, the increase in insurance amount poses greater risk of loss to FDIC, which, in turn, may exercise more scrutiny over bank reporting. Taken together, we predict that the positive effects of retail deposits on bank earnings quality would be stronger following the increase in deposit insurance coverage limit. One potential caveat with the use of FDIC regulation change in insurance coverage limit is that such change might be cofounded by other events, noticeably the financial crisis. However, to the extent that the financial crisis deteriorates the reporting environment and imposes greater liquidity constraint on wholesale funding, we could still expect that banks with higher reliance on retail funding are associated with higher earnings quality in the post-crisis period. Given this, we choose a 6-year window (2005-2010) to test the effect of the FDIC regulation change. Specifically, we estimate the following OLS regression model:

$$ABSDLLP_{it} = \alpha_0 + \alpha_1 CDL_{it-1} + \alpha_2 CDL_{it-1} * POST_{it} + \alpha_3 SIZE_{it} + \alpha_4 SIZE_{it}^2 + \alpha_5 LOAN_{it} + \alpha_6 CAPR_{it} + \alpha_7 EBP_{it} + \alpha_8 LLP_{it-1} + \alpha_9 LIQUID_{it} + \alpha_{10} PUBLIC_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.4)$$

where $POST_{it}$ is a dummy variable that equals 1 for years 2008-2010, and 0 for years 2005-2007. Our main variable of interest is the interaction term $CDL_{it-1} * POST_{it}$. We report the results in Table 2.7, where we find that the coefficient of the interaction term is negative and statistically significant at the 1% level (t-value = -5.76 and -6.49, respectively), suggesting that the funding structure focusing on core deposits has a greater impact on earnings quality of banks when retail depositors receive higher FDIC deposit insurance coverage.

[Table 2.7]

2.6.2. Subsample Tests

In the baseline regression, we focused on the entire period of 20 years, we now investigate the impact of bank funding structure on bank earnings quality in each of the three sub-periods separately: pre-crisis (1993-2006), crisis (2007-2009), and post-crisis (2010-2012). We present the regression results for pre-crisis, crisis, and post-crisis in Panels A, B and C of Table 2.8, respectively. The regression results show a significantly negative association between CDL_{it-1} and $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ across all three sub-periods, suggesting that the impact of bank funding on discretionary accruals management is not driven by specific sample period.

Next, we investigate whether the positive relationship between funding structure and earnings quality differs across bank regulation environments. Banks with total assets greater than $500 million before 2005 and greater than $1 billion after 2005 are subject to FDICIA internal control regulations, but banks with total assets less than $500 million before 2005 and less than $1 billion after 2005 are free from such regulations. FDICIA internal control regulations require regulated banks to have their financial statements audited, and their CEO and CFO to sign on the management report to provide an assessment of the effectiveness of the internal control structure and procedures (Jin et al. 2013a; Jin et al. 2013b). Thus, FDICIA banks and non-FDICIA banks are in different financial reporting environment. We provide the regression results for both types of banks in Panels D and E of Table 2.8, respectively. Again, the regression results attest to a significant and negative association between CDL_{it-1} and $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ across both FDICIA banks and non-FDICIA banks, suggesting that funding structure influences earnings management regardless of banks' external regulations and internal control scrutiny.

It is possible that the higher earnings quality emanates from the monitoring done by FDIC, and not the retail depositors themselves. To test this predictability, we examine the relationship between retail deposits and earnings quality for uninsured banks. We continue to find that there is a significantly positive association between CDL_{it-1} and $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ for those banks that not insured by FDIC. This suggests that even without the monitoring by FDIC, the characteristics of retail deposits can lead to higher earnings quality. However, we also find that compared with uninsured banks, retail depositors in insured banks play a less but still significantly important role in improving bank earnings quality. This means that FDIC's monitoring helps to achieve higher bank earnings quality and that retail depositors in insured banks can lie back a bit to enjoy the benefits of FDIC monitoring.

[Table 2.8]

2.6.3. Alternative Model Specifications

Other than the variables used in the baseline regressions, we incorporate several additional variables to further assess the robustness of our findings. First, we include Tier 1 capital ratio ($TIER1_{it}$) to account for banks' incentives to engage in manipulation of LLP in order to avoid violating the capital adequacy ratio. Second, prior accounting literature generally documents that Big 4 firms are associated with higher audit quality and lower earnings management. Thus, in order to rule out the possibility that change in earnings quality is driven by the choice of auditor, we include a dummy variable $BIG4_{it}$ that equals 1 if a bank is audited by a Big 4 auditor and 0 otherwise. Third, we examine the sensitivity of our baseline results to bank growth and mergers by including the asset growth rate ($ASGR_{it}$). The regression results are very similar even after controlling for the non-linearity of bank size, Tier 1 capital ratio, the quality of external auditors, and asset growth rate. Finally, to control for the impact of changes in economic conditions on earnings quality, we re-estimate the baseline models by adding control variables for both change in state GDP (ΔST_GDP_{it}) and change in state unemployment rate (ΔST_UR_{it}). Once again, controlling for these macroeconomic variables does not alter our inferences, suggesting that economic conditions do not drive our results. Overall, our untabulated results in this section confirm that the findings from the main regressions are robust to alternative model specifications.

2.6.4. Alternative Measures of Earnings Quality

In this section, we further divide the $DLLP$ obtained from the main regressions, based on their signs, into negative and positive discretionary accruals, and test their association with bank funding structure. Negative $DLLP$ is of particular interest because of its income-increasing effect on reported earnings. We use $ABSIIDLLP\_A_{it}$ and $ABSIIDLLP\_B_{it}$ to represent the absolute value of income-increasing $DLLP$, and $ABSIDDLLP\_A_{it}$ and $ABSIDDLLP\_B_{it}$ to represent the absolute value of income-decreasing $DLLP$. We report the regression results for the absolute value of income-increasing $DLLP$ in Panel A of Table 2.9. The coefficient on CDL_{it-1} is significantly negative (t-value = -7.58 and -9.13, respectively), indicating that banks with more retail funding engage in less income-increasing earnings manipulation. We report results for income-decreasing $DLLP$ in Panel B of Table 2.9. The coefficient on CDL_{it} is again significantly negative (t-value = -9.71 and -10.86, respectively), lending extra support to the positive role that retail deposits play in improving bank earnings quality.

Next, we consider alternative measures of earnings quality.[13] According to the accounting literature, managers in low earnings quality banks are more likely to use their discretion to meet-or-beat earnings benchmark (Altamuro and Beatty 2010; Kanagaretnam et al. 2010). Thus, banks with greater reliance on retail deposits are expected to be less likely to meet-or-beat earnings benchmarks. We

[13] We also use the likelihood of equity restatements (*RESTATE*) through call report item RIADB507 to represent banks' earnings quality. *RESTATE* is a dummy variable that equals 1 if the item RIADB507 (Restatements due to corrections of material accounting errors and changes in accounting principles) is either positive or negative for the bank in year *t*, and 0 otherwise. But one potential caveat with identifying restatements through item RIADB507 is that some banks may have made direct corrections to the original call reports without reporting errors through item RIADB507. Besides, item RIADB507 also records the changes in bank equity capital due to cumulative effect of changes in accounting principles in addition to corrections of material accounting errors. We estimate a probit model by regressing $RESTATE_{it}$ on CDL_{it-1} and control variables, and find a significantly negative coefficient on CDL_{it-1}, indicating that an increase in retail deposits ratio makes banks less likely to restate banks' equity capital accounts.

use a dummy variable of avoiding losses ($LSAV_{it}$) as an indicator of meeting-or-beating earnings benchmark, and estimate the following probit regression model:

$$LSAV_{it} = \alpha_0 + \alpha_1 CDL_{it-1} + \alpha_2 SIZE_{it} + \alpha_3 SIZE_{it}^2 + \alpha_4 LOAN_{it} + \alpha_5 CAPR_{it} + \alpha_6 EBP_{it} + \alpha_7 LLP_{it-1} + \alpha_8 LIQUID_{it} + \alpha_9 PUBLIC_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.5)$$

where $LSAV_{it}$ is a dummy variable that equals 1 if earnings before taxes scaled by beginning total assets is between 0 and 0.001, and 0 otherwise.[14] Our primary variable of interest is CDL_{it-1} in Equation (2.5). Based on the prediction that retail deposits are associated with lower likelihood of meeting-or-beating earnings benchmarks, we expect the coefficient on CDL_{it-1} to be significantly negative. Following prior research, we control for bank characteristics, such as bank size ($SIZE_{it}$), bank loans ($LOAN_{it}$), leverage ratio ($CAPR_{it}$), earnings before LLP (EBP_{it}), lagged LLP (LLP_{it-1}), liquid assets ($LIQUID_{it}$), listing status ($PUBLIC_{it}$), state and year dummy variables. Standard errors are clustered at the bank level.

Panel C of Table 2.9 reports the probit regression results for our loss avoidance analysis. A negative sign for the coefficient on our primary variable of interest CDL_{it-1} will indicate that banks with greater reliance on retail deposits funding are less likely to manage earnings to avoid losses. We find a negative association between retail deposits ratio and bank loss avoidance, and the coefficient on CDL_{it-1} is significantly negative at the 1% level (t-value = -6.48).

[14] In our sensitivity tests, we have tried the cut off points 0.002, 0.005, 0.01 for the definition of $LSAV_{it}$. The results remain robust to the different cut off points in defining $LSAV_{it}$.

This result supports our prediction that the stable and information-insensitive retail deposit funding diminishes bank managers' incentives of meeting-or-beating earnings benchmarks. The findings relating to control variables are generally consistent with prior studies (e.g., Altamuro and Beatty 2010; Kanagaretnam et al. 2011; Kanagaretnam et al. 2014; Kanagaretnam et al. 2015).

As an alternative measure, the quality of earnings is rated according to the lack of persistence of the discretionary component of LLP and the presence of persistence for the non-discretionary component. To test the impact of bank funding structure on earnings persistence, we estimate the following OLS regression model:

$$EBP_{it+1} = \alpha_0 + \alpha_1 EBP_{it} + \alpha_2 NDLLP_{it} + \alpha_3 DLLP_{it} + \alpha_4 CDL_{it} + \alpha_5 NDLLP_{it} * CDL_{it} + \alpha_6 DLLP_{it} * CDL_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.6)$$

where EBP_{it} is earnings before loan loss provisions, $NDLLP_{it}$ is non-discretionary loan loss provisions, $DLLP_{it}$ is discretionary loan loss provisions, and CDL_{it} is ratio core deposits to total liabilities. The impact of the source of funding can be captured by the interaction terms $NDLLP_{it} * CDL_{it}$ and $DLLP_{it} * CDL_{it}$. We find positive coefficient on $NDLLP_{it} * CDL_{it}$, suggesting that the persistence of the nondiscretionary LLP increases with higher proportion of retail deposits. Since the presence of persistence for the nondiscretionary LLP represents the quality of earnings, the quality of earnings is therefore increased. In contrast, we find negative coefficient on positive coefficient on $DLLP_{it} * CDL_{it}$, the persistence of discretionary LLP is reduced. Since the lack of persistence of the discretionary LLP represents the quality of earnings, the quality of earnings is therefore increased.

Finally, prior literature (e.g., Wahlen, 1994; Kanagaretnam et al. 2003; Kanagaretnam et al. 2004) finds that banks use LLP to smooth income. To do so, banks increase LLP when pre-managed earnings are high, and decrease LLP when pre-managed earnings are low. We are interested in determining whether different funding structures increase or decrease banks' propensity to smooth income. We estimate income smoothing as the contemporaneous relationship between LLP_{it} and EBP_{it} and the effects of CDL_{it-1} on income smoothing by including interaction term $EBP_{it} * CDL_{it-1}$. Following Kanagaretnam et al. (2011), we include factors that have been identified in prior research to control for non-discretionary component of LLP: bank size ($SIZE_{it}$), bank loans ($LOAN_{it}$), change in loans ($\Delta LOAN_{it}$), lagged LLP (LLP_{it-1}), non-performing loans (NPL_{it}), change in non-performing loans (ΔNPL_{it}), capital ratio ($CAPR_{it}$), as well as state and year fixed effects. Standard errors are also clustered at the bank level. Specifically, we estimate the following OLS regression model:

$$LLP_{it} = \alpha_0 + \alpha_1 EBP_{it} + \alpha_2 CDL_{it-1} + \alpha_3 EBP_{it} * CDL_{it-1} + \alpha_4 SIZE_{it} + \alpha_5 SIZE_{it}^2 + \alpha_6 LOAN_{it} + \alpha_7 \Delta LOAN_{it} + \alpha_8 LLP_{it-1} + \alpha_9 NPL_{it} + \alpha_{10} \Delta NPL_{it} + \alpha_{11} CAPR_{it} + ST\_DUMMIES + YEAR\_DUMMIES + \varepsilon_{it} \quad (2.6)$$

The variables of interest are EBP_{it}, and its interaction with CDL_{it-1}. Consistent with the income smoothing argument, we expect a positive coefficient on EBP_{it}. Besides, if retail funding leads to higher earnings quality, we would expect lower income smoothing for banks with high CDL. Thus, we would expect a negative coefficient on the interaction term $EBP_{it} * CDL_{it-1}$. We report the regression results of the association between retail funding structure and income smoothing in Panel D of Table 2.9. Consistent with income smoothing argument, EBP_{it} is positively and significantly associated with LLP_{it}, indicating the prevalence of income smoothing among profitable banks. Furthermore, we find a significantly negative coefficient (t-value = -2.96) on the interaction term $EBP_{it} * CDL_{it-1}$, indicating that an increase in retail deposits ratio reduces the extent to which bank managers use LLP to manipulate earnings. Overall, these results support our prediction that more retail deposits result in greater earnings quality by moderating banks' incentives to smooth earnings.

[Table 2.9]

2.6.5. Crisis Period Analysis

In this section, we provide evidence on whether retail deposit funding helps banks prevent asset deterioration, proxied by large non-performing loans (i.e., NPL_{it} >5%) and large loan charge-offs (CO_{it} >5%), during the recent financial crisis period 2007-2009. The results for the crisis period analysis are reported in Table 2.10, where we report test results for large non-performing loans and loan charge-offs in columns (1) and (2), respectively. We find that CDL_{it-1} is negatively related to large non-performing loans and large loan charge-offs at the 1% level during the crisis period (t-value = -6.09 and -4.72, respectively). Overall, our evidence suggests that banks with higher retail funding ratio had a lower incidence of asset deterioration during the financial crisis, likely due to the less opportunistic financial reporting and lower risk-taking behaviors.

[Table 2.10]

2.6.6. Path Analysis

The primary objective of our study is to examine the direct effects of bank funding structure on bank earnings quality. It is possible that the quality of bank earnings could be constrained by bank lending behaviors and loan types. For example, Dagher and Kazimov (2015) find that retail funding is associated with mortgage lending. To the extent that the estimated discretion in LLP is associated with mortgage loans, the effects of bank funding structure on bank earnings quality could also be indirect through mortgage lending. To explore this possibility, we follow the methodology in Bhattacharya et al. (2012) and employ path analysis to decompose the relation between the source variable (bank funding structure) and the outcome variable (bank earnings quality) into the direct path and the indirect path through mortgage lending. Following Frame et al. (2012), residential mortgages ($MORT_{it}$) include (i) the amount of all permanent loans secured by first liens on 1-to-4 family residential properties, (ii) the amount of all permanent loans secured by junior (i.e., other than first) liens on 1-to-4 family residential properties, and (iii) the amount of outstanding home equity lines.

The results of the path analysis are presented in Figure 2.1, which shows the standardized path estimates, along with the significance of each of the path estimates. The path estimates of CDL_{it-1} to $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ attributable to the direct path are -0.104 and -0.089 respectively. The direct (i.e., unmediated) effects of CDL_{it-1} on $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ are statistically significant at the 1% level, indicating that retail deposits are significantly and negatively associated with discretionary LLP. Meanwhile, the effects of CDL_{it-1} on $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ can also be attributable to an indirect path through the mediating variable $MORT_{it}$. The path estimate of CDL_{it-1} on $MORT_{it}$ is 0.012, suggesting that residential mortgages are funded by retail deposits. The path estimates of $MORT_{it}$ on $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ are -0.069 and -0.084, each significant at the 1% level, implying that residential mortgages are negatively associated with discretion in LLP, and thus positively associated with bank earnings quality. Taken together, the indirect (i.e., mediated) effects of CDL_{it-1} on $ABSDLLP\_A_{it}$ and $ABSDLLP\_B_{it}$ are -0.001 and -0.001.[15] Overall, our results indicate that funding structure has a significant and direct effect on bank earnings quality and that this direct effect of

[15] The indirect effect of CDL_{it-1} on $ABSDLLP\_A_{it}$ = 0.012*(-0.069) = -0.001; and the indirect effect of CDL_{it-1} on $ABSDLLP\_B_{it}$ = 0.012*(-0.084) = -0.001.

funding structure on bank earnings quality is considerably larger than the indirect effect of funding structure on bank earnings quality through mortgage lending.

[Figure 2.1]

2.7. Conclusions

In recent years, the banking sector has seen a rapid change in the funding structure: banks increasingly borrow more from the wholesale market to supplement their traditional retail deposits. This major change in the banking sector has interesting implications for the new bank funding model. In this study, we examine one important implication, that is, how bank funding structure influences banks' earnings quality.

Our empirical results indicate that greater reliance on retail deposits over wholesale funds increases the earnings quality of banks, as more retail deposits are associated with smaller magnitude of earnings management through discretionary *LLP*. This finding holds in all three sub-periods (i.e., pre-crisis, crisis, and post-crisis), and across both small and large banks that receive different intensity of FDICIA internal control regulations. Meanwhile, higher retail deposit ratio also moderates the likelihood of meeting-or-beating earnings benchmark in the form of loss avoidance, and the propensity of income smoothing through *LLP*. Overall, our findings indicate that banks' earnings quality improves with the share of retail deposits in bank liability structure.

We offer the following explanations for our findings. First, compared with wholesale funds, retail deposits are more stable and reliable for banks. Thus, banks relying more on the share of retail deposits may have greater ability of rolling over the funds to generate expected earnings and cash flows. In addition, retail funding reflects a conservative business model, leading to less earnings volatility and lower income smoothing. Second, retail deposits are less sensitive to banks' accounting information and economic policies than wholesale funds. To the extent that some of the retail depositors are relationship lenders, they are better at assessing bank risk via private channels than via financial statements. Thus, bank managers may have fewer incentives to manipulate external financial reports (i.e., income statement) to attract retail deposits. Third, unlike some categories of wholesale funds, retail deposits do not entail covenant restrictions, diminishing bank managers' incentives to engage in earnings or capital management to avoid covenant violations. Finally, banks with higher proportion of retail deposits have higher insurance risk for FDIC, thus FDIC will exercise higher scrutiny over those banks' financial information.

Our primary contribution is that bank funding structure has a significant impact on banks' earnings quality, with retail deposits improving it and wholesale funds decreasing it. This study enhances our understanding about the roles of different suppliers of bank funds in influencing quality of bank accounting information. Our evidence seems to contradict the bright side of wholesale funding advocated by prior literature which posits that sophisticated wholesale financiers impose market discipline (Calomiris and Kahn 1991). In contrast, our findings are more consistent with the argument that retail deposits add to bank funding stability and reduce banks' opportunistic behaviors. In addition, by examining the earnings quality impact for all banks with various funding structures, our study provides timely evidence to assess how the shift from traditional retail deposit funding model to the recent wholesale market funding model influences the financial reporting quality for the banking sector as a whole. This is particularly salient, given that our evidence points to the potential deterioration of banks' earnings quality associated with reliance on wholesale funding. In this regard, we believe that our study provides valuable information to bank regulators and encourages them to monitor and regulate banks with rapid and excessive growth in their wholesale funding.

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Appendix 2

Dependent Variables	
$ABSDLLP\_A_{it}$	The absolute value of discretionary loan loss provisions in year t, calculated as the absolute value of the residuals from the OLS regression of Equation (2.1a).
$ABSDLLP\_B_{it}$	The absolute value of discretionary loan loss provisions in year t, calculated as the absolute value of the residuals from the OLS regression of Equation (2.1b).
$ABSIIDLLP\_A_{it}$	The absolute value of income-increasing discretionary loan loss provisions in year t, calculated as the absolute value of the negative residuals from the OLS regression of Equation (2.1a).
$ABSIIDLLP\_B_{it}$	The absolute value of income-increasing discretionary loan loss provisions in year t, calculated as the absolute value of the negative residuals from the OLS regression of Equation (2.1b).
$ABSIDDLLP\_A_{it}$	The absolute value of income-decreasing discretionary loan loss provisions in year t, calculated as the absolute value of the negative residuals from the OLS regression of Equation (2.1a).
$ABSIDDLLP\_B_{it}$	The absolute value of income-decreasing discretionary loan loss provisions in year t, calculated as the absolute value of the negative residuals from the OLS regression of Equation (2.1b).
$LSAV_{it}$	A dummy variable that equals 1 if earnings before taxes during year t scaled by beginning total assets is in the interval between 0 and 0.001, and 0 otherwise.
Main Variable of Interest	
CDL_{it-1}	Core deposits (or called retail deposits) scaled by total liabilities in year $t-1$.
Bank-Level Variables	
$SIZE_{it}$	Natural logarithm of total assets in year t.
$LOAN_{it}$	Total loans scaled by total assets in year t.
$CAPR_{it}$	Total liabilities scaled by total equity in year t.
EBP_{it}	Earnings before loan loss provisions during year t scaled by beginning total assets.
$LIQUID_{it}$	Liquid assets scaled by total assets in year t.
LLP_{it}	Loan loss provisions scaled by total assets in year t.
$PUBLIC_{it}$	A dummy variable that equals 1 for a public bank, and 0 otherwise.
CL_{it}	Commercial and industrial loans scaled by total loans in year t.
RL_{it}	Real estate loans scaled by total loans in year t.
IL_{it}	Individual loans scaled by total loans in year t.
AL_{it}	Agriculture loans scaled by total loans in year t.
DL_{it}	Loans to depository institutions scaled by total loans in year t.
CO_{it}	Loan charge-offs scaled by total loans in year t.
NPL_{it}	Non-performing loans scaled by total loans in year t.
ΔNPL_{it}	Change in non-performing loans during year t scaled by beginning total loans.
$\Delta LOAN_{it}$	Change in loans during year t scaled by beginning total assets.

LLA_{it}	Loan loss allowance scaled by total loans in year t.
$SIZE_{it}^2$	Square of natural logarithm of total assets in year t.
$TIER1_{it}$	Tier 1 capital scaled by total risk-weighted assets in year t.
$ASGR_{it}$	Growth in total assets during year t.
$BIG4_{it}$	A dummy variable that equals 1 if the bank is audited by a big 4 auditor, and 0 otherwise.
AGE_{it}	Natural logarithm of 1 plus the number of years since the bank became active.
$MORT_{it}$	Residential mortgages scaled by total assets in year t. Residential mortgages include the amount of all permanent loans secured by first liens on 1-to-4 family residential properties, the amount of all permanent loans secured by junior (i.e., other than first) liens on 1-to-4 family residential properties, and the amount of outstanding home equity lines.
Macro-Level Variables	
$POST_{it}$	A dummy variable that equals 1 for years 2008-2010, and 0 for years 2005-2007.
ΔST_GDP_{it}	Change in GDP of the state of the bank' headquarter during year t.
ΔST_HPI_{it}	Change in the return of the house price index of the state of the bank' headquarter during year t.
ΔST_UR_{it}	Change in unemployment rate of the state of the bank' headquarter during year t.

Table 2.1 Descriptive Statistics

	N	Mean	Median	Q1	Q3	Std. Dev.
$ABSDLLP\_A_{it}$	146,364	0.002	0.001	0.000	0.002	0.002
$ABSDLLP\_B_{it}$	146,364	0.001	0.001	0.000	0.001	0.002
$ABSIIDLLP\_A_{it}$	100,477	0.001	0.001	0.001	0.002	0.001
$ABSIIDLLP\_B_{it}$	81,517	0.001	0.001	0.000	0.001	0.001
$ABSIDDLLP\_A_{it}$	45,887	0.003	0.001	0.000	0.003	0.004
$ABSIDDLLP\_B_{it}$	64,847	0.001	0.001	0.000	0.001	0.002
$LSAV_{it}$	146,364	0.063	0.000	0.000	0.000	0.242
CDL_{it-1}	146,364	0.812	0.832	0.748	0.897	0.112
$SIZE_{it}$	146,364	11.530	11.434	10.699	12.244	1.184
$LOAN_{it}$	146,364	0.611	0.628	0.519	0.720	0.151
$CAPR_{it}$	146,364	0.104	0.096	0.082	0.116	0.033
EBP_{it}	146,364	0.006	0.005	0.003	0.007	0.005
LLP_{it-1}	146,364	0.002	0.001	0.000	0.002	0.003
$LIQUID_{it}$	146,364	0.058	0.043	0.030	0.066	0.048
$PUBLIC_{it}$	146,364	0.023	0.000	0.000	0.000	0.149
$MORT_{it}$	146,364	0.181	0.157	0.087	0.242	0.130

Table 2.1 provides the descriptive statistics for all variables used in the analysis. Continuous variables are winsorized at top and bottom 1%. Definitions of the variables are provided in Appendix 2.

Table 2.2 Pearson Correlation Matrix

Panel A: Pearson Correlation between Variables Used in the Regressions

		2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	$ABSDLLP\_A_{it}$	**0.67**	**1.00**	**0.39**	**1.00**	**0.80**	0.01	**-0.14**	**0.03**	**0.03**	**0.04**	**0.07**	**0.29**	**0.08**	**-0.01**
2	$ABSDLLP\_B_{it}$		**0.47**	**1.00**	**0.72**	**1.00**	**0.03**	**-0.11**	**-0.01**	-0.00	**0.04**	**0.03**	**0.26**	**0.07**	**-0.01**
3	$ABSIIDLLP\_A_{it}$			**0.46**	0.000	**-0.05**	**0.04**	**-0.14**	**0.06**	**-0.01**	**0.09**	**-0.07**	**0.13**	**0.12**	0.00
4	$ABSIIDLLP\_B_{it}$				**0.24**	0.00	**0.05**	**-0.07**	**-0.03**	**-0.05**	**0.05**	**-0.04**	**0.22**	**0.09**	**-0.02**
5	$ABSIDDLLP\_A_{it}$					**0.79**	**0.03**	**-0.17**	**0.03**	**0.04**	**0.04**	**0.12**	**0.32**	**0.09**	**-0.02**
6	$ABSIDDLLP\_B_{it}$						**0.01**	**-0.15**	**0.01**	**0.04**	**0.03**	**0.07**	**0.30**	**0.06**	-0.01
7	$LSAV_{it}$							**-0.03**	**-0.07**	**-0.02**	**0.01**	**-0.15**	**0.04**	**0.06**	**-0.01**
8	CDL_{it-1}								**-0.37**	**-0.24**	**0.02**	**0.01**	**-0.16**	**0.07**	**-0.08**
9	$SIZE_{it}$									**0.24**	**-0.16**	**0.13**	**0.09**	**-0.16**	**0.23**
10	$LOAN_{it}$										**-0.24**	**-0.17**	**0.07**	**-0.19**	**0.07**
11	$CAPR_{it}$											**0.10**	0.00	**-0.03**	**-0.04**
12	EBP_{it}												**-0.02**	**-0.08**	**-0.01**
13	LLP_{it-1}													**0.07**	**0.01**
14	$LIQUID_{it}$														**-0.04**
15	$PUBLIC_{it}$														

Panel B: Pearson Correlation between Time Series of Core Deposits and Wholesale Funds

		2	3	4	6	7	8
1	CD_{it+1}	**0.97**	**0.93**	**0.84**			
2	CD_{it}		**0.95**	**0.88**			
3	CD_{it-1}			**0.94**			
4	CD_{it-2}						
5	WF_{it+1}				**0.94**	**0.84**	**0.75**
6	WF_{it}					**0.93**	**0.83**
7	WF_{it-1}						**0.92**
8	WF_{it-2}						

Table 2.2 provides the Pearson correlation Matrix. Panel A provides the Pearson correlation for variables used in the regressions. Panel B provides the Pearson correlation for time series of core deposits (unscaled) and wholesale funds (unscaled). Continuous variables are

winsorized at top and bottom 1%. Bold numbers are significant at the 5% level, based on a two-tailed test. Definitions of the variables are provided in Appendix 2.

Table 2.3 Univariate Tests

	Low *CDL* Bank-Years	High *CDL* Bank-Years	Difference	Test of Difference (t-Statistic)
Mean $ABSDLLP\_A_{it}$	0.0018	0.0014	0.0004	33.76***
Mean $ABSDLLP\_B_{it}$	0.0013	0.0010	0.0003	27.03***
Mean $ABSIIDLLP\_A_{it}$	0.0013	0.0011	0.0002	31.89***
Mean $ABSIIDLLP\_B_{it}$	0.0011	0.0010	0.0001	13.03***
Mean $ABSIDDLLP\_A_{it}$	0.0029	0.0021	0.0008	22.99***
Mean $ABSIDDLLP\_B_{it}$	0.0015	0.0011	0.0004	25.18***
Mean $LSAV_{it}$	0.0691	0.0560	0.0131	10.33***

Table 2.3 compares the differences in the mean values of earnings quality measures between banks with low *CDL* and those with high *CDL*. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Definitions of the variables are provided in Appendix 2.

Table 2.4 Estimation of Discretionary Loan Loss Provisions (*DLLP*)

Panel A: Estimation of *DLLP* Using Equation (2.1a)

	Dep. Var. = LLP_{it} (1)	
Variable	Coefficient	t-Statistic
Intercept	0.0004	1.67*
ΔNPL_{it+1}	0.004	3.26**
ΔNPL_{it}	0.049	36.54***
ΔNPL_{it-1}	0.044	38.75***
ΔNPL_{it-2}	0.031	33.25***
$SIZE_{it-1}$	0.0001	4.21***
$\Delta LOAN_{it}$	0.002	21.48***
ΔST_GDP_{it}	-0.00003	-6.06 ***
ΔST_HPI_{it}	-0.00002	-18.93***
ΔST_UR_{it}	0.0001	4.07***
State Fixed Effects	Yes	
Year Fixed Effects	Yes	
N	148,803	
Adj. R^2	0.171	

Panel B: Estimation of *DLLP* Using Equation (2.1b)

	Dep. Var. = LLP_{it} (1)	
Variable	Coefficient	t-Statistic
Intercept	0.0002	1.36
$LOAN_{it}$	0.001	10.29***
$\Delta LOAN_{it}$	0.002	31.31***
LLA_{it-1}	-0.022	-14.81***
CO_{it}	0.776	122.23***
NPL_{it-1}	0.020	22.22***
ΔNPL_{it}	0.036	28.01***
CL_{it}	-0.001	-5.18***
RL_{it}	-0.001	-9.86***
IL_{it}	-0.0001	-0.36
AL_{it}	-0.001	-9.31***
DL_{it}	-0.012	-5.12***
State Fixed Effects	Yes	
Year Fixed Effects	Yes	
N	166,900	
Adj. R^2	0.594	

Table 2.4 provides the OLS regression results of estimating *DLLP*, with Panel A using Equation (2.1a) and Panel B using Equation (2.1b), respectively. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based

on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.5 Earnings Quality and Bank Funding Structure

Panel A: Regression of $ABSDLLP\_A_{it}$

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_A_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.011	15.28***	0.010	6.88***
CDL_{it-1}	-0.001	-11.16***	-0.002	-11.83***
$SIZE_{it}$	-0.001	-12.78***	-0.002	-6.67***
$SIZE_{it}^2$	0.0001	11.68***	0.0001	7.79***
$LOAN_{it}$	0.0001	1.16	0.001	8.06***
$CAPR_{it}$	0.00002	6.28***	0.0001	15.39***
EBP_{it}	0.048	13.74***	0.048	11.88***
LLP_{it-1}	0.159	32.77***	0.089	21.95***
$LIQUID_{it}$	0.001	4.98***	0.003	14.06***
$PUBLIC_{it}$	-0.0002	-4.57***	-0.0003	-2.49**
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
Bank Fixed Effects			Yes	
N	146,364		146,364	
Adj. R^2	0.172		0.256	

Panel B: Regression of $ABSDLLP\_B_{it}$

	Dep. Var. = $ABSDLLP\_B_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.007	14.34***	0.005	5.24***
CDL_{it-1}	-0.001	-13.89***	-0.001	-9.77***
$SIZE_{it}$	-0.001	-10.37***	-0.001	-6.61***
$SIZE_{it}^2$	0.00003	8.97***	0.00005	7.40***
$LOAN_{it}$	-0.0002	-3.90***	0.0001	1.20
$CAPR_{it}$	0.0001	3.56***	0.0005	11.54***
EBP_{it}	0.016	8.55***	0.019	8.06***
LLP_{it-1}	0.108	43.11***	0.068	26.56***
$LIQUID_{it}$	0.0004	2.95***	0.001	9.29***
$PUBLIC_{it}$	-0.0001	-2.63***	-0.0002	-3.01***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
Bank Fixed Effects			Yes	
N	146,364		146,364	
Adj. R^2	0.127		0.240	

Table 2.5 provides the regression results for the baseline analysis. Panel A provides the regression results of *DLLP* on *CDL* using Equation (2.2a). Panel B provides the regression results of *DLLP* on *CDL* using Equation (2.2b). Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test.

Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.6 Instrumental Variable Analysis of Earnings Quality and Bank Funding Structure

Panel A: First-Stage Regression Results to Predict *CDL*

	Dep. Var. = CDL_{it} (1)	
Variable	Coefficient	t-Statistic
Intercept	0.693	11.80***
AGE_{it}	0.021	22.62***
$SIZE_{it}$	0.019	1.96**
$SIZE_{it}^2$	-0.002	-3.84***
$LOAN_{it}$	-0.063	-10.00***
$CAPR_{it}$	-0.002	-6.85***
EBP_{it}	-0.618	-4.17***
LLP_{it-1}	-1.341	-8.51***
$LIQUID_{it}$	0.245	16.62***
$PUBLIC_{it}$	-0.001	-0.17
State Fixed Effects	Yes	
Year Fixed Effects	Yes	
Type Fixed Effects	Yes	
N	146,364	
Adj. R^2	0.352	

Panel B: Second-Stage Regression Results for *DLLP*

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.014	16.28***	0.009	16.46***
$PRED\_CDL_{it}$	-0.004	-8.51***	-0.003	-10.30***
$SIZE_{it}$	-0.001	-12.54***	-0.001	-10.11***
$SIZE_{it}^2$	0.0001	10.98***	0.00002	8.08***
$LOAN_{it}$	-0.0002	-2.60***	-0.0004	-7.50***
$CAPR_{it}$	0.00002	4.13***	0.000003	1.18
EBP_{it}	0.045	13.06***	0.014	7.48***
LLP_{it-1}	0.154	31.53***	0.104	40.32***
$LIQUID_{it}$	0.002	7.45***	0.001	6.91***
$PUBLIC_{it}$	-0.0002	-4.54***	-0.0001	-2.62***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	146,364		146,364	
Adj. R^2	0.171		0.125	

Table 2.6 provides the regression results for the instrumental variable analysis. Panel A provides the first-stage regression results of predicting *CDL* using Equation (2.3). Panel B provides the second-stage regression results of *DLLP* on predicted *CDL*. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively,

based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.7 Change in Deposit Insurance Limit, Bank Funding Structure, and Earnings Quality

	Dependent Variable = $ABSDLLP\_A_{it}$ (1)		Dependent Variable = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.013	8.43***	0.007	7.34***
CDL_{it-1}	-0.001	-3.57***	-0.0004	-4.46***
$CDL_{it-1} * POST_{it}$	-0.002	-5.76***	-0.002	-6.49***
$SIZE_{it}$	-0.001	-5.44***	-0.001	-3.69***
$SIZE_{it}^2$	0.00005	4.99***	0.00002	3.06***
$LOAN_{it}$	-0.0001	-1.13	-0.0001	-0.75
$CAPR_{it}$	0.00004	4.76***	0.00001	2.68***
EBP_{it}	0.030	3.86***	0.002	0.46
LLP_{it-1}	0.204	16.77***	0.131	19.05***
$LIQUID_{it}$	0.001	2.28**	0.0005	1.51
$PUBLIC_{it}$	-0.0001	-1.52	-0.00004	-0.70
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	32,462		32,462	
Adj. R^2	0.213		0.181	

Table 2.7 provides the OLS regression results of *DLLP* on lagged *CDL* using Equations (2.4a) and (2.4b). Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.8 Earnings Quality and Bank Funding Structure Using Subsamples

Panel A: Pre-Crisis Subsample

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.011	14.12***	0.007	14.61***
CDL_{it-1}	-0.001	-8.21***	-0.001	-10.49***
$SIZE_{it}$	-0.002	-12.35***	-0.001	-11.48***
$SIZE_{it}^2$	0.0001	11.30***	0.00003	10.09***
$LOAN_{it}$	0.0003	3.94***	-0.0001	-2.98***
$CAPR_{it}$	0.000004	1.05	-0.000004	-1.76
EBP_{it}	0.064	18.08***	0.028	15.18***
LLP_{it-1}	0.155	26.46***	0.099	34.82***
$LIQUID_{it}$	0.001	3.06***	0.001	2.81***
$PUBLIC_{it}$	-0.0002	-5.55***	-0.0001	-2.37**
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	109,568		109,568	
Adj. R^2	0.145		0.097	

Panel B: Crisis Subsample

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.013	5.56***	0.006	4.08***
CDL_{it-1}	-0.002	-5.63***	-0.001	-7.39***
$SIZE_{it}$	-0.001	-4.03***	-0.001	-2.30**
$SIZE_{it}^2$	0.0001	3.71***	0.00002	1.87*
$LOAN_{it}$	-0.0003	-1.47	0.0001	0.95
$CAPR_{it}$	0.0001	6.18***	0.00004	4.30***
EBP_{it}	0.035	3.41***	0.001	0.17
LLP_{it-1}	0.204	14.30***	0.133	16.02****
$LIQUID_{it}$	0.001	1.73*	0.001	1.35
$PUBLIC_{it}$	-0.0002	-1.04	-0.00004	-0.41
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	19,010		19,010	
Adj. R^2	0.167		0.143	

Panel C: Post-Crisis Subsample

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.010	5.35***	0.001	0.50
CDL_{it-1}	-0.001	-5.33***	-0.001	-6.36***

$SIZE_{it}$	-0.001	-4.40***	0.0001	0.72
$SIZE_{it}^2$	0.00005	4.10***	-0.00001	-0.97
$LOAN_{it}$	-0.0003	-1.57	-0.0002	-1.95**
$CAPR_{it}$	0.0001	7.21***	0.0001	6.93***
EBP_{it}	0.006	0.65	-0.009	-1.71
LLP_{it-1}	0.111	14.34***	0.086	17.33***
$LIQUID_{it}$	0.001	3.66***	0.001	2.93***
$PUBLIC_{it}$	-0.0002	-1.47	-0.0001	-1.67*
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	17,786		17,786	
Adj. R^2	0.143		0.127	

Panel D: FDICIA Banks Subsample

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	-0.019	-1.49	-0.011	-1.31
CDL_{it-1}	-0.001	-3.86***	-0.001	-3.05***
$SIZE_{it}$	0.003	1.43	0.002	1.43
$SIZE_{it}^2$	-0.0001	-1.39	-0.0001	-1.45
$LOAN_{it}$	0.001	4.82***	0.0002	1.35
$CAPR_{it}$	0.000005	0.34	0.00002	1.77
EBP_{it}	0.106	9.04***	0.053	8.75***
LLP_{it-1}	0.207	13.53***	0.090	12.01***
$LIQUID_{it}$	0.002	1.95*	0.002	3.00***
$PUBLIC_{it}$	-0.0002	-2.76***	-0.0001	-2.74***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	9,668		9,668	
Adj. R^2	0.357		0.216	

Panel E: Non-FDICIA Banks Subsample

	Dep. Var. = $ABSDLLP\_A_{it}$ (1)		Dep. Var. = $ABSDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.012	11.93***	0.008	11.35***
CDL_{it-1}	-0.001	-10.92***	-0.001	-13.44***
$SIZE_{it}$	-0.002	-9.67***	-0.001	-8.28***
$SIZE_{it}^2$	0.0001	8.73***	0.00004	7.22***
$LOAN_{it}$	-0.00005	-0.75	-0.0002	-4.58***
$CAPR_{it}$	0.00003	6.98***	0.00001	3.21***
EBP_{it}	0.040	11.72***	0.013	6.32***
LLP_{it-1}	0.150	30.85***	0.108	40.58***
$LIQUID_{it}$	0.001	4.26***	0.0003	2.07***
$PUBLIC_{it}$	-0.0001	-2.12**	-0.00004	-0.73

State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	136,696		136,696	
Adj. R^2	0.155		0.122	

Table 2.8 provides the OLS regression results of *DLLP* on *CDL* using Equations (2.2a) and (2.2b). Panels A, B, and C provide the results for pre-crisis, crisis, and post-crisis periods, respectively. Panels D and E provide the results for banks that are subject to FDICIA internal control regulations, and banks that are free from FDICIA internal control regulations, respectively. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.9 Alternative Measures of Earnings Quality and Bank Funding Structure

Panel A: Regression Results for Income-Increasing *DLLP*

	Dep. Var. = $ABSIIDLLP\_A_{it}$ (1)		Dep. Var. = $ABSIIDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.004	11.07***	0.006	11.39***
CDL_{it-1}	-0.0003	-7.58***	-0.001	-9.13***
$SIZE_{it}$	-0.0003	-6.01***	-0.001	-7.22***
$SIZE_{it}^2$	0.00001	6.01***	0.00002	6.60***
$LOAN_{it}$	-0.0003	-11.90***	-0.0005	-9.45***
$CAPR_{it}$	-0.00001	-8.67***	-0.0001	-3.10***
EBP_{it}	-0.015	-12.72***	-0.009	-4.32***
LLP_{it-1}	0.006	3.06***	0.080	25.99***
$LIQUID_{it}$	0.0002	2.20**	0.0002	1.39
$PUBLIC_{it}$	-0.0001	-4.68***	-0.0001	-3.41***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	100,477		81,517	
Adj. R^2	0.304		0.103	

Panel B: Regression Results for Income-Decreasing *DLLP*

	Dep. Var. = $ABSIDDLLP\_A_{it}$ (1)		Dep. Var. = $ABSIDDLLP\_B_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.019	12.06***	0.007	10.74
CDL_{it-1}	-0.002	-9.71***	-0.001	-10.86
$SIZE_{it}$	-0.003	-10.37***	-0.001	-7.84
$SIZE_{it}^2$	0.0001	9.06***	0.0003	6.17
$LOAN_{it}$	0.0002	1.20	0.0001	1.66
$CAPR_{it}$	0.0001	10.17***	0.00003	7.34
EBP_{it}	0.094	15.52***	0.035	12.32
LLP_{it-1}	0.207	29.21***	0.119	31.91
$LIQUID_{it}$	0.002	4.48***	0.001	3.05
$PUBLIC_{it}$	-0.0003	-2.46**	-0.00005	-0.80
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	45,887		64,847	
Adj. R^2	0.212		0.176	

Panel C: Regression Results for Loss Avoidance

	Dep. Var. = $LSAV_{it}$ (1)	
Variable	Coefficient	t-Statistic
Intercept	3.647	6.82***

CDL_{it-1}	-0.479	-6.48***
$SIZE_{it}$	-0.561	-6.15***
$SIZE_{it}^2$	0.016	4.15***
$LOAN_{it}$	-0.568	-10.22***
$CAPR_{it}$	0.007	2.71***
EBP_{it}	-51.458	-31.61***
LLP_{it-1}	9.923	5.88***
$LIQUID_{it}$	-0.090	-0.65
$PUBLIC_{it}$	-0.025	-0.46
State Fixed Effects	Yes	
Year Fixed Effects	Yes	
N	146,364	
Pseudo. R^2	0.104	

Panel D: Regression Results for Income-Smoothing Test

	Dep. Var. = LLP_{it} (1)	
Variable	Coefficient	t-Statistic
Intercept	0.009	9.69***
EBP_{it}	0.193	6.64***
CDL_{it-1}	-0.001	-4.99***
$EBP_{it} * CDL_{it-1}$	-0.101	-2.96***
$SIZE_{it}$	-0.002	-11.46***
$SIZE_{it}^2$	0.000	11.03***
$LOAN_{it}$	0.002	18.48***
$\Delta LOAN_{it}$	0.002	10.20***
LLP_{it-1}	0.254	38.89***
NPL_{it-1}	0.017	13.84***
ΔNPL_{it}	0.0002	1.97**
$CAPR_{it}$	0.0001	14.16***
State Fixed Effects	Yes	
Year Fixed Effects	Yes	
N	146,364	
Adj. R^2	0.216	

Table 2.9 provides the regression results using alternative measures of earnings quality. Panels A and B provide the OLS regression results of income-increasing and income-decreasing *DLL* on core deposits, respectively. Panel C provides the probit regression results of loss avoidance on core deposits using Equation (2.5). Panel D provides the OLS regression results of income smoothing on core deposits using Equation (2.6). Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Table 2.10 Crisis Period Accounting Outcomes and Bank Funding Structure

	Dep. Var. = Large NPL_{it} (1)		Dep. Var. = Large CO_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	2.156	1.64	6.873	1.56
CDL_{it-1}	-0.866	-6.09***	-2.218	-4.72***
$SIZE_{it}$	-0.609	-2.90***	-1.732	-2.48**
$SIZE_{it}^2$	0.025	2.94***	0.068	2.44**
$LOAN_{it}$	-0.163	-1.26	-0.986	-2.51**
$CAPR_{it}$	0.058	12.23***	0.047	2.97***
EBP_{it}	-21.299	-9.81***	19.602	1.30
LLP_{it-1}	54.601	17.85***	23.790	2.29**
$LIQUID_{it}$	0.182	0.62	1.970	2.04**
$PUBLIC_{it}$	-0.007	-0.09	-0.119	-0.31
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	21,043		21,043	
Pseudo. R^2	0.288		0.287	

Table 2.10 provides the probit regression results of large non-performing loans and charge-offs on CDL, respectively. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 2.

Figure 2.1 Path Analysis of the Relations among Funding Structure, Mediating Variable, and Earnings Quality

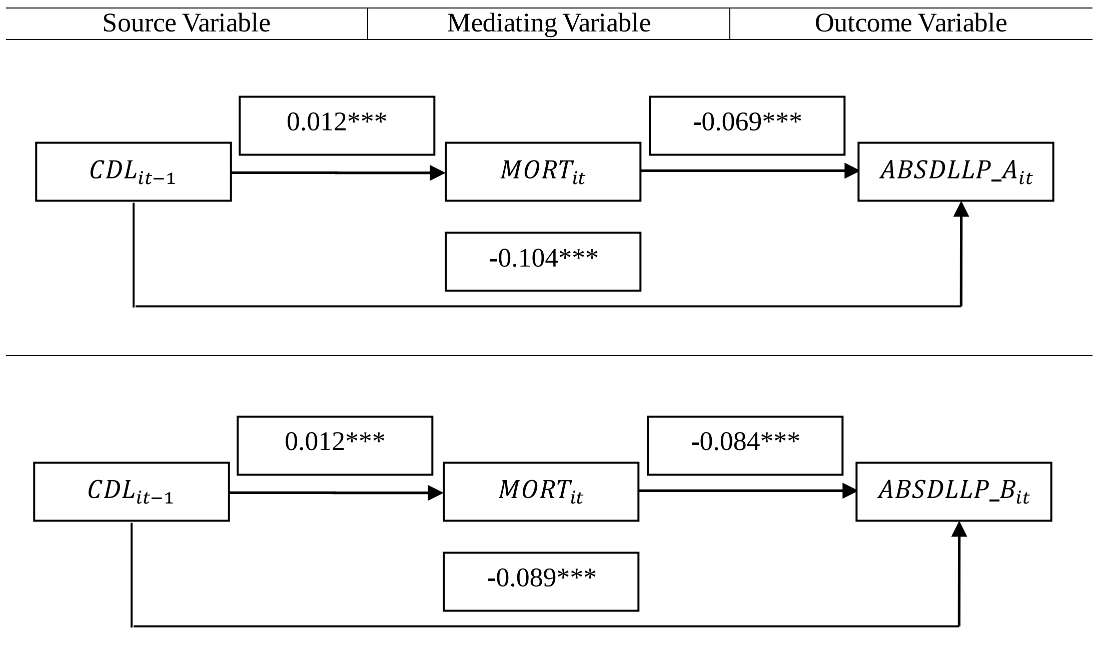

Figure 2.1 provides the path analysis of the relations between the funding structure variable *CDL* and the bank earnings quality variable *ABSDLLP*: the direct effect between the two variables, and the indirect effect through mortgage lending (*MORT*). *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Definitions of the variables are provided in Appendix 2.

Chapter 3: Economic and Monetary Policy Uncertainties and Bank Opacity

3.1. Introduction

This paper examines the relationship between economic/monetary policy uncertainty and bank earnings opacity. Policy uncertainty has important economic consequences, as the content and timing of the police changes can increase the uncertainty over the profitability of businesses. Although a large body of evidence suggests that policy uncertainty could affect the investment decisions in businesses (e.g., Kang et al. 2014; Gulon and Ion 2016), little research has investigated its impact on accounting practices. Therefore, we compliment prior research by exploring whether managers opportunistically manage bank earnings in periods of policy uncertainty. We hypothesize that economic and monetary policy uncertainties are potentially associated with a higher level of distortion in financial reporting for two reasons. First, management's opportunities for distorting earnings are greater during high policy uncertainty periods. This is because policy uncertainty increases the information asymmetry between managers and external stakeholders, making it more difficult for investors and creditors to assess the existence and magnitude of the hidden "adverse news." To the extent that investors and creditors are unable to see through the businesses' true underlying economic conditions, managers should be more likely to withhold "adverse news" that would otherwise adversely affect their self-interest. Second, management's incentives for distorting earnings are also greater in high policy uncertainty periods. Policy uncertainty increases the fluctuation in businesses' earnings and cash flows, thereby managers who prefer more stable income are more likely to smooth earnings or take a big bath in earnings.

We investigate the implications of economic and monetary policy uncertainty for financial reporting behaviors in the banking sector for two reasons. First, the banking industry suffered the most in the 2008 financial crisis, and many of economic and monetary policies (e.g., the Quantitative Easing, the Troubled Asset Relief Program, and the Dodd-Frank Act) were introduced since the crisis to stabilize and regulate the banking industry. Thus, policy uncertainty should have the greatest influence on the banking industry. Second, financial reports are the most important means of communication between banks and external stakeholders. However, prior accounting literature documents that managers may distort the information embedded in revenues and expenses to obtain a desired financial outcome (Beaudoin et al. 2015), and that managerial incentives associated with accounting benefits and financial reporting quality arguably contribute to the crisis and subsequent bank failures (Jin et al. 2011; Kothari and Lester 2012).

The 2007-2009 financial crisis brought many bank failures and a severe economic downturn in the U.S., followed by far too slow recovery in GDP growth and employment rates. In an attempt to explain the causes of the financial crisis and the weak economic recovery, researchers have blamed economic policies that lacked clear and predictable frameworks for intervention. According to Taylor (2014), "monetary policy, regulatory policy, and fiscal policy each became more discretionary, more interventionist, and less predictable in the years leading up to the crisis, and for this reason policy should at least be on the list of possible causes of the crisis and severity of the recession.... Thus, the shift in policy which began around 2004, largely continued, and it has now also become a likely cause of the slow recovery."

Indeed, the policy uncertainty was unprecedented during this time period. In terms of conventional monetary policy, the Federal Reserve (hereafter, the Fed) held an unusually low interest rate at the beginning the century compared with that of the previous two decades (Taylor 2007). However, the Fed exhausted the influence of this conventional monetary policy during the 2008 financial crisis when the Fed Funds rate reached its lower bound of barely above zero. In order to prevent financial conditions from deteriorating further, the Fed subsequently initiated several rounds of unconventional monetary policy measures known as Quantitative Easing (QE).[16] These measures include large-scale purchases of long-term Treasuries, agency bonds, and mortgage-backed securities by the Fed to expand banks' liquidity. Unpredictable changes in regulatory policies also took place. For example, before the crisis, regulators from the New York Fed allowed financial institutions to take on excessive risks that deviated from the safety and

[16] Bernanke and Reinhart (2004) define the QE as "increasing the size of the central bank's balance sheet beyond the level needed to set the short-term policy rate at zero."

soundness rules (Taylor 2014). During the crisis, the U.S. government introduced a series of ad hoc bailouts, trampling bankruptcy laws and rejecting predictable rules-based policies, thereby adding to the risk of uncertainty (Taylor 2014). The policy uncertainty continued as the Troubled Asset Relief Program (TARP) was rolled out, but then drastically altered after it was enacted. The TARP represented the largest government bailout in U.S. history, with its centerpiece being the Capital Purchase Program (CPP) that purchased equity in troubled financial institutions. Although the amount was determined on October 14, 2008, it was ultimately lowered to $218 billion by the U.S. Treasury in March 2009. Since then, many new changes on the regulatory front have been made, including the passage of the Dodd-Frank Act.[17] Similarly, fiscal policies moved in a more discretionary direction, including the large stimulus package and the Car Allowance Rebate System (CARS) program in 2009 (Taylor 2014).[18]

Although many of these policies targeted financial institutions, to our knowledge no study has explored the role of economic and monetary policy uncertainty on financial reporting issues in the banking industry. Thus, we aim to fill this gap in the literature. Using the banking industry as our setting, we examine whether banks are more likely to make financial reports more opaque

[17] The Dodd-Frank Act, passed into law in July 2010, has been described as the most comprehensive reform of financial regulations in the U.S. since the Great Depression. The act covers sixteen titles and addresses a variety of issues, ranging from promoting financial stability to reinforcing corporate governance (SEC 2010).

[18] The CARS program was a $3 billion U.S. federal scrappage program intended to provide economic incentives to U.S. residents to purchase a new, more fuel-efficient vehicle when trading in a less fuel-efficient vehicle.

when uncertainties in economic and monetary policies are high. Following Gulen and Ion (2016), we define policy uncertainty as the amount of uncertainty regarding the timing, content, and potential impact of policy decisions that alter the environment in which institutions operate. While it is a challenging task to precisely measure the amount of policy uncertainty, Baker et al. (2016) provide a relatively reliable way of quantifying policy uncertainty. The economic policy uncertainty (*EPU*) index constructed by Baker et al. (2016) is a weighted average of three components. The first component is derived from a count of newspaper articles containing key terms related to policy uncertainty. The second component measures uncertainty about future changes in the tax code using the scheduled expiration of federal tax code provisions. The third component measures the dispersion among economic forecasters over important macroeconomic variables (e.g., the consumer price index, governmental purchase of goods and services) to proxy for uncertainty about fiscal and monetary policy. In a visual inspection of the Baker et al. (2016) index, Gulen and Ion (2016) find that this index matches well with "events that are ex ante likely to cause increases in policy uncertainty, such as debates over the stimulus package, the debt ceiling dispute, major federal elections, wars, and financial crashes". To measure uncertainty over monetary policy, we use the monetary policy uncertainty (*MPU*) index by Baker et al. (2016), which quantifies the volume of news discussing monetary policy related uncertainty. Our main measure of bank financial reporting distortion is the magnitude of discretionary loan loss provisions because the loan loss provisioning is a common tool for opportunistic earnings management. We also use the magnitude of income-increasing and income-decreasing discretionary loan loss provisions, the likelihood of reporting small earnings increases, and low level of accounting conservatism as alternate measures for poor bank financial reporting quality. We collect bank-level accounting data from the call reports available from the Federal Reserve Bank of Chicago's website. Our whole sample consists of 10,743 U.S. banks with 398,803 bank-quarter observations from 2000 to 2012, a period that covers both the years before the financial crisis and the years after the financial crisis.

We summarize our key findings as follows. We find that economic and monetary policy uncertainties have a strong positive relationship with the magnitude of discretionary loan loss provisions. Our results hold not only for the pre-crisis period (2000-2006), but also for the post-crisis period (2007-2012). And the relationship remains significant after controlling for classic bank-level and macro-level earnings management predictors and even after controlling for volatilities of bank earnings and net interest margin. To alleviate endogeneity concerns, we draw on the instrumental variable specification, in which we use the partisan polarization in the U.S. Senate as an instrument for policy uncertainty. We also find that the positive association between policy uncertainty and discretionary loan loss provisioning is only pronounced in banks that are not audited by an external auditor. This finding is consistent with the argument that auditing acts as an effective governance mechanism that reduces banks' incentives to distort their financial reports. In additional tests, we document that policy uncertainty is positively associated with both income-increasing and income-decreasing discretionary loan loss provisions. Finally, we document that policy uncertainty increases the likelihood of banks engaging in just meeting or beating earnings benchmark and reduces the degree of accounting conservatism that requires the timely recognition of earnings decreases.

Our study contributes to the literature in several important ways. First, we provide evidence that economic and monetary policy uncertainties reduce the transparency of banks' financial reporting. In other words, the opaque framework of economic and monetary policies reduces the predictability of financial performance and increases the risk of unethical financial reporting practices. This result may explain the serious financial reporting problems of the banking sector related to the financial crisis and should be of great interest to policymakers. The policymakers, including the Federal Reserve Bank, may consider reconstructing their policy framework, as unpredictable shifts in economic and monetary policies may harm rather than benefit the financial institutions. Second, our study contributes to the investigation of the relationship between economic policy and corporate decision making. Our findings support the growing awareness among researchers that institutional policy changes matter in financial decisions and that managers may take advantage of unpredictable policy changes to mislead outsiders through external financial reporting. In this regard, our research also contributes to the determinants related to unethical business practices.

The rest of the paper is organized as follows. In section 3.2, we discuss the literature and develop our hypotheses on the relationship between economic and monetary policy uncertainties. In section 3.3, we present the research design and describe our sample. In section 3.4, we discuss our empirical results. In section 3.5, we provide additional analyses, including the use of alternative measures of financial reporting quality and additional control variables. In section 3.6, we draw our conclusions.

3.2. Literature Review and Hypothesis Development

Within the past decade, the U.S. has seen unprecedented policy uncertainty. Although many of these policies targeted financial institutions (e.g., the QE, the TARP, and the Dodd-Frank Act), it is surprising that, to our knowledge, little research has explored the implications of economic and monetary policy uncertainty for the banking industry and, in particular, bank financial reporting practices. Prior studies on policy uncertainty have focused on its relationship with macroeconomic indicators or corporate investment in non-banking industries. For example, Baker et al. (2016) investigate whether economic policy uncertainty intensified the financial crisis and weakened the recovery. They find that policy uncertainty increased after the onset of the financial crisis and that policy uncertainty foreshadowed sizable declines in output, investment, and employment, suggesting that policy uncertainty impeded the recovery from the recession. Brogaard and Detzel (2015) find that the contemporaneous market return (volatility) decreases (increases) with economic policy uncertainty. According to Kang et al. (2014), economic policy uncertainty in interaction with firm-level uncertainty depresses firms' investment decisions: the effect of economic policy uncertainty on firm-level investment is greater during a recession for firms with greater uncertainty. Similarly, Gulen and Ion (2016) document a strong negative relationship between policy uncertainty and capital investments. In addition, they find evidence that the relationship between policy uncertainty and capital investment is significantly stronger for firms with a higher degree of investment irreversibility and for firms that are more dependent on government spending.

In contrast to prior research, our research focuses on the banking industry and investigates how economic and monetary policy uncertainties affect banks' financial reporting behaviors. We posit that policy uncertainty has the potential to affect banks' financial reporting transparency in two important ways. First, we conjecture that policy uncertainty, as a fundamental business uncertainty, increases the information asymmetry between bank managers and external stakeholders because informed bank managers can better evaluate the impact of rising policy uncertainty on bank earnings than uninformed investors and creditors. In other words, policy uncertainty makes it more difficult for investors and creditors to assess the existence and the magnitude of the hidden "adverse news." To the extent that investors and creditors are unable to see through banks' true underlying economic condition, bank managers should have more incentives to distort financial information that would otherwise adversely affect their self-interest. Second, high policy uncertainty increases the risk of greater volatility of earnings and operating cash flows for banks. Prior research shows that managers prefer to smooth earnings, as their compensation is usually linked to corporate earnings, and risk-averse managers prefer a less variable bonus stream (Holthausen et al. 1995; Kanagaretnam et al. 2004). Thus, we would expect bank managers to engage in more earnings management to reduce the volatility of bank earnings when economic and monetary policy is highly uncertain. Given the above reasoning, our first hypothesis is as follows:

Hypothesis 1: Economic and monetary policy uncertainties are positively associated with distortion in banks' financial reporting.

3.3. Research Design and Sample

3.3.1. Measures of Financial Reporting Quality

To proxy for bank financial reporting distortion, we primarily focus on the magnitude of discretionary loan loss provisions (*ABS_DLLP*). Loan loss provisions are by far the largest and most important accruals for banks to manage earnings and regulatory capital (Kanagaretnam et al. 2010; Beatty and Liao 2014). We describe our two-stage approach to estimate the discretionary loan loss provisions as follows. Following Kanagaretnam et al. (2010), we estimate the normal or non-discretionary component of loan loss provisions by regressing loan loss provisions on beginning loan loss allowance, beginning non-performing loans, change in non-performing loans, net loan charge-offs, change in total loans outstanding, total loans outstanding, loan mix, and control variables for year fixed effects using Equation (3.1a). To mitigate the concern that our results are driven by the choice of this single model, we employ an alternate specification based on Beatty and Liao (2014) using Equation (3.1b).

$$LLP_{it} = \beta_0 + \beta_1 BEGLLA_{it} + \beta_2 BEGNPL_{it} + \beta_3 CHNPL_{it} + \beta_4 CHO_{it} + \beta_5 CHLOAN_{it} + \beta_6 LOAN_{it} + LOAN\_CATEGORIES + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \tag{3.1a}$$

$$LLP_{it} = \beta_0 + \beta_1 CHNPL_{it+1} + \beta_2 CHNPL_{it} + \beta_3 CHNPL_{it-1} + \beta_4 CHNPL_{it-2} + \beta_5 SIZE_{it-1} + \beta_6 CHLOAN_{it} + \beta_7 GDPG_{it} + \beta_8 CHHPI_{it} + \beta_9 CHUR_{it} + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \tag{3.1b}$$

where *LLP* is the loan loss provisions scaled by beginning total assets; *BEGLLA* is the beginning loan loss allowance scaled by beginning total assets; *BEGNPL* is the beginning non-performing loans scaled by beginning total assets; *CHNPL* is the change in non-performing loans scaled by beginning total assets; *CHO* is the loan charge-offs scaled by beginning total assets; *CHLOAN* is the change in total loans scaled by beginning total assets; *LOAN* is the total loans scaled by total assets; and *LOAN_CATEGORIES* are the amounts of commercial loans (*COMM*), consumer loans (*CON*), real estate loans (*RESTATE*), agriculture loans (*AGRI*), foreign bank and government loans (*FBG*), all scaled by total assets; *SIZE* is the natural logarithm of total assets; *GDPG* is the GDP growth rate; *CHHPI* is the change in house price index; *CHUR* is the change in unemployment rate. The residuals from regression Equations (3.1a) and (3.1b) are the discretionary components of loan loss provisions (*DLLP1* and *DLLP2*), which reflect the extent of a bank's opportunistic earnings manipulation. Thus, the negative residuals capture the income-increasing earnings management while the positive residuals capture the income-decreasing earnings management.

In the baseline regressions, we focus on the absolute values of discretionary loan loss provisions (*ABS_DLLP1* and *ABS_DLLP2*) as the inverse proxy for banks' financial reporting quality. *ABS_DLLP1* and *ABS_DLLP2* capture the overall magnitude of the discretionary judgment in the eventual losses that will be realized on bad bank loans. In supplement analyses, we also investigate the magnitude of income-increasing discretionary loan loss provisions (*ABS_INC_DLLP1* and *ABS_INC_DLLP2*), calculated as the absolute value of the negative residuals from Equations (3.1a) and (3.1b), and the magnitude of income-decreasing discretionary loan loss provisions (*ABS_DEC_DLLP1* and *ABS_DEC_DLLP2*), calculated as the absolute value of the positive residuals from Equations (3.1a) and (3.1b).

3.3.2. Measures of Economic and Monetary Policy Uncertainty

To measure the U.S. economic policy uncertainty (*EPU*), we rely on the index developed by Baker et al. (2016). This monthly updated index is weighted average of three components. The first component is an index of search results from 10 large newspapers of articles containing the term "uncertainty" or "uncertain," the terms "economic" or "economy," and one or more of the following terms: "Congress," "legislation," "White House," "regulation," "Federal Reserve," or "deficit." To control for the changing volume of news throughout time, the number of policy uncertainty articles is normalized by the total number of articles in that newspaper as per each newspaper per month. These ten series are then normalized to unit standard deviation and summed within each month. The second component draws on reports by the Congressional Budget Office (CBO) that compile lists of temporary federal tax code provisions set to expire in future years. The level of tax-related uncertainty is estimated by discounting the value of the revenue effects of all tax provisions set to expire in the following ten years. The third component draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters to capture disagreement among economic forecasters of important macroeconomic variables (e.g., the consumer price index, and purchase of goods and services by federal, state, and local governments). The forecast disagreement index is obtained by taking the average of the interquartile ranges of these two forecasts. The Baker et al. (2016) *EPU* index is calculated using a weight of one-half for the news-based component, one-sixth for the tax component, and one-third for the economic forecaster disagreement component (Gulen and Ion 2016). The *EPU* index is thus an aggregate measure of economic policy uncertainty and has been widely used in many economic and finance studies (e.g., Gulen and Ion 2016; Kang et al. 2014).

To measure the U.S. monetary policy uncertainty (*MPU*), we again rely on the index developed by Baker et al. (2016). This monthly updated index counts the number of newspaper articles containing the term "uncertainty" or "uncertain" and one or more of the following terms: "Federal Reserve," "the Fed," "money supply," "open market operations," "quantitative easing," "monetary policy," "Fed funds rate," "overnight lending rate," "Bernanke," "Volker," "Greenspan," "central bank," "interest rates," "Fed Chairman," "Fed Chair," "lender of last resort," "discount window," "European Central Bank," "ECB," "Bank of England," "Bank of Japan," "BOJ," "Bank of China," "Deutsche Bundesbank," "Bank of France," and/or "Bank of Italy." The *MPU* index represents a broad proxy of monetary policy uncertainty as perceived by newspapers. To match the frequency of monthly economic and monetary policy uncertainty indices to the quarterly bank-level data, we take the equally weighted average of the index during each quarter. We then take the quarterly arithmetic average of the U.S. economic policy uncertainty index scaled by its summation over the sample period as our proxy for *EPU* and the quarterly average of the U.S. monetary policy uncertainty index scaled by its summation over the sample period as our proxy for *MPU*.

3.3.3. Sample and Model Specification

The timeframe of the sample extends from 2000 to 2012, a volatile period for policy making that has been argued to have serious economic consequences. Our main sample consists of 10,743 U.S. banks with 398,803 bank-quarter observations. We construct bank-level variables from data obtained from the call reports available from the Federal Reserve Bank of Chicago's website and winsorize all the continuous variables at the top and bottom 0.1 percentiles to reduce the effects of outliners on our results.[19] We collect economic and monetary policy uncertainty data from the Economic Policy Uncertainty U.S. Monthly Index's website (http://www.policyuncertainty.com/us_monthly.html), developed by Baker et al. (2016). Our main variables of interest are the quarterly U.S. economic and monetary policy uncertainties, *EPU* and *MPU*. We estimate the following OLS regression models using Equations (3.2a) and (3.2b) to test Hypothesis 1 on the relationship between banks' financial reporting distortion and economic and monetary policy uncertainty, with standard errors clustered at the bank level.

[19] We have tried winsorizing at the top and bottom 0.5 percentiles and 1 percentiles. The results remain robust to the choice of these different values.

$$ABS\_DLLP_{it} = \beta_0 + \beta_1 EPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} + \beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \quad (3.2a)$$

$$ABS\_DLLP_{it} = \beta_0 + \beta_1 MPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} + \beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \quad (3.2b)$$

where *ABS_DLLP* denotes the absolute value of discretionary loan loss provisions, including *ABS_DLLP1* and *ABS_DLLP2* estimated using Equations (3.1a) and (3.1b), respectively; *EPU* denotes the U.S. economic policy uncertainty, and *MPU* denotes the U.S. monetary policy uncertainty. High values of *ABS_DLLP* represent the high probability of financial reporting distortion. If policy uncertainty deteriorates financial reporting quality, we would expect the coefficients of β_1 on *EPU* and *MPU* to be positive and significant.

We include several variables to control for cross-sectional differences in bank characteristics that may influence the relationship between *EPU*/*MPU* and *ABS_DLLP*. These variables include total assets (*SIZE*), ratio of total loans to total assets (*LOAN*), ratio of tier 1 capital to risk-weighted assets (*TIER1*), ratio of earnings before loan loss provisions to beginning total assets (*EBP*), lagged ratio of loan loss provisions to total assets (*LLP*), ratio of non-performing loans to total assets (*NPL*), and a dummy variable (*PUBLIC*) that equals 1 for a public bank and 0 otherwise. To mitigate the concern that the policy uncertainty index may just provide overlapping information for the general economic condition, we control for the quarterly GDP growth rate (*GDPG*) and fed funds rate (*FFR*). We also include state and year fixed effects to capture the general trend in loan loss provisioning. Detailed definitions of these variables can be found in the Appendix 3.

3.4. Empirical Results

3.4.1. Descriptive Statistics

Table 3.1 presents the descriptive statistics. For the dependent variables, we report the magnitude of overall discretionary loan loss provisions, income-increasing discretionary loan loss provisions, and income-decreasing loan loss provisions. The mean values of *ABS_DLLP1* and *ABS_DLLP2* are 0.001 and 0.001, respectively. These values are comparable to those that have been documented in prior banking literature (e.g., Kanagaretnam et al. 2010; Kanagaretnam et al. 2015). Our main variables of interest are economic and monetary policy uncertainties. We find that the mean values for *EPU* and *MPU* are 0.006 and 0.006, with standard deviations being 0.002 and 0.003, respectively.[20]

[Table 3.1]

3.4.2. Pearson Correlations

[20] Although the standard deviations of *EPU* and *MPU* are only 0.002 and 0.003, respectively, the means of are only 0.006. And the maximums (untabulated) of *EPU* and *MPU* are 0.012 and 0.016, almost 4 to 8 times the minimums (untabulated) of *EPU* and *MPU*, which are 0.003 and 0.002. Therefore, there is a significant amount of variation in policy uncertainty during our sample period.

Table 3.2 provides the Pearson correlation matrix between the bank financial reporting quality variables (*ABS_DLLP*, *ABS_INC_DLLP*, and *ABS_DEC_DLLP*) and policy uncertainty variables (*EPU* and *MPU*) alongside other control variables. *ABS_DLLP*, *ABS_INC_DLLP*, and *ABS_DEC_DLLP* are positively and significantly correlated with *EPU* and *MPU* at less than the 1% level in most cases. These univariate results offer preliminary confirmation of our prediction that policy uncertainty is associated with a bank's financial reporting distortion. In addition, the univariate correlations of other control variables with the dependent variables are in directions consistent with prior literature.

[Table 3.2]

3.4.3. Estimation of Discretionary Loan Loss Provisions

We present our results on the estimation of discretionary loan loss provisions in Table 3.3. The residuals from Equations (3.1a) and (3.1b) represent the discretionary loan loss provisions estimated using Kanagaretnam et al. (2010) and Beatty and Liao (2014), respectively. In Panel A, we find the coefficients on *BEGNPL*, *CHNPL*, *CHO*, and *LOAN* to be positive and significant at the 1% level, suggesting that higher levels of non-performing loans, change in non-performing loans, loan charge-offs, and loans indicate that banks need to use higher loan loss provisions to address the potential problems and risks within the loan portfolio. In addition, we find a significantly negative coefficient on *BEGLLA*, consistent with the argument that a higher initial loan loss allowance will require lower loan loss provisions in the current period (Kanagaretnam et al. 2010). In Panel B, we find that $CHNPL_{it+1}$, $CHNPL_{it}$, $CHNPL_{it-1}$, and $CHNPL_{it-2}$ are significantly positive at the 1% level, implying that banks use both forward-looking and past information on non-performing loans to estimate loan loss provisions (Beatty and Liao 2014).

[Table 3.3]

3.4.4. Univariate Tests

Table 3.4 presents the univariate comparisons of the mean values of *ABS_DLLP*, *ABS_INC_DLLP*, and *ABS_DEC_DLLP* for banks in high *EPU*/*MPU* periods and low *EPU*/*MPU* periods. Consistent with Hypothesis 1, we find that the mean value of *ABS_DLLP* is higher for banks in high *EPU*/*MPU* periods than in low *EPU*/*MPU* periods, and that the difference is significant at the 1% level. [21] We also find that the mean values of *ABS_INC_DLLP* and *ABS_DEC_DLLP* are higher for banks in high *EPU*/*MPU* periods than in low *EPU*/*MPU* periods, with the difference being significant at the 1% level. Our univariate results indicate that high economic and monetary policy uncertainty are related to more banks' accruals manipulation. We next discuss the results of the multivariate analyses.

[Table 3.4]

3.4.5. Baseline Regression Results on Hypothesis 1

[21] Based on Baker et al. (2015), economic and monetary policies are the most uncertain in the third quarter of 2011 and the first quarter of 2003 and the least uncertain for both in the fourth quarter of 2006 within our sample period.

Our baseline multivariate regression results for Hypothesis 1 are shown in Table 3.5. Panel A tabulates the results for the OLS regressions of *ABS_DLLP1* and *ABS_DLLP2* on *EPU* together with other control variables. The coefficients on *EPU* are positive and significant at the 1% level (*t*-statistic = 15.22 and 15.47, respectively), indicating that economic policy uncertainty has a significantly positive relationship with the magnitude of discretionary loan loss provisions. Panel B tabulates the results for the OLS regressions of *ABS_DLLP1* and *ABS_DLLP2* on *MPU* together with other control variables. The coefficients on *MPU* are also significant at the 1% level (*t*-statistic = 9.28 and 10.58, respectively), indicating that monetary policy uncertainty has a significantly positive relationship with the magnitude of discretionary loan loss provisions. [22]Taken together, our results indicate that higher levels of economic or monetary policy uncertainty induce banks to engage in more earnings manipulation. With regard to control variables, we find that *EBP*, lagged *LLP*, and *NPL* are significantly and positively related with *ABS_DLLP*, indicating that banks with more pre-managed earnings, higher prior period's loan loss provisions, and greater non-performing loans engage in more opportunistic earnings manipulation. In addition, GDP growth rate (*GDPG*) is positively related to the discretionary accruals management, while fed funds rate (*FFR*) is negatively related to the accruals management. In contrast, we find that *PUBLIC* has a significantly

[22] Because the index is based on counts of articles, the economic significance is hard to interpret in practice, but the statistical significance does indicate greater *EPU* and *MPU* lead to greater earnings opacity.

negative relationship with *ABS_DLLP*, suggesting that larger banks and public banks are associated with lower levels of earnings manipulation.

[Table 3.5]

3.4.6. Instrumental Variable Analysis

To address the endogeneity concern, we employ the instrument variable approach. Following Gulen and Ion (2016), we use the partisan polarization based on the DW-NOMINATE scores of McCarty et al. (1997) as our instrument for policy uncertainty. We focus on the first dimension of the DW-NOMINATE scores, interpreted as government intervention in the economy or disagreement between Republican and Democratic party members in the Senate on the liberal-conservative dimension over time. Partisan polarization has been argued to "make it harder to build legislative coalitions, leading to policy gridlock" and to "produce greater variation in policy" (McCarty 2012). Hence, partisan polarization is relevant to policy uncertainty, and a higher level of political polarization is expected to result in a higher uncertainty related to policy decision-making. Meanwhile, it is not directly apparent how politicians' dispersion on the liberal-conservative continuum should drive banks' financial reporting quality in a way other than through its effect on policy uncertainty. Thus, the polarization measure also satisfies the exclusion restriction condition as an instrument. To implement the instrumental variable approach, we use a two-stage regression model, where the first-stage regression is estimated using Equations (3.3a) and (3.3b).[23]

$$EPU_t = \beta_0 + \beta_1 POLAR_t + \beta_2 SIZE_t + \beta_3 LOAN_t + \beta_4 TIER1_{it} + \beta_5 EBP_t + \beta_6 LLP_{t-1} + \beta_7 NPL_t + \beta_8 PUBLIC_t + \beta_9 GDPG_t + \beta_{10} FFR_t + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_t \tag{3.3a}$$

$$MPU_t = \beta_0 + \beta_1 POLAR_t + \beta_2 SIZE_t + \beta_3 LOAN_t + \beta_4 TIER1_{it} + \beta_5 EBP_t + \beta_6 LLP_{t-1} + \beta_7 NPL_t + \beta_8 PUBLIC_t + \beta_9 GDPG_t + \beta_{10} FFR_t + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_t \tag{3.3b}$$

where *EPU* denotes the U.S. economic policy uncertainty; *MPU* denotes the U.S. monetary policy uncertainty; and *POLAR* denotes the partisan polarization, computed as the beginning difference between the averages of the first dimension of DW-NOMINATE scores for the Republican party members and for the Democratic party members in the Senate.

We then obtain the fitted values of *EPU* and *MPU* from Equations (3.3a) and (3.3b) to capture the exogenous variation in economic and monetary policy uncertainty and include these fitted values *PREDEPU* and *PREDMPU* in the second-stage regression.

[23] As both the policy uncertainty variable and its instrument are cross-sectionally invariant, their values are repeated for all banks within each time period. Thus, the usual two-stage least-squares methodology would mechanically overstate the correlation between the endogenous variable and its instrument (Gulen and Ion 2016). To circumvent this problem, we run our first-stage regression using the average levels of the variables and our second-stage regression using the fitted values.

$$ABS\_DLLP_{it} = \beta_0 + \beta_1 PREDEPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} + \beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \quad (3.4a)$$

$$ABS\_DLLP_{it} = \beta_0 + \beta_1 PREDMPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} + \beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \quad (3.4b)$$

where *ABS_DLLP* denotes the absolute value of discretionary loan loss provisions including both *ABS_DLLP1* and *ABS_DLLP2*; *PREDEPU* and *PREDMPU* denote the predicted value of *EPU* and *MPU* obtained from Equations (3.3a) and (3.3b), respectively. *SIZE*, *LOAN*, *TIER1*, *EBP*, *LLP*, *NPL*, *PUBLIC*, *GDPG*, and *FFR* denote the average levels of natural logarithm of bank size, loans to assets ratio, tier 1 capital ratio, ratio of earnings before loan loss provisions to beginning total loans, lagged ratio of loan loss provisions to total loans, ratio of non-performing loans to total loans, bank listing status, GDP growth rate, and fed funds rate, respectively.

We report the regression results for the instrumental variable approach in Table 3.6. Panel A shows the results for the first-stage regression. We find significantly positive coefficients on *POLAR*, suggesting that greater disagreement among politicians on the liberal-conservative dimension is associated with more economic and monetary policy uncertainty. The results also indicate that partisan polarization is a relevant instrument for our policy uncertainty measures. The second-stage regression results are displayed in Panels B and C, where the relationship between the predicted values of policy uncertainty *PREDEPU*/*PREDMPU* and *ABS_DLLP* are significantly positive at the 1% level under this alternative instrumental variable specification. Therefore, the impact of policy uncertainty on opportunistic earnings management remains robust even after controlling for endogeneity bias.

[Table 3.6]

3.5. Additional Tests

3.5.1. Audited Banks Versus Unaudited Banks

In our first line of additional analysis, we explore whether governance mechanisms mitigate the impact of economic and monetary policy uncertainty on bank financial reporting quality. The internal control provisions established by the Federal Deposit Insurance Corporation (FDIC) require large banks to establish an independent audit committee and have their financial statements audited, and require their CEO and CFO to sign on to the management report to provide an assessment of the effectiveness of the internal control structure and procedures (Jin et al. 2013a; Jin et al. 2013b). Corporate governance is generally viewed as a monitoring mechanism that reduces agency costs and constrains fraudulent management behaviors. Recent research has documented that audit engagement enhances the earnings quality and stability of banks (Kanagertnam et al. 2010; Jin et al. 2011). Also in turbulent times, auditors will exercise higher scrutiny over banks and, therefore, monitor financial information more closely. Taken together, we predict that the policy uncertainty effect should be more/only pronounced in unaudited banks as opposed to audited banks. To test our prediction, we divide our sample based on banks' auditing status, and perform OLS regressions separately for audited banks and unaudited banks. We thus expect the coefficients of β_1 on *EPU* and *MPU* to be more/only significant for unaudited banks.

We present our test results in Table 3.7. Panels A and B shows the relationship between accruals management and *EPU*/*MPU* for audited banks, and Panels C and D show the relationship between accruals management and *EPU*/*MPU* for unaudited banks. The coefficients on *EPU* and *MPU* are not significant for audited banks but are significantly positive across all regressions for unaudited banks at the 1% level, indicating that the presence of audit scrutiny discourages bank managers from inflating bank earnings during periods of high economic and monetary policy uncertainty. This finding is consistent with prior accounting and banking literature that auditors enhance the credibility of financial statements and mitigate earnings manipulation behaviors (Kanagaretnam et al. 2010). Therefore, compared with audited banks, unaudited banks have more room and incentives for conducting earnings management during periods of high policy uncertainty.

[Table 3.7]

3.5.2. Pre-Crisis Versus Post-Crisis Periods

In the baseline regression, we focused on the period 2000–2012. We now investigate the impact of bank funding structure on bank earnings quality in two separate sub-periods: the pre-crisis years (2000-2006) and the post-crisis years (2010-2012). We present the regression results for the pre-crisis and the post-crisis in Panels A and B of Table 3.8, respectively. The regression results show a significantly positive relation between *EPU*/*MPU* and *ABS_DLLP1*/*ABS_DLLP2* in both sub-periods, suggesting that the impact of policy uncertainty on discretionary accruals management is not driven by specific sample period.

[Table 3.8]

3.5.3. High Policy Uncertainty Periods Versus Low Policy Periods

One concern with our main measure of bank earnings quality is that whether the standard discretionary loan loss provisions models work equally well during periods of high/low policy uncertainty. If so, during periods of high policy uncertainty, for example, the discretionary loan loss provisions model would result in bigger residuals and higher *ABS DLLP*. To address this concern, we use the median values of *EPU*/*MPU* to separate our sample into high/low policy uncertainty groups. We then re-estimate the discretionary loan loss provisions using Equations (3.1a) and (3.1b) for each group, and test their associations with *EPU*/*MPU* separately. Unsurprisingly, our results indicate that *ABS_DLLP1* and *ABS_DLLP2* are indeed greater in high policy uncertainty periods than in low policy uncertainty periods, with the mean values being 0.0009 (0.0009) and

0.0014 (0.0014) for the high *EPU* (*MPU*) group and being 0.0005 (0.0005) and 0.0007 (0.0006) for the low *EPU* (*MPU*) group. Albeit the differences in *ABS_DLLP*, we continue to find a positive relationship between *EPU*/*MPU* and *ABS_DLLP* in each group, suggesting that our standard discretionary loan loss provisions models work equally well during periods of high/low policy uncertainty.

3.5.4. Signed Discretionary Loan Loss Provisions

In this section, we re-estimate the baseline regression models by using the absolute values of negative (*ABS_INC_DLLP*) and positive discretionary loan loss provisions (*ABS_DEC_DLLP*) as two alternative proxies for financial reporting quality. Negative discretionary loan loss provisions are of particular interest as they represent income-increasing manipulation of loan loss provisions, leading to an inflation of both accounting earnings and Tier 1 regulatory capital ratio. Meanwhile, we are also interested in positive discretionary loan loss provisions, as they are frequently used for income-decreasing earnings management for the purposes of either smoothing high income or doing earnings baths (Beatty and Liao 2014). In addition, Stein and Wang (2016) find that managers are more likely to manage earnings downward during times of uncertainty, as investors are more willing to attribute bad performance to luck or to expect bad performance to be transient at such times. We run OLS regressions after substituting *ABS_INC_DLLP* and *ABS_DEC_DLLP* for the dependent variable in Equations

(3.2a) and (3.2b) and display the results in Table 3.9. Panel A shows that *EPU* is positively and significantly associated with *ABS_INC_DLLP1* and *ABS_INC_DLLP2*, while Panel B shows that *MPU* is positively associated with *ABS_INC_DLLP1*, indicating that policy uncertainties lead to greater use of opportunistic income-increasing discretionary loan loss provisions by banks. In Panels C and D, we find that *EPU* and *MPU* are again positively related to *ABS_DEC_DLLP1* and *ABS_DEC_DLLP2*. The policy uncertainty's positive association with income-decreasing accruals suggests that banks conduct more income smoothing and earnings baths during high policy uncertainty seasons than during low policy uncertainty seasons.

[Table 3.9]

3.5.5. Just Meeting or Beating Earnings Benchmark

Altamuro and Beatty (2010) and Kanagaretnam et al. (2015) document that banks have incentives to smooth earnings by just meeting or beating the prior year's earnings. We examine whether policy uncertainty magnifies this incentive. If bank managers take advantage of policy uncertainty to manipulate earnings, we would expect just meeting or beating the earnings benchmark to increase during periods of high policy uncertainty. We estimate the following Probit regression models to test this prediction.

$SPEC_{it} = \beta_0 + \beta_1 EPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} +$
$\beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} +$
$STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it}$ (3.5a)

$SPEC_{it} = \beta_0 + \beta_1 MPU_{it} + \beta_2 SIZE_{it} + \beta_3 LOAN_{it} + \beta_4 TIER1_{it} + \beta_5 EBP_{it} +$
$\beta_6 LLP_{it-1} + \beta_7 NPL_{it} + \beta_8 PUBLIC_{it} + \beta_9 GDPG_{it} + \beta_{10} FFR_{it} +$
$STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it}$ (3.5b)

where *SPEC* small positive earnings changes as a dummy variable that equals 1 if the change in pre-tax income scaled by total assets is between 0 and 0.01 for the bank in the year and 0 otherwise. *EPU* and *MPU* denote the U.S. economic and monetary policy uncertainty, respectively. We include all bank-level and country-level control variables used in the baseline regressions as well as year and quarter fixed effects. We present the results of our earnings benchmark beating analysis in Panel E of Table 3.9. We find a significantly positive relationship, at the 1% level, between the likelihood of a bank reporting small positive earnings changes and our primary variables *EPU* and *MPU*. This finding is consistent with our hypothesis that economic and monetary policy uncertainty increases a bank's financial reporting distortion by just meeting or beating certain earnings benchmarks.

3.5.6. Accounting Conservatism

Finally, we investigate whether economic and monetary policy uncertainties affect banks' accounting conservatism. Accounting conservatism requires higher verification standards for recognizing good news than for recognizing adverse news (Basu 1997; Watts 2003). Prior studies generally view accounting conservatism in the form of asymmetric timeliness in recognizing losses versus gains as a dimension of financial reporting quality (e.g., Ball and Shivakumar 2005; Givoly et al. 2010). Consistent with policy uncertainty decreasing financial reporting quality, we predict that the timeliness of loss recognition declines for banks in high policy uncertainty periods. Following Nichols et al. (2009) and Kanagaretnam et al. (2014), we model the extent of accounting conservatism as the relationship between the change in earnings and the lagged change in earnings, allowing for differences in positive and negative earnings changes. To examine the impact of policy uncertainty on accounting conservatism, we estimate the following OLS regression models:

$$CHROA_{it} = \beta_0 + \beta_1 DCHROA_{it-1} + \beta_2 CHROA_{it-1} + \beta_3 EPU_{it} + \beta_4 DCHROA_{it-1} * CHROA_{it-1} + \beta_5 DCHROA_{it-1} * EPU_{it} + \beta_6 CHROA_{it-1} * EPU_{it} + \beta_7 DCHROA_{it-1} * CHROA_{it-1} * EPU_{it} + \beta_8 SIZE_{it} + \beta_9 DCHROA_{it-1} * SIZE_{it} + \beta_{10} CHROA_{it-1} * SIZE_{it} + \beta_{11} DCHROA_{it-1} * CHROA_{it-1} * SIZE_{it} + \beta_{12} LOAN_{it} + \beta_{13} TIER1_{it} + \beta_{14} EBP_{it} + \beta_{15} LLP_{it-1} + \beta_{16} NPL_{it} + \beta_{17} PUBLIC_{it} + \beta_{18} GDPG_{it} + \beta_{19} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it} \quad (3.6a)$$

$$CHROA_{it} = \beta_0 + \beta_1 DCHROA_{it-1} + \beta_2 CHROA_{it-1} + \beta_3 MPU_{it} + \beta_4 DCHROA_{it-1} * CHROA_{it-1} + \beta_5 DCHROA_{it-1} * MPU_{it} + \beta_6 CHROA_{it-1} *$$

$MPU_{it} + \beta_7 DCHROA_{it-1} * CHROA_{it-1} * MPU_{it} + \beta_8 SIZE_{it} + \beta_9 DCHROA_{it-1} * SIZE_{it} + \beta_{10} CHROA_{it-1} * SIZE_{it} + \beta_{11} DCHROA_{it-1} * CHROA_{it-1} * SIZE_{it} + \beta_{12} LOAN_{it} + \beta_{13} TIER1_{it} + \beta_{14} EBP_{it} + \beta_{15} LLP_{it-1} + \beta_{16} NPL_{it} + \beta_{17} PUBLIC_{it} + \beta_{18} GDPG_{it} + \beta_{19} FFR_{it} + STATE\_FIXED\_EFFECTS + YEAR\_FIXED\_EFFECTS + \varepsilon_{it}$

(3.6b)

where *CHROA* is a change in return on assets; *DCHROA* is a dummy variable that equals 1 if *CHROA* is negative and 0 otherwise. *SIZE*, $DCHROA_{it-1} * SIZE_{it}$, $CHROA_{it-1} * SIZE_{it}$, and $DCHROA_{it-1} * CHROA_{it-1} * SIZE_{it}$ are included to control for the effects of differences in size on the estimated autoregressive relationships. As before, we include all additional control variables at the bank and country levels as well as state and year dummy variables. According to Nichols et al. (2009), under conditional conservatism, economic gains must meet a higher verification threshold to be recognized in accounting income, so earnings increases are likely to be more persistent and less timely than earnings decreases, implying that β_4 should be negative. Given that our prediction is that banks in a high policy uncertainty period will report earnings less conservatively, we expect that our primary coefficients of interest β_7 on $DCHROA_{it-1} * CHROA_{it-1} * EPU_{it}$ and $DCHROA_{it-1} * CHROA_{it-1} * MPU_{it}$ will be significantly positive.

Panel F of Table 3.9 reports the accounting conservatism regression results. As expected, the estimated coefficients β_4 on $DCHROA_{it-1} * CHROA_{it-1}$ are negative and significant, indicating that banks report earnings declines in a timelier manner compared with reporting earnings increases. Consistent with our prediction that banks in high policy uncertainty periods have less conservative accounting, we find significantly positive coefficients β_7 on $DCHROA_{it-1} * CHROA_{it-1} * EPU_{it}$ and $DCHROA_{it-1} * CHROA_{it-1} * MPU_{it}$, indicating that the timeliness of loss recognition decreases in higher economic and monetary policy uncertainty periods. These results support the interpretation that policy uncertainty reduces banks' accounting conservatism.

3.5.7. Intentional Versus Unintentional Earnings Opacity

Policy uncertainty is likely to affect banks' decisions but may also affect their financial reports because of measurement issues. The noise in measures of banks' assets and liabilities (e.g., related to fair value measurements) will also lead to opacity. If so, there are two broad reasons for opacity: unintentional and intentional. We acknowledge that our main measure of discretionary loan loss provisions is largely intended to capture the intentional component of bank earnings opacity. To supplement our baseline analysis, we employ the magnitude of non-discretionary loan loss provisions (*ABS_NDLLP*) as our proxy for the unintentional component of bank earnings opacity. Non-discretionary loan loss provisions are calculated as the fitted values of Equations (3.1a) and (3.1b). We then regress *ABS_NDLLP1*/*ABS_NDLLP2* on *EPU*/*MPU*. However, we could not find consistent results on the impact of *EPU*/*MPU* on *ABS_NDLLP*. Therefore, the effect of policy uncertainty on bank earnings opacity is mainly through the intentional earnings manipulation channel.

3.5.8. Additional Control Variables

Finally, it is possible that when banks face policy uncertainty, they also face other aspects of uncertainty about their business. Therefore, it is important to control for other sources of uncertainty that may affect banks' financial reporting decisions. To deal with this issue, we introduce the volatility of bank return on assets (*VOL_ROA*) and the volatility of net interest margin (*VOL_NIM*). Untabulated results show that the positive relationship between discretionary loan loss provisions and policy uncertainty still remains statistically significant. This means that the policy uncertainty index *EPU* and *MPU* contain information about bank uncertainty, which cannot be absorbed by any of the above control variables that are commonly used in the accounting and banking literature.

3.6. Conclusions

In this paper, we examine whether and how economic and monetary policy uncertainty is associated with bank financial reporting distortions. Our empirical results show that, when economic or monetary policy uncertainty is high, banks are more likely to exaggerate the magnitude of discretionary loan loss provisions, just meet or beat prior year's earnings, and reduce accounting conservatism. We interpret the results as strong support for our prediction that policy uncertainty facilitates managers to hide "adverse news" from investors and creditors due to the increased information asymmetry caused by unpredictable policy changes. Furthermore, we argue that policy uncertainty may increase the fluctuation in banks' earnings and cash flow streams, providing additional incentives for bank managers to smooth earnings or take a big bath in earnings. In addition, we find that this positive relationship between policy uncertainty and earnings manipulation is mitigated by the presence of audit engagement, consistent with the theory that governance mechanisms such as auditing curb banks' tendency to distort and misstate their financial reports.

Our research provides novel evidence that both economic and monetary policy uncertainties worsen the quality of banks' financial reporting. This is important evidence, given that policymakers have been accused of lacking a clear and consistent framework to enhance bank stability. We therefore express concern about the impact of the unpredictable shifting and implementation of economic and monetary policies, as our evidence indicates that the uncertainty of economic and monetary policies can deteriorate banks' financial reporting environment.

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Appendix 3

Dependent Variables	
ABS_DLLP1	The absolute value of discretionary loan loss provisions estimated using Equation (3.1a): $LLP_{it} = \beta_0 + \beta_1 BEGLLA_{it} + \beta_2 BEGNPL_{it} + \beta_3 CHNPL_{it} + \beta_4 CHO_{it} + \beta_5 CHLOAN_{it} + \beta_6 LOAN_{it} + LOAN\_CATEGORIES + YEAR\_FIXED\_EFFECTS + \varepsilon_{it}$, where *LLP* is the loan loss provisions scaled by beginning total assets; *BEGLLA* is beginning loan loss allowance scaled by beginning total assets; *BEGNPL* is beginning non-performing loans scaled by beginning total assets; *CHNPL* is the change in non-performing loans scaled by beginning total assets; *CHO* is the loan charge-offs scaled by beginning total assets; *CHLOAN* is the change in total loans scaled by beginning total assets; *LOAN* is total loans scaled by total assets; *LOAN_CATEGORIES* are amounts of commercial loans (*COMM*), consumer loans (*CON*), real estate loans (*RESTATE*), agriculture loans (*AGRI*), foreign banks and governments loans (*FBG*), all scaled by total assets. We measure *ABS_DLLP1* as the absolute value of the residuals from the regression Equation (3.1a).
ABS_DLLP2	The absolute value of discretionary loan loss provisions estimated using Equation (3.1b): $LLP_{it} = \beta_0 + \beta_1 CHNPL_{it+1} + \beta_2 CHNPL_{it} + \beta_3 CHNPL_{it-1} + \beta_4 CHNPL_{it-2} + \beta_5 SIZE_{it-1} + \beta_6 CHLOAN_{it} + \beta_7 GDPG_{it} + \beta_8 CHHPI_{it} + \beta_9 CHUR_{it} + YEAR\_FIXED\_EFFECTS + \varepsilon_{it}$, where *LLP* is the loan loss provisions scaled by beginning total assets; *CHNPL* is the change in non-performing loans scaled by beginning total assets; *SIZE* is the natural logarithm of total assets; *CHLOAN* is the change in total loans scaled by beginning total assets; *GDPG* is the GDP growth rate; *CHHPI* is the change in house price index; *CHUR* is the change in unemployment rate. We measure *ABS_DLLP2* as the absolute value of the residuals from the regression Equation (3.1b).
ABS_INC_DLLP1	The absolute value of income-increasing discretionary loan loss provisions estimated as the negative residuals from the regression Equation (3.1a).
ABS_INC_DLLP2	The absolute value of income-increasing discretionary loan loss provisions estimated as the negative residuals from the regression Equation (3.1b).
ABS_DEC_DLLP1	The absolute value of income-decreasing discretionary loan loss provisions estimated as the positive residuals from the regression Equation (3.1a).
ABS_DEC_DLLP2	The absolute value of income-decreasing discretionary loan loss provisions estimated as the positive residuals from the regression Equation (3.1b).
SPEC	A dummy variable that equals 1 if change in pre-tax income scaled by total assets is between 0 and 0.01 for the bank in the year, and 0 otherwise.
Main Variables of Interest	
EPU	The U.S. policy-related economic uncertainty, computed as the quarterly arithmetic average of the overall economic policy

	uncertainty index (scaled by its summation over the sample period) developed by Baker et al. (2016). This is a weighted average of three components: the newspaper coverage of policy-related economic uncertainty (i.e., the number of newspaper articles containing at least one of the terms "uncertainty" or "uncertain," the terms "economic" or "economy," and one or more of the terms: "Congress," "legislation," "White House," "regulation," "Federal Reserve," or "deficit") with a weight of one-half, the discounted value of the revenue effects of scheduled expiration of federal tax code provisions with a weight of one-sixth, and dispersion among economic forecasters of important macroeconomic variables (consumer price index, purchase of goods and services by federal, state, and local governments) with a weight of one-third. The index is available from: http://www.policyuncertainty.com/us_monthly.html.
MPU	The U.S. monetary policy uncertainty, computed as the quarterly arithmetic average of the news-based monetary policy uncertainty index (scaled by its summation over the sample period) developed by Baker et al. (2016), based on the count of newspaper articles containing the term "uncertainty" or "uncertain" and one or more of the following terms: "Federal Reserve," "the Fed," "money supply," "open market operations," "quantitative easing," "monetary policy," "Fed funds rate," "overnight lending rate," "Bernanke," "Volker," "Greenspan," "central bank," "interest rates," "Fed Chairman," "Fed Chair," "lender of last resort," "discount window," "European Central Bank," "ECB," "Bank of England," "Bank of Japan," "BOJ," "Bank of China," "Deutsche Bundesbank," "Bank of France," or "Bank of Italy." The index is available from: http://www.policyuncertainty.com/us_monthly.html.
Other Bank-Level Variables	
SIZE	Natural logarithm of total assets.
LOAN	Ratio of total loans to total assets.
TIER1	Ratio of Tier 1 capital to risk-weighted assets.
EBP	Ratio of earnings before loan loss provisions to beginning total assets.
LLP	Ratio of total loan loss provisions to beginning total assets.
NPL	Ratio of non-performing loans to total assets.
PUBLIC	A dummy variable that equals 1 for a public bank, and 0 otherwise.
VOL_ROA	Volatility of return on assets, computed as the standard deviation of net income to total assets.
VOL_NIM	Volatility of net interest margin, computed as the standard deviation of net interest margin.
AUDIT	A dummy variable that equals 1 for an audited bank, and 0 otherwise.
LSAV	Likelihood of loss avoidance, a dummy variable that equals 1 if the pre-tax income scaled by total assets is between 0 and 0.001 for the bank in the year and 0 otherwise.

CHROA	Ratio of change in return on assets.
CHO	Ratio of loan charge-offs to beginning total assets.
Other Macro-Level Variables	
POLAR	Partisan polarization, computed as the natural logarithm of beginning difference between the averages of the first dimension of DW-NOMINATE scores for the Republican party members and for the Democratic party members in the Senate.
GDPG	GDP growth rate.
CHHPI	Change in house price index.
CHUR	Change in unemployment rate.
FFR	Fed funds rate.

Table 3.1 Descriptive Statistics

	N	Mean	Median	Q1	Q3	Std
Dependent Variables						
ABS_DLLP1_{it}	398,803	0.001	0.000	0.000	0.001	0.001
ABS_DLLP2_{it}	398,803	0.001	0.001	0.000	0.001	0.002
$ABS\_IN\_INC\_DLLP1_{it}$	241,389	0.001	0.000	0.000	0.001	0.001
$ABS\_IN\_INC\_DLLP2_{it}$	293,113	0.001	0.001	0.000	0.001	0.001
$ABS\_IN\_DEC\_DLLP1_{it}$	157,414	0.001	0.000	0.000	0.001	0.002
$ABS\_IN\_DEC\_DLLP2_{it}$	105,690	0.002	0.001	0.000	0.002	0.004
Independent Variables						
EPU_{it}	398,803	0.006	0.006	0.005	0.008	0.002
MPU_{it}	398,803	0.006	0.005	0.004	0.008	0.003
$SIZE_{it}$	398,803	11.807	11.670	10.931	12.496	1.350
$LOAN_{it}$	398,803	0.631	0.656	0.541	0.749	0.168
$TIER1_{it}$	398,803	0.184	0.137	0.110	0.183	0.288
EBP_{it}	398,803	0.004	0.004	0.002	0.005	0.008
LLP_{it-1}	398,803	0.001	0.000	0.000	0.001	0.003
NPL_{it}	398,803	0.010	0.005	0.001	0.012	0.015
$PUBLIC_{it}$	398,803	0.030	0.000	0.000	0.000	0.171
$GDPG_{it}$	398,803	0.018	0.021	0.005	0.034	0.027
FFR_{it}	398,803	0.024	0.017	0.002	0.045	0.021

Table 3.1 reports the descriptive statistics for dependent and independent variables. Continuous variables are winsorized at top and bottom 1%. Variables are defined in the Appendix 3.

Table 3.2 Pearson Correlations

	Variable	7	8	9	10	11	12	13	14	15	16	17
1	ABS_DLLP1_{it}	**0.13**	**0.01**	**0.03**	**0.12**	**-0.03**	**0.05**	**0.29**	**0.39**	**-0.01**	**-0.08**	**-0.11**
2	ABS_DLLP2_{it}	**0.15**	**0.01**	**0.10**	**0.08**	**-0.02**	**0.12**	**0.31**	**0.34**	**0.01**	**-0.09**	**-0.13**
3	ABS_INC_DLLP1	**0.16**	**0.00**	0.00	**0.08**	**-0.02**	**0.06**	**0.29**	**0.40**	**-0.02**	**-0.07**	**-0.14**
4	ABS_INC_DLLP2	**0.26**	0.00	**0.16**	**-0.03**	**0.02**	**0.18**	**0.13**	**0.16**	**0.03**	**-0.17**	**-0.23**
5	ABS_DEC_DLLP1	**0.11**	**0.02**	**0.06**	**0.17**	**-0.04**	**0.04**	**0.29**	**0.43**	0.00	**-0.11**	**-0.09**
6	ABS_DEC_DLLP2	**0.16**	**0.02**	**0.15**	**0.10**	**-0.04**	**0.14**	**0.37**	**0.39**	**0.01**	**-0.11**	**-0.14**
7	EPU_{it}		**0.43**	**0.08**	**-0.06**	**0.02**	**-0.04**	**0.12**	**0.27**	**0.00**	**-0.38**	**-0.71**
8	MPU_{it}			**-0.03**	**-0.02**	**-0.01**	0.00	0.00	**-0.01**	**-0.01**	**-0.36**	**-0.04**
9	$SIZE_{it}$				**0.19**	**-0.20**	**0.06**	**0.11**	**0.10**	**0.27**	**-0.03**	**-0.09**
10	$LOAN_{it}$					**-0.44**	**-0.06**	**0.13**	**0.17**	**0.05**	**-0.03**	**0.05**
11	$TIER1_{it}$						**0.21**	**-0.04**	**-0.09**	**-0.03**	**-0.01**	**-0.01**
12	EBP_{it}							**0.02**	**-0.08**	0.00	**0.04**	**0.04**
13	LLP_{it-1}								**0.34**	**0.01**	**-0.07**	**-0.11**
14	NPL_{it}									**0.01**	**-0.08**	**-0.24**
15	$PUBLIC_{it}$										**0.00**	0.00
16	$GDPG_{it}$											**0.10**
17	FFR_{it}											

Table 3.2 reports the Pearson correlations for dependent and independent variables. Continuous variables are winsorized at top and bottom 1%. Bold numbers are significant at the 5% level, based on a two-tailed test. Variables are defined in the Appendix 3.

Table 3.3 Regression Model to Compute Discretionary Loan Loss Provisions

Panel A: Regression Model to Compute Discretionary Loan Loss Provisions Using Kanagaretnam et al. (2010)

	Dep. Var. = LLP_{it} (1)	
Variable	Coefficient	t-Statistic
INTERCEPT	-0.001	-18.31***
$BEGLLA_{it}$	-0.023	-5.54***
$BEGNPL_{it}$	0.014	11.51***
$CHNPL_{it}$	0.016	2.65***
CHO_{it}	0.756	35.60***
$CHLOAN_{it}$	-0.001	-3.22***
$LOAN_{it}$	0.001	4.91***
$COMM_{it-1}$	0.001	5.20***
CON_{it}	0.000	-0.36
$RESTATE_{it}$	0.002	5.42***
$AGRI_{it}$	-0.001	-4.84***
FBG_{it}	-0.006	-0.75
YEAR FIXED EFFECTS	Yes	
Adj. R^2	0.604	
# of Observations	407,195	

Panel B: Regression Model to Compute Discretionary Loan Loss Provisions Using Beatty and Liao (2014)

	Dep. Var. = LLP_{it} (1)	
Variable	Coefficient	t-Statistic
INTERCEPT	-0.002	-9.15***
$CHNPL_{it+1}$	0.016	9.72***
$CHNPL_{it}$	0.040	4.26***
$CHNPL_{it-1}$	0.006	4.92***
$CHNPL_{it-2}$	0.005	4.80***
$SIZE_{it-1}$	0.000	13.49***
$CHLOAN_{it}$	0.001	2.05**
$GDPG_{it}$	0.000	2.11**
$CHHPI_{it}$	0.000	1.11
$CHUR_{it}$	-0.003	-1.10
YEAR FIXED EFFECTS	Yes	
Adj. R^2	0.178	
# of Observations	398,898	

Table 3.3 reports the OLS regression results of *LLP* on variables related with non-discretionary loan loss provisions. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Table 3.4 Univariate Tests

Panel A: Mean Difference in Earnings Opacity Measures between High *EPU* Period and Low *EPU* Period

Financial Reporting Quality Measures	High *EPU* Period	Low *EPU* Period	Difference	t-Statistic
Mean *ABS_ DLLP1*	0.0010	0.0005	0.0004	86.77***
Mean *ABS_ DLLP2*	0.0015	0.0007	0.0008	103.40***
Mean *ABS_INC_ DLLP1*	0.0008	0.0005	0.0003	79.93***
Mean *ABS_INC_ DLLP2*	0.0010	0.0005	0.0005	162.79***
Mean *ABS_DEC_ DLLP1*	0.0012	0.0007	0.0005	52.62***
Mean *ABS_DEC_ DLLP2*	0.0029	0.0014	0.0015	60.89***

Panel B: Mean Difference in Earnings Opacity Measures between High *MPU* Period and Low *MPU* Period

Financial Reporting Quality Measures	High *MPU* Period	Low *MPU* Period	Difference	t-Statistic
Mean *ABS_ DLLP1*	0.0008	0.0007	0.0001	16.43***
Mean *ABS_ DLLP2*	0.0012	0.0010	0.0002	20.37***
Mean *ABS_INC_ DLLP1*	0.0007	0.0006	0.0001	8.45***
Mean *ABS_INC_ DLLP2*	0.0008	0.0007	0.0001	22.84***
Mean *ABS_DEC_ DLLP1*	0.0010	0.0008	0.0002	16.09***
Mean *ABS_DEC_ DLLP2*	0.0023	0.0019	0.0004	16.43***

Table 3.4 reports the univariate test results for the mean difference in earnings opacity measures between high *EPU*/*MPU* periods and low *EPU*/*MPU* periods. Panel A reports the mean difference in *ABS_DLLP1*, *ABS_DLLP2*, *ABS_INC_DLLP1*, *ABS_INC_DLLP2*, *ABS_DEC_DLLP1*, and *ABS_DEC_DLLP2* between high *EPU* periods and low *EPU* periods. Panel B reports the mean difference in *ABS_DLLP1*, *ABS_DLLP2*, *ABS_INC_DLLP1*, *ABS_INC_DLLP2*, *ABS_DEC_DLLP1*, and *ABS_DEC_DLLP2* between high *MPU* periods and low *MPU* periods. We define high *EPU*/*MPU* as 1 if the *EPU*/*MPU* index is above or equal to the mean in the sample, and 0 otherwise. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Variables are defined in the Appendix 3.

Table 3.5 The Effect of *EPU*/*MPU* on Absolute Value of Discretionary Loan Loss Provisions

Panel A: The Effect of *EPU* on Absolute Value of Discretionary Loan Loss Provisions

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	-3.64***	-0.002	-5.45***
EPU_{it}	0.041	15.22***	0.065	15.47***
$SIZE_{it}$	-0.0001	-11.33***	0.00005	5.28***
$LOAN_{it}$	0.0004	15.60***	-0.0001	-1.58
$TIER1_{it}$	-0.00003	-1.05	-0.0002	-3.80***
EBP_{it}	0.014	4.40***	0.041	6.10***
LLP_{it-1}	0.079	11.27***	0.151	10.83***
NPL_{it}	0.030	42.09***	0.038	33.52***
$PUBLIC_{it}$	-0.0001	-3.54***	-0.0001	-3.42***
$GDPG_{it}$	0.001	11.03***	0.003	11.90***
FFR_{it}	-0.008	-16.97***	-0.012	-16.43***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.204		0.216	
# of Observations	398,803		398,803	

Panel B: The Effect of *MPU* on Absolute Value of Discretionary Loan Loss Provisions

	Dep. Variable = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	0.19	-0.001	-3.67***
MPU_{it}	0.006	9.28***	0.011	10.58***
$SIZE_{it}$	-0.0001	-11.31***	0.00005	5.30***
$LOAN_{it}$	0.0004	15.61***	-0.0001	-1.57
$TIER1_{it}$	-0.00003	-1.04	-0.0002	-3.80***
EBP_{it}	0.014	4.40***	0.041	6.10***
LLP_{it-1}	0.079	11.26***	0.151	10.82***
NPL_{it}	0.030	42.10***	0.038	33.53***
$PUBLIC_{it}$	-0.0001	-3.55***	-0.0001	-3.43***
$GDPG_{it}$	0.001	7.17***	0.002	8.50***
FFR_{it}	-0.009	-20.33***	-0.014	-19.67***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.204		0.215	
# of Observations	398,803		398,803	

Table 3.5 reports the OLS regression results of absolute value of discretionary loan loss provisions on *EPU*/*MPU*. Panel A reports the OLS regression results of *ABS_DLLP1*/*ABS_DLLP2* on *EPU*. Panel A reports the OLS regression results of *ABS_DLLP1*/*ABS_DLLP2* on *MPU*. *, **, ***

indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Table 3.6 Using Instrumental Variable to Mitigate Endogeneity Concerns

Panel A: First-Stage Regression Results to Predict *EPU*/*MPU*

	Dep. Var. = EPU_t (1)		Dep. Var. = MPU_t (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	-0.027	-14.14***	-0.094	-16.32***
$POLAR_t$	0.054	21.80***	0.154	21.25***
$SIZE_t$	0.0001	0.91	0.00003	0.09
$LOAN_t$	-0.001	-1.46	-0.002	-1.90*
$TIER1_t$	0.000003	0.02	-0.0003	-0.60
EBP_t	-0.004	-0.93	0.025	1.43
LLP_{t-1}	0.012	0.76	0.144	2.96***
NPL_t	-0.002	-0.67	-0.008	-1.11
$PUBLIC_t$	0.0002	0.19	0.002	0.72
$GDPG_t$	-0.022	-32.02***	-0.051	-23.85***
FFR_{it}	-0.044	-28.73***	-0.003	-3.65***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.894		0.481	
# of Observations	2902		2902	

Panel B: Second-Stage Regression Results Using Predicted *EPU*

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	-0.003	-21.09***	-0.005	-15.77***
$PREDEPU_{it}$	0.276	28.30***	0.452	28.02***
$SIZE_{it}$	-0.0001	-11.44***	0.00004	5.21***
$LOAN_{it}$	0.0004	15.17***	-0.0001	-1.95*
$TIER1_{it}$	-0.00003	-1.17***	-0.0002	-3.90***
EBP_{it}	0.014	4.40***	0.041	6.11***
LLP_{it-1}	0.080	11.28***	0.154	10.89***
NPL_{it}	0.030	41.78***	0.038	33.25***
$PUBLIC_{it}$	-0.0001	-3.51***	-0.0001	-3.39***
$GDPG_{it}$	0.006	24.84***	0.011	24.29***
FFR_{it}	0.002	4.34***	0.005	5.59***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.206		0.218	
# of Observations	398,803		398,803	

Panel C: Second-Stage Regression Results Using Predicted *MPU*

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic

INTERCEPT	-0.001	-6.46***	-0.002	-6.84***
$PREDMPU_{it}$	0.095	28.10***	0.157	27.95***
$SIZE_{it}$	-0.0001	-11.44***	0.00004	5.21***
$LOAN_{it}$	0.0004	15.19***	-0.0001	-1.94
$TIER1_{it}$	-0.00003	-1.17	-0.0002	-3.90***
EBP_{it}	0.014	4.40***	0.041	6.11***
LLP_{it-1}	0.080	11.28***	0.154	10.89***
NPL_{it}	0.030	41.78***	0.038	33.24***
$PUBLIC_{it}$	-0.0001	-3.50***	-0.0001	-3.39***
$GDPG_{it}$	0.005	23.02***	0.008	22.76***
FFR_{it}	-0.007	-16.20***	-0.011	-15.54***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.206		0.218	
# of Observations	398,803		398,803	

Table 3.6 replicates the baseline regression results, using the two-stage least-squares approach. Panel A reports the first-stage regression results using the political polarization in the U.S. Senate as an instrument for *EPU*/*MPU*. Panel B reports the second-stage regression results of *ABS_DLLP1*/*ABS_DLLP2* on predicted *EPU*. Panel C reports the second-stage regression results of *ABS_DLLP1*/*ABS_DLLP2* on predicted *MPU*. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Table 3.7 The Effect of *EPU*/*MPU* on Absolute Value of Discretionary Loan Loss Provisions for Audited and Unaudited Banks

Panel A: The Relationship between *EPU* and Absolute Value of Discretionary Loan Loss Provisions for Audited Banks

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
$INTERCEPT$	0.0001	0.19	-0.002	-2.49**
EPU_{it}	0.049	0.66	0.094	1.36
$SIZE_{it}$	-0.0001	-8.14***	0.0001	5.13***
$LOAN_{it}$	0.0003	6.85***	-0.0001	-0.73
$TIER1_{it}$	0.0001	1.73	-0.00003	-0.53
EBP_{it}	-0.001	-0.48	0.021	3.95***
LLP_{it-1}	0.073	12.72***	0.108	6.74***
NPL_{it}	0.020	17.70***	0.019	9.57***
$PUBLIC_{it}$	-0.00001	-0.42	-0.00005	-0.86
$GDPG_{it}$	-0.002	-0.70	-0.001	-0.23
FFR_{it}	-0.049	-1.79*	-0.001	-1.96**
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.239		0.238	
# of Observations	40,362		40,362	

Panel B: The Relationship between *MPU* and Absolute Value of Discretionary Loan Loss Provisions for Audited Banks

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
$INTERCEPT$	0.0005	2.63***	-0.001	-3.12***
MPU_{it}	0.027	1.44	0.049	1.51
$SIZE_{it}$	-0.0001	-8.14***	0.0001	5.14***
$LOAN_{it}$	0.0003	6.85***	-0.0001	-0.72
$TIER1_{it}$	0.0001	1.74*	-0.00003	-0.53
EBP_{it}	-0.001	-0.48	0.021	3.95***
LLP_{it-1}	0.073	12.72***	0.108	6.74***
NPL_{it}	0.020	17.71***	0.019	9.58***
$PUBLIC_{it}$	-0.00001	-0.43	-0.00005	-0.87
$GDPG_{it}$	-0.002	-0.86	-0.001	-0.37
FFR_{it}	-0.054	-1.99**	-0.001	-2.30**
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.239		0.238	
# of Observations	40,362		40,362	

Panel C: The Relationship between *EPU* and Absolute Value of Discretionary Loan Loss Provisions for Unaudited Banks

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	-3.06***	-0.001	-4.46***
EPU_{it}	0.037	13.01***	0.056	12.92***
$SIZE_{it}$	-0.0001	-11.41***	0.0004	4.41***
$LOAN_{it}$	0.0004	15.12***	-0.0001	-1.75*
$TIER1_{it}$	-0.00003	-1.33	-0.0002	-4.06***
EBP_{it}	0.015	4.51***	0.042	6.08***
LLP_{it-1}	0.083	9.95***	0.164	10.43***
NPL_{it}	0.032	40.80***	0.040	32.16***
$PUBLIC_{it}$	-0.0001	-3.68***	-0.0001	-3.40***
$GDPG_{it}$	0.001	7.51***	0.002	8.21***
FFR_{it}	-0.008	-16.78***	-0.013	-16.20***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.205		0.219	
# of Observations	358,441		358,441	

Panel D: The Relationship between *MPU* and Absolute Value of Discretionary Loan Loss Provisions for Unaudited Banks

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	0.64	-0.001	-2.93***
MPU_{it}	0.005	6.95***	0.009	7.76***
$SIZE_{it}$	-0.0001	-11.40***	0.00004	4.42***
$LOAN_{it}$	0.0004	15.12***	-0.0001	-1.74
$TIER1_{it}$	-0.00003	-1.33	0.000	-4.06***
EBP_{it}	0.015	4.50***	0.042	6.08***
LLP_{it-1}	0.083	9.94***	0.164	10.43***
NPL_{it}	0.032	40.81***	0.040	32.16***
$PUBLIC_{it}$	-0.0001	-3.71***	0.000	-3.41***
$GDPG_{it}$	0.001	4.03***	0.001	5.11***
FFR_{it}	-0.010	-19.76***	-0.015	-18.92***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.205		0.219	
# of Observations	358,441		358,441	

Table 3.7 reports the OLS regression results of absolute value of discretionary loan loss provisions on *EPU*/*MPU* for audited and unaudited banks. Panel A reports the OLS regression results on the relationship between *EPU* and *ABS_DLLP1*/ *ABS_DLLP2* for audited banks. Panel B reports the OLS regression results on the relationship between *MPU* and *ABS_DLLP1*/*ABS_DLLP2* for audited banks. Panel C reports the OLS regression results on the relationship between *EPU* and

ABS_DLLP1/*ABS_DLLP2* for unaudited banks. Panel D reports the OLS regression results on the relationship between *MPU* and *ABS_DLLP1*/*ABS_DLLP2* for unaudited banks. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Table 3.8 The Effect of *EPU*/*MPU* on Absolute Value of Discretionary Loan Loss Provisions for Pre-Crisis and Post-Crisis Periods

Panel A: The Relationship between *EPU* and Absolute Value of Discretionary Loan Loss Provisions for Pre-Crisis Period

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	-0.65	-0.001	-5.08 ***
EPU_{it}	0.026	8.26***	0.034	7.03***
$SIZE_{it}$	-0.00004	-11.54***	0.000	8.38***
$LOAN_{it}$	0.0003	10.28***	0.000	-3.36***
$TIER1_{it}$	0.0001	4.92***	0.000	-1.13***
EBP_{it}	0.005	1.95*	0.032	5.26***
LLP_{it-1}	0.148	19.85***	0.297	14.27***
NPL_{it}	0.027	25.77***	0.034	17.35***
$PUBLIC_{it}$	-0.00002	-1.53	0.000	-3.71***
$GDPG_{it}$	0.001	4.90***	0.001	6.71***
FFR_{it}	-0.002	-5.21***	0.000	-5.00 ***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.176		0.232	
# of Observations	227,524		227,524	

Panel B: The Relationship between *MPU* and Absolute Value of Discretionary Loan Loss Provisions for Pre-Crisis Period

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.000	0.69	-0.001	-4.52***
MPU_{it}	0.004	5.07***	0.005	4.30***
$SIZE_{it}$	-0.00004	-11.53***	0.0001	8.39***
$LOAN_{it}$	0.0003	10.27	-0.0002	-3.37***
$TIER1_{it}$	0.0001	4.92***	-0.0001	-1.14
EBP_{it}	0.005	1.95*	0.032	5.26***
LLP_{it-1}	0.148	19.85***	0.297	14.27***
NPL_{it}	0.027	25.77***	0.034	17.35***
$PUBLIC_{it}$	-0.00002	-1.53	-0.0001	-3.71***
$GDPG_{it}$	0.0005	3.90***	0.001	5.84***
FFR_{it}	-0.003	-6.47***	-0.004	-6.03***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.176		0.232	
# of Observations	227,524		227,524	

Panel C: The Relationship between *EPU* and Absolute Value of Discretionary Loan Loss Provisions for Post-Crisis Period

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	-0.0002	-0.60	-0.001	-1.29
EPU_{it}	0.044	10.34***	0.071	10.93***
$SIZE_{it}$	-0.00005	-7.36***	0.00003	2.84***
$LOAN_{it}$	0.001	14.33***	-0.0001	-1.34
$TIER1_{it}$	-0.0001	-2.68***	-0.0003	-4.34***
EBP_{it}	0.016	4.07***	0.041	5.06***
LLP_{it-1}	0.054	8.46***	0.098	9.74***
NPL_{it}	0.031	38.11***	0.039	31.95***
$PUBLIC_{it}$	-0.0001	-3.5 ***	-0.0001	-1.92*
$GDPG_{it}$	0.004	15.78***	0.006	16.32***
FFR_{it}	-0.029	-22.54***	-0.045	-21.02***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.205		0.197	
# of Observations	171,279		171,279	

Panel D: The Relationship between *MPU* and Absolute Value of Discretionary Loan Loss Provisions for Post-Crisis Period

	Dep. Var. = ABS_DLLP1_{it} (1)		Dep. Var. = ABS_DLLP2_{it} (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.0001	0.25	-0.001	-0.76
MPU_{it}	0.018	11.83***	0.032	14.38***
$SIZE_{it}$	-0.00005	-7.35***	0.00003	2.84***
$LOAN_{it}$	0.001	14.34***	-0.0001	-1.33
$TIER1_{it}$	-0.0001	-2.68***	-0.0003	-4.35***
EBP_{it}	0.016	4.07***	0.041	5.06***
LLP_{it-1}	0.054	8.45***	0.098	9.73***
NPL_{it}	0.031	38.10***	0.039	31.93***
$PUBLIC_{it}$	-0.0001	-3.56***	-0.0001	-1.92*
$GDPG_{it}$	0.003	15.11***	0.005	15.76***
FFR_{it}	-0.032	-25.29***	-0.001	-23.69***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.205		0.197	
# of Observations	171,279		171,279	

Table 3.8 reports the OLS regression results of absolute value of discretionary loan loss provisions on *EPU*/*MPU* for pre-crisis and post-crisis periods. Panel A reports the OLS regression results on the relationship between *EPU* and *ABS_DLLP1* and *ABS_DLLP2* for pre-crisis period. Panel B reports the OLS regression results on the relationship between *MPU* and *ABS_DLLP1* and *ABS_DLLP2* for pre-crisis period. Panel C reports the OLS regression results on the relationship

between *EPU* and *ABS_DLLP1* and *ABS_DLLP2* for post-crisis period. Panel D reports the OLS regression results on the relationship between *MPU* and *ABS_DLLP1* and *ABS_DLLP2* for post-crisis period. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Table 3.9 The Effect of *EPU*/*MPU* on Earnings Opacity Using Alternative Measures

Panel A: The Effect of *EPU* on Absolute Value of Income-Increasing Discretionary Loan Loss Provisions

	Dep. Var. = $ABS\_INC\_DLLP1_{it}$ (1)		Dep. Var. = $ABS\_INC\_DLLP2_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	-0.0001	-0.93	-0.0004	-7.54***
EPU_{it}	0.025	9.43***	0.004	3.46***
$SIZE_{it}$	-0.00004	-7.55***	0.0001	17.65***
$LOAN_{it}$	0.0002	7.26***	-0.0004	-19.06***
$TIER1_{it}$	-0.0001	-1.53	-0.0002	-2.43**
EBP_{it}	0.019	2.51**	0.023	2.52**
LLP_{it-1}	0.060	9.23***	0.018	3.84***
NPL_{it}	0.022	29.82***	0.005	6.03***
$PUBLIC_{it}$	-0.00004	-2.98***	-0.0001	-4.20***
$GDPG_{it}$	0.001	11.30***	0.0004	7.18***
FFR_{it}	-0.001	-4.32***	0.0002	9.92***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.210		0.281	
# of Observations	241,389		293,113	

Panel B: The Effect of *MPU* on Absolute Value of Income-Increasing Discretionary Loan Loss Provisions

	Dep. Var. = $ABS\_INC\_DLLP1_{it}$ (1)		Dep. Var. = $ABS\_INC\_DLLP2_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.0001	1.24	-0.0003	-6.79***
MPU_{it}	0.003	4.92***	-0.00002	-0.05
$SIZE_{it}$	-0.00004	-7.54***	0.0001	17.66***
$LOAN_{it}$	0.0002	7.26***	-0.0004	-19.06***
$TIER1_{it}$	-0.0001	-1.53	-0.0002	-2.43**
EBP_{it}	0.019	2.51**	0.023	2.52**
LLP_{it-1}	0.059	9.23***	0.018	3.83***
NPL_{it}	0.022	29.82***	0.005	6.02***
$PUBLIC_{it}$	-0.00004	-2.99***	-0.0001	-4.20***
$GDPG_{it}$	0.001	8.23***	0.0004	5.73***
FFR_{it}	-0.002	-7.64***	0.002	9.19***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.210		0.281	
# of Observations	241,389		293,113	

Panel C: The Effect of *EPU* on Absolute Value of Income-Decreasing Discretionary Loan Loss Provisions

	Dep. Var. = $ABS\_DEC\_DLLP1_{it}$ (1)		Dep. Var. = $ABS\_DEC\_DLLP2_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.0002	0.48	-0.003	-2.38**
EPU_{it}	0.055	10.42***	0.175	11.77***
$SIZE_{it}$	-0.0001	-11.35***	-0.0001	-3.75***
$LOAN_{it}$	0.001	13.84***	0.001	4.58***
$TIER1_{it}$	-0.00002	-0.95	-0.0001	-1.22
EBP_{it}	0.012	3.94***	0.059	7.54***
LLP_{it-1}	0.081	7.36***	0.229	11.16***
NPL_{it}	0.044	37.27***	0.057	32.36***
$PUBLIC_{it}$	-0.0001	-4.04***	-0.0003	-3.43***
$GDPG_{it}$	0.002	5.48***	0.007	9.51***
FFR_{it}	-0.012	-11.82***	-0.023	-10.58***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.240		0.273	
# of Observations	157,414		105,690	

Panel D: The Effect of *MPU* on Absolute Value of Income-Decreasing Discretionary Loan Loss Provisions

	Dep. Var. = $ABS\_DEC\_DLLP1_{it}$ (1)		Dep. Var. = $ABS\_DEC\_DLLP2_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.001	1.76*	-0.001	-1.04
MPU_{it}	0.010	7.09***	0.032	8.65***
$SIZE_{it}$	-0.0001	-11.33***	-0.0001	-3.72***
$LOAN_{it}$	0.001	13.85***	0.001	4.56***
$TIER1_{it}$	-0.00002	-0.95	-0.0001	-1.25
EBP_{it}	0.012	3.93***	0.059	7.54***
LLP_{it-1}	0.081	7.36***	0.228	11.14***
NPL_{it}	0.044	37.30***	0.057	32.36***
$PUBLIC_{it}$	-0.0001	-4.05***	-0.0003	-3.46***
$GDPG_{it}$	0.001	3.49***	0.005	6.90***
FFR_{it}	-0.014	-13.58***	-0.029	-13.56***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.240		0.273	
# of Observations	157,414		105,690	

Panel E: The Effect of *EPU*/*MPU* on Small Positive Earnings Changes

	Dep. Var. = $SPEC_{it}$ (1)		Dep. Var. = $SPEC_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic

INTERCEPT	-0.234	-5.14***	-0.071	-1.71
EPU_{it}	34.301	13.04***		
MPU_{it}			12.836	16.00***
$SIZE_{it}$	-0.027	-10.35***	-0.027	-10.34***
$LOAN_{it}$	0.475	19.37***	0.476	19.41***
$TIER1_{it}$	-0.275	-6.78***	-0.275	-6.78***
EBP_{it}	14.630	7.05***	14.599	7.05***
LLP_{it-1}	-20.521	-15.46***	-20.584	-15.50***
NPL_{it}	-7.133	-31.12***	-7.135	-31.14***
$PUBLIC_{it}$	0.053	3.65***	0.053	3.64***
$GDPG_{it}$	1.996	18.99***	1.917	18.66***
FFR_{it}	-0.231	-0.57	-1.284	-3.30***
STATE FIXED EFFECTS	Yes		Yes	
YEAR FIXED EFFECTS	Yes		Yes	
Pseudo. R^2	0.057		0.058	
# of Observations	296,071		296,071	

Panel F: The Effect of *EPU/MPU* on Accounting Conservatism

	Dep. Var. = $CHROA_{it}$ (1)		Dep. Var. = $CHROA_{it}$ (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
INTERCEPT	0.005	11.34***	0.004	7.46***
$DCHROA_{it-1}$	0.0003	1.62	0.00004	0.20
$CHROA_{it-1}$	0.311	2.88***	0.380	3.53***
EPU_{it}	-0.206	-8.47***		
$DCHROA_{it-1} * CHROA_{it-1}$	-1.187	-6.27***		
$DCHROA_{it-1} * EPU_{it}$	-0.016	-1.03		
$CHROA_{it-1} * EPU_{it}$	-27.920	-1.79*		
$DCHROA_{it-1} * CHROA_{it-1} * EPU_{it}$	53.055	1.99**		
MPU_{it}			0.015	1.32
$DCHROA_{it-1} * CHROA_{it-1}$			-1.237	-6.17***
$DCHROA_{it-1} * MPU_{it}$			-0.037	-3.26***
$CHROA_{it-1} * MPU_{it}$			-57.016	-6.13***
$DCHROA_{it-1} * CHROA_{it-1} * MPU_{it}$			68.544	5.65***
$SIZE_{it}$	-0.0002	-6.85***	-0.0003	-8.20***
$DCHROA_{it-1} * SIZE_{it}$	-0.00004	-2.35**	-0.000001	-0.09
$CHROA_{it-1} * SIZE_{it}$	-0.057	-5.19***	-0.050	-6.25***
$DCHROA_{it-1} * CHROA_{it-1} * SIZE_{it}$	0.091	4.66***	0.093	6.69***
$LOAN_{it}$	-0.001	-5.25***	-0.001	-5.24***
$TIER1_{it}$	-0.002	-7.87***	-0.002	-7.87***
EBP_{it}	0.308	15.33***	0.309	15.31***
LLP_{it-1}	0.404	14.40***	0.420	13.68***
NPL_{it}	-0.014	-5.35***	-0.016	-7.00***
$PUBLIC_{it}$	0.0002	3.33***	0.0002	3.37***
$GDPG_{it}$	-0.007	-12.76***	-0.005	-9.76***
FFR_{it}	0.012	7.87***	0.022	13.65***
STATE FIXED EFFECTS	Yes		Yes	

YEAR FIXED EFFECTS	Yes		Yes	
Adj. R^2	0.467		0.473	
# of Observations	404,725		404,725	

Table 3.9 reports the OLS regression results using alternative measures of earnings opacity. Panel A reports the OLS regression results of *ABS_INC_DLLP* on *EPU*. Panel B reports the OLS regression results of *ABS_INC_DLLP* on *MPU*. Panel C reports the OLS regression results of *ABS_DEC_DLLP* on *EPU*. Panel D reports the OLS regression results of *ABS_DEC_DLLP* on *MPU*. Panel E reports the Probit regression results of *SPEC* on *EPU*/*MPU*. Panel F reports the OLS regression results of accounting conservatism on *EPU*/*MPU*. *, **, *** indicate significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Variables are defined in the Appendix 3.

Chapter 4: Does a Bank's History Affect Its Accounting Conservatism?

4.1. Introduction

We examine the impact of banks' bad times on the conservatism of accounting policy. Conservative accounting requires timelier recognition of losses and bad news than recognition of gains and good news (Basu 1997; Watts 2003; Beaver and Ryan 2005). This asymmetric timely recognition of loss will have a direct impact on profitability and capital ratios, which would then determine the stability of banks and the monitoring intensity imposed by bank regulators (Kanagaretnam, Lim and Lobo 2014; Bushman 2016). This is particularly salient in times of financial crisis, when banks with aggressive reporting behaviors are more subject to capital crunches and liquidity risk than are banks with conservative reporting behaviors (Beatty and Liao 2011; Bushman and Williams 2015). Given the potential significance of accounting conservatism, it is important to understand the channels that can affect variations in accounting conservatism among different banks. In this paper, we investigate an alternative channel that the accounting literature has overlooked: banks' bad times. We examine two types of bad times: bank-specific, and the weathering of a financial crisis.

The idea that a bank's experiences may affect its accounting policies builds on organizational learning theory, which posits that an organization can learn from its own experiences and from the successes and mistakes of others (Bandura 1977; Levitt and March 1988). Organizations can learn by encoding inferences from their experiences into routines that guide their subsequent behaviors (Levitt and March 1988). Bouwman and Malmendier (2015) have shown that bad times could lead to changes in lending and risk-taking. Following this line of reasoning, we expect a bank's bad times to affect its accounting policy.

We argue that, like most organizational routines and actions, accounting policy should be rooted in a bank's experiences and reactions to its past financial outcomes. However, the theories and evidence suggest otherwise. On the one hand, when a bank has survived a crisis or threat of failure, it may become more pessimistic about its future, thus recognizing potential losses more timely. In addition, loss recognition offers a cushion against future crisis and failure (Laeven and Majnoni 2003). Thus, a bank should become more cautious and recognize more loan and lease loss allowances in the future. On the other hand, a bank which has survived financial crisis, may become less concerned about future profitability and capital inadequacy, thereby adopting a more aggressive accounting policy by delaying loss recognition. Therefore, the question of whether and how banks' bad times relate to accounting conservatism remains unanswered.

To test the predictions, we use a large sample of U.S. banks for 1997-2013. Our sample covers pre-crisis (1997-2006) and the post-crisis years (2010-2013). To measure bank-specific bad times, we focus on undercapitalization. Following the FDIC (1992) and Dahl and Spivey (1995), we consider a bank undercapitalized in a certain year if it fails to maintain a tier 1 risk-based capital ratio of 4% or a total risk-based capital ratio of 8% (after 1990). To measure economic crises, we use two macroeconomic proxies for the severity of state-wide and county-wide crises. The first proxy is the average fraction of number of banks failed in a state or county in a certain year. The second is the average fraction of failed banks' assets in a state or county in that year. We measure accounting conservatism as the relationship between change in net income and the lagged change in net income, allowing for differences in net income. Alternatively, we use the balance sheet's loan and lease loss allowance to represent conservative reporting. We estimate the ordinary least squares (OLS) regressions with state and year fixed effects and with standard errors clustered at the bank level for the baseline tests, and use a matched sample differences-in-differences methodology to address the endogeneity concern.

Our results show that bad times, either bank-specific or economic-wide, are associated with increased bank accounting conservatism. Specifically, banks that have been undercapitalized and/or witnessed other banks fail in an economic crisis recognize their own losses more timely and recognize proportionately larger loan loss allowances. These findings support the prediction that banks that have survived crises might overreact to their bad times and become more pessimistic about their future. This finding holds in both pre- and post-crisis periods and for public and private banks.

Our study contributes to the literature in several important ways. First, we provide original evidence that banks adopt conservative accounting policies after experiencing bank-specific and economic-wide bad times. The literature identifies corporate governance, managerial overconfidence, and national culture as determinants of accounting conservatism (Black and Gallemore 2013; Leventis, Dimitropoulos and Owusu-Ansah 2013; Kanagaretnam et al. 2014). This evidence extends prior studies by showing that experiencing a bad time is a determinant of bank accounting conservatism. Second, our findings add new evidence to support organizational learning theory. We show that banks learn by reflecting on their own mistakes and those of others. In addition, accounting policies capture experiential lessons for banks. Third, our findings have important implications for bank managers and regulators. The timely recognition of loan and lease losses is critical to the banking industry because of the importance of exposure to losses from various types of risk as well as capital adequacy regulations, which affect a bank's ability to absorb losses and remain solvent for depositors (Kanagaretnam et al. 2014). Managers and regulators of banks that have rarely been exposed to a crisis should exercise greater caution in monitoring bank financial reporting, as accounting policies within these banks may become less conservative and harbor potential risks detrimental to the entire banking sector.

The rest of the paper is organized as follows. Section 2 reviews the literature and develops our hypotheses on the relationship between bad times and bank accounting conservatism. Section 3 explains our research design, including the measures and choices of empirical models to test our hypothesis. Section 4 describes our sample selection and data, including descriptive statistics and correlation analysis. Section 5 discusses our main results. Section 6 provides additional robustness checks. Finally, Section 7 presents our conclusions.

4.2. Literature Review and Hypothesis Development

Accounting conservatism is defined as accountants' tendency to require more rigorous verification of good news than of bad news in financial statements: earnings reflect bad news more quickly than good news (Basu 1997). The theories and evidence suggest that accounting conservatism has a mitigating effect on managerial opportunism, bank capital crunches, liquidity risk and bankruptcy risk (Ball and Shivakumar 2005; Beatty and Liao 2011; Bushman and Williams 2015; Biddle, Ma and Song 2016; Watt 2003). Given its importance, many studies have investigated factors influencing accounting conservatism. For example, effective corporate governance structures arguably lead to greater bank accounting conservatism, whereas overconfident bank managers recognize lower levels of loan losses and delay their recognition (Black and Gallemore 2013; Leventis et al. 2013). In addition, Kanagaretnam et al. (2014) find that national culture affects bank-level accounting conservatism, with individualism negatively related and uncertainty avoidance positively related to accounting conservatism. Here, we investigate an alternative channel that has been unexplored by prior accounting literature: banks' bad times.

The organizational learning theory posits that an organization can learn from its direct experiences as well as from the successes and mistakes of others (Bandura 1977; Levitt and March 1988). Levitt and March (1988) argue that organizations can learn by encoding inferences from their experiences into routines that guide their subsequent behaviors.[24] Bouwman and Malmendier (2015) investigate the impact of a bank's history on its risk-taking behavior and find that past experiences of difficult times predict more careful lending and higher capitalization for banks in the long run, but that witnessing other banks in crisis does not induce such behavior. Following the same line of reasoning, we expect a bank's bad times to have a bearing on its accounting policy. We argue that, just like most organizational routines and actions, the accounting policy of a bank should be rooted in its experiences and represent feedbacks about its past financial outcomes. To investigate the influence of bad times on accounting policy choice, we focus on two types of bad times that a bank can possibly have undergone: the bank-specific bad times, and the macro-level crises in which the bank sees other banks' failure.

Our first hypothesis explores how bank-specific bad times influence accounting conservatism. Following the logic that insights derived from examining past experiences shape the perspectives of the organizational future (Sawy, Gomes and Gonzalez 1986), we argue that banks that have been involved in some specific crises may reflect on their individual experiences, and become more pessimistic. Motivated by their pessimistic beliefs, banks that had bad times may expect their earnings and/or loan quality to be lower than those of other

[24] Routines not only include the forms, rules, procedures, conventions, strategies, and technologies around which organizations are constructed and through which they operate, but also include the structure of beliefs, frameworks, paradigms, codes, cultures, and knowledge within the organization that buttress, elaborate, and contradict the formal routine (Levitt and March 1988).

banks and are therefore more sensitive to expected deterioration in earnings or loan quality. Thus, these banks may recognize their losses more timely. In addition, these troubled banks may become more careful in planning their policies and strategies in an attempt to avoid another financial crisis. By understating reported net income and assets and by reporting bad news promptly, accounting conservatism reduces the proportion of risks distributable to contracting parties, thus promoting precautionary savings, enhancing the capacity of repayment, and reducing bankruptcy risk (Biddle et al. 2016). Besides, loan loss provisions and related allowances serve as a cushion against expected losses (Laeven and Majnoni 2003). A bank with delayed loan loss recognition will require higher provisions when it is in trouble, because it must cover both unexpected recessionary loan losses and loss overhangs from previous periods, thereby increasing their concerns about future bank profitability and capital inadequacy (Beatty and Liao 2011; Bushman 2014). Moreover, insofar as delayed expected loss recognition is a manifestation of opportunistic behavior which degrades bank transparency (Bushman and Williams 2015), it increases financing frictions that restricts the ability of the bank to replenish depleted capital levels and increases the risk of bank failure (Bushman and Williams 2012). Taken together, we expect that banks with bad experiences, especially with undercapitalization, should recognize higher levels of expected losses and/or accelerate the recognition of expected losses to buffer against potential crisis and failure. Therefore, our first hypothesis is:

H1: Bank-specific bad times are associated with more accounting conservatism.

In our second hypothesis, we investigate the effect of witnessing failures of other banks in economic-wide bad times on bank accounting conservatism. The theories and evidence lead to competing arguments. On the one hand, a bank that has seen other banks fail in an economic crisis may learn from those failures and become more conservative in its financial reporting. On the other hand, it is also possible that the bank may overstate its ability to survive crisis and become less concerned about future profitability and capital inadequacy issues, thus adopting a more aggressive accounting policy by delaying loss recognition in the long run. On a similar topic that associates bad times with bank risk-taking, Bouwman and Malmendier (2015) find that seeing the failure of other banks in crisis does not induce more careful lending and higher capitalization. Thus, it seems that, as long as an economic crisis does not cause extremely negative consequences to the surviving banks, these banks would not necessarily become more conservative. Given this reasoning, our second hypothesis is:

H2: Macro-level bad times are not associated with accounting conservatism.

4.3. Research Design

Similar to Bouwman and Malmendier (2015), we define a bank-specific bad time as a bank being undercapitalized. When a bank becomes undercapitalized, it is immediately subject to a restriction on the payment of dividends, a limitation on growth, and an obligation to file an acceptable capital restoration plan. Significantly undercapitalized banks are subject to more extensive sanctions which may include restrictions on management pay, restrictions on transactions with affiliates, limits on deposit interest rates, forced recapitalizations, forced personnel changes, and divestitures of subsidiaries (FDIC 1992; Dahl and Spivey 1995). Following the FDIC (1992) and Dahl and Spivey (1995), a bank is undercapitalized ($UNCAP$) in a certain year if it fails to maintain a tier 1 risk-based capital ratio of 4% or a total risk-based capital ratio of 8% (after 1990). To measure macro-level bad times that a bank has witnessed, we use two sets of proxies that capture both the state-wide and the county-wide crisis. Our first proxy, $FNMR$, is the average fraction of number of banks failed in the state (county) in a given year. This is calculated by the number of bank failures in a state (county) scaled by the number of all banks in the state (county). Our second proxy, $FATR$, is the average fraction of failed banks' assets in a state (county) in a given year. It is calculated by the total assets of failed banks in a state (county) scaled by the total assets of all banks in the state (county). The higher the ratios of $FNMR$ and $FATR$, the more severe state-wide (county-wide) bad times a bank has experienced.

We use two metrics to capture accounting conservatism. First, we examine the relationship between a change in net income and the lagged change in net income, allowing for differences in positive and negative changes in net income. This is based on the principle of conservatism that is viewed as requiring higher verification standards for recognizing good news than bad (Basu 1997; Nichols, Wahlen and Wieland 2009), resulting in asymmetric timeliness of recognition of earnings decreases versus earnings increases (Kanagaretnam et al. 2014). Our model for testing accounting conservatism using aggregate earnings follows Ball and Shivakumar (2005), Nichols et al. (2009), and Kanagaretnam et al. (2014).

To test our first hypothesis on the effect of bank-specific bad times on bank accounting conservatism, we estimate the regression using Equation (4.1).

$$\Delta ROA_t = \alpha_0 + \alpha_1 D\Delta ROA_{t-1} + \alpha_2 \Delta ROA_{t-1} + \alpha_3 UNCAP_{t-1} + \alpha_4 D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_5 D\Delta ROA_{t-1} * UNCAP_{t-1} + \alpha_6 \Delta ROA_{t-1} * UNCAP_{t-1} + \alpha_7 D\Delta ROA_{t-1} * \Delta ROA_{t-1} * UNCAP_{t-1} + \alpha_8 SIZE_{t-1} + \alpha_9 SIZE_{t-1} * D\Delta ROA_{t-1} + \alpha_{10} SIZE_{t-1} * \Delta ROA_{t-1} + \alpha_{11} SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_{12} LOAN_t + \alpha_{13} TIER1_t + \alpha_{14} EBTP_t + \alpha_{15} \Delta NPL_t + \alpha_{16} PUBLIC_t + \alpha_{17} \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \qquad (4.1)$$

where ΔROA is the change in net income scaled by lagged total assets; $D\Delta ROA$ is a dummy variable that equals 1 if the change in net income is negative, and 0 otherwise; $UNCAP$ is undercapitalization, a dummy variable that equals 1 if the tier 1 risk-based capital ratio is less than 4% or the total risk-based capital ratio is less than 8% (after 1990), and 0 otherwise; $SIZE$ is the natural log of total assets; $Loan$ is the total loans scaled by total assets; $TIER1$ is the tier 1 risk-based capital ratio, calculated by tier 1 capital scaled by total risk-weighted assets; ΔNPL is the change of nonperforming loans scaled by total loans; $EBTP$ is the earnings before loan loss provisions and taxes scaled by lagged total assets; $PUBLIC$ is a dummy variable that equals 1 for a public bank, and 0 otherwise; ΔUEP is the change in unemployment rate of the state where the bank's headquarter is located over the year. We also include year-fixed effects.

Under conditional conservatism, economic gains must meet a higher verification threshold to be recognized in accounting income, so earnings decreases should be timelier and less persistent than earnings increases (Nichols et al. 2009), indicating a positive value for α_2 and a negative value for α_4. Since H1 predicts that bank undercapitalization is associated with higher levels of accounting conservatism, we expect α_7 , the coefficient on $D\Delta ROA_{t-1} * \Delta ROA_{t-1} * UNCAP_{t-1}$, to be negative for Equation (4.1). To test our second hypothesis on the effect of macro-level bad times on bank accounting conservatism, we estimate the regression using Equations (4.2) and (4.3).

$$\Delta ROA_t = \alpha_0 + \alpha_1 D\Delta ROA_{t-1} + \alpha_2 \Delta ROA_{t-1} + \alpha_3 FNMR_{t-1} + \alpha_4 D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_5 D\Delta ROA_{t-1} * FNMR_{t-1} + \alpha_6 \Delta ROA_{t-1} * FNMR_{t-1} + \alpha_7 D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FNMR_{t-1} + \alpha_8 SIZE_{t-1} + \alpha_9 SIZE_{t-1} * D\Delta ROA_{t-1} + \alpha_{10} SIZE_{t-1} * \Delta ROA_{t-1} + \alpha_{11} LOAN_t + \alpha_{12} TIER1_t + \alpha_{13} EBTP_t + \alpha_{14} \Delta NPL_t + \alpha_{15} PUBLIC_t + \alpha_{16} \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \qquad (4.2)$$

$$\Delta ROA_t = \alpha_0 + \alpha_1 D\Delta ROA_{t-1} + \alpha_2 \Delta ROA_{t-1} + \alpha_3 FATR_{t-1} + \alpha_4 D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_5 D\Delta ROA_{t-1} * FATR_{t-1} + \alpha_6 \Delta ROA_{t-1} * FATR_{t-1} + \alpha_7 D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FATR_{t-1} + \alpha_8 SIZE_{t-1} + \alpha_9 SIZE_{t-1} * D\Delta ROA_{t-1} + \alpha_{10} SIZE_{t-1} * \Delta ROA_{t-1} + \alpha_{11} LOAN_t + \alpha_{12} TIER1_t + \alpha_{13} EBTP_t + \alpha_{14} \Delta NPL_t +$$

$$\alpha_{15}PUBLIC_t + \alpha_{16}\Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \tag{4.3}$$

where $FNMR$ is the number of state-wide (county-wide) bank failures scaled by the number of all banks in the state (county); $FATR$ is the total assets of state-wide (county-wide) failed banks scaled by the total assets of all banks in the state (county). We follow Bouwman and Malmendier (2015) to define the *FNMR* and *FATR* variables. Based on H2 that economic-wide crises are not associated with accounting conservatism, we expect α_7 to be insignificant for Equations (4.2) and (4.3).

Second, we turn to the balance sheet and use the ratio of loan loss allowances scaled by total loans as an alternative measure. Banks that are more conservative are expected to have recognized more allowance of loan and lease loss provisions relative to their loans. Fitch (2009) notes that the performing portfolio needs to be reserved against for expected risk, although accounting standards may not allow for this. Beatty and Liao (2011) and Kanagaretnam et al. (2014) use the allowance ratio (LLA) to capture the balance sheet perspective of accounting conservatism.[25]

$$LLA_t = \beta_0 + \beta_1 UNCAP_{t-1} + \beta_2 SIZE_{t-1} + \beta_3 LOAN_t + \beta_4 TIER1_t + \beta_5 EBTP_t + \beta_6 \Delta NPL_t + \beta_7 PUBLIC_t + \beta_8 \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \tag{4.4}$$

[25] Beatty and Liao (2011) scales the loan loss allowances by non-performing loans. Our results are robust to this minor difference.

$$LLA_t = \beta_0 + \beta_1 FNMR_{t-1} + \beta_2 SIZE_{t-1} + \beta_3 LOAN_t + \beta_4 TIER1_t + \beta_5 EBTP_t + \beta_6 \Delta NPL_t + \beta_7 PUBLIC_t + \beta_8 \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \quad (4.5)$$

$$LLA_t = \beta_0 + \beta_1 FATR_{t-1} + \beta_2 SIZE_{t-1} + \beta_3 LOAN_t + \beta_4 TIER1_t + \beta_5 EBTP_t + \beta_6 \Delta NPL_t + \beta_7 PUBLIC_t + \beta_8 \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \quad (4.6)$$

where LLA is loan loss allowance scaled by total loans. Under this measure, H1 predicts β_1 to be significantly positive for Equation (4.4), whereas H2 predicts that β_1 is not significant for Equations (4.5) and (4.6).

4.4. Sample and Data

Our sample spans the period 1997-2013. Our data come from two sources. We obtain information on the number and the assets of failed banks from the FDIC's website (https://www.fdic.gov/bank/individual/failed/banklist.html). Bank-level financial information including data to construct accounting conservatism variables is retrieved from the Reports of Condition and Income (Call Reports) that banks file with their primary regulator, the Federal Reserve, the Federal Deposit Insurance Corporation, or the Office of the Comptroller of the Currency. Call reports are available at the Federal Reserve of Chicago's website (https://www.chicagofed.org/banking/financial-institution-reports/commercial-bank-data). The Call Reports data have the advantage of providing financial information not only for public but also for private banks, the majority of banks in our study. We delete all observations without enough financial information to construct our variables. In the baseline analysis, we focus on the entire 17-year period. In additional analyses, we will investigate the pre- and post-crisis subsamples separately. All bank-level continuous variables are winsorized at the top and bottom 1 percentiles to mitigate the effects of any outliers.

Table 4.1 reports the descriptive statistics. Panel A presents the distribution of variables used in the earnings changes regression. The sample consists of 128,381 bank-year observations for the earnings changes test. The mean change in return on assets (ΔROA_t) is -0.01%, and 50.6% of the sample banks report a decline in net income. Panel B presents the distribution of variables used in the loan loss allowance regression. It includes 130,990 bank-year observations for the loan loss allowance test. Loan loss allowance is 1.5% of total loans. For the bank-specific bad time variable ($UNCAP_{t-1}$), 0.2% of all banks experienced undercapitalization in the prior year. In terms of the macro-level bad time variables $FNMR_{t-1}$, 0.4% of banks witnessed state-wide bank failures in the prior year, and 0.3% of banks witnessed county-wide bank failures in the prior year. The average fraction of failed banks' assets $FATR_{t-1}$ is 0.3% (0.5%) of the total assets in state-wide (county-wide) crises.

[Table 4.1]

Table 4.2 presents the Pearson correlation matrix between the variables used in the regression. The loan loss allowance ratio (LLA_{it}) is positively and significantly correlated with $UNCAP_{it-1}$, consistent with our prediction that undercapitalization is associated with more conservative accounting. In addition, we find that LLA_{it} is positively and significantly related to both state-wide and county-wide $FNMR_{it-1}$ and $FATR_{it-1}$ at the 1% level, suggesting that a bank which has witnessed macro-level banking crises is more conservative by increasing the level of allowance for loan and lease losses.

[Table 4.2]

In Table 4.3, we present the univariate comparisons of the mean values of LLA_{it} for bank-years with above and below median bad times based on different bad time proxies. We document that compared with bank-years with below median $UNCAP_{it-1}$, those with above median $UNCAP_{it-1}$ have significantly higher loan loss allowance ratio (t-value = 18.12), lending support to our H1 that bank-specific bad times are associated with greater accounting conservatism. Besides, we document that the mean value of LLA_{it} is higher for bank-years with above median state-wide and county-wide $FNMR_{it-1}$ and $FATR_{it-1}$, indicating that macro-level bad times are also related to greater accounting conservatism.

[Table 4.3]

4.5. Regression Results

4.5.1. Main Regression Results

Table 4.4 presents the multivariate regression results for testing the relationship between bank-specific bad times and accounting conservatism. Column 1 reports the result of the earnings changes regression using Equation (4.1). Most of the estimated coefficients are consistent with those reported in Nichols et al. (2009) and Kanagaretnam et al. (2014). Specifically, the coefficient α_4 on $D\Delta ROA_{t-1} *$

ΔROA_{t-1} is negative and significant as expected (t-value = -7.43), consistent with banks being timelier in reporting earnings decreases compared with earnings increases. H1 predicts that accounting conservatism increases following bank-specific bad times. Consistent with this prediction, the coefficient α_7 on $D\Delta ROA_{t-1} * \Delta ROA_{t-1} * UNCAP_{t-1}$, is negative and significant at the 5% level (t-value = -2.01), suggesting that recognition of earnings decreases is timelier than recognition of earnings increases after banks experience undercapitalization. For control variables, the coefficients on $EBTP_t$ and $PUBLIC_t$ are positive and significant, implying that banks with higher pre-managed earnings and public banks have more increases in earnings. Column 2 reports the results of the loan loss allowance regression using Equation (4.4). The coefficient on $UNCAP_{t-1}$ is significantly positive at the 1% level, suggesting that financial reporting is more conservative for undercapitalized banks. As for economic significance, compared with capitalized banks, undercapitalized banks experience an increase in loan loss allowance of 0.9% of their total loans. These results support our H1 that accounting conservatism is greater among banks that have been undercapitalized. With regard to control variables, we find that LLA_{it} is negatively associated with $LOAN_{it}$ and positively associated with ΔNPL_{it}, implying that banks with lower proportion of loans and higher change of non-performing loans recognize greater loan loss allowance.

[Table 4.4]

Table 4.5 presents the OLS regression results for testing the relationship between macro-level bad times and accounting conservatism. Panel A shows the association of earnings changes with $FNMR_{it-1}$ as macro-level bad time measure using Equation (4.2). Of primary interest is the coefficient α_7 on $D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FNMR_{t-1}$. We find that α_7 is negative and significant at the 1% level when $FNMR_{it-1}$ is measured both state-wide and county-wide (t-value = -13.42 and -2.70, respectively), indicating that bank recognition of bad news is timelier in a state or a county that has a higher bank failure rate in the prior year. Panel B shows the association of earnings changes with $FATR_{it-1}$ as macro-level bad time measure using Equation (4.3). The primary variable of interest, $D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FATR_{t-1}$, is negatively and significantly associated with ΔROA_t at both the state and county levels (t-value = -9.98 and -4.59, respectively), implying that banks recognize earnings declines more timely after the state or county has experienced bank crashes in the previous year. Panels C and D depict the association between LLA_{it} and $FNMR_{it-1}$ and $FATR_{it-1}$ of Equations (4.5) and (4.6), respectively. We find that both state-wide and county-wide $FNMR_{it-1}$ and $FATR_{it-1}$ are positively and significantly related with LLA_{it} at the 1% level, consistent with banks that have been exposed to state-wide or county-wide crises recognize proportionately larger loan loss allowance than banks that have not. Collectively, our results indicate that like bank-specific bad times, macro-level bad times are associated with greater accounting conservatism.

[Table 4.5]

4.5.2. Endogeneity Tests

Unobservable time-series changes that are contemporaneous with undercapitalization may also affect accounting conservatism. To remove the effect of contemporaneous shocks, we use a matched sample differences-in-differences methodology. In the first stage, we match each undercapitalized bank to a benchmark bank that is not undercapitalized in the same state according to the propensity score matching (PSM) procedure proposed by Rosenbaum and Rubin (1983). This method creates a capitalized control sample with the same predicted probabilities of being undercapitalized. To calculate the propensity scores, we estimate the logistic regression using Equation (4.7):

$$M\_UNCAP_t = \lambda_0 + \lambda_1 M\_SIZE_{t-1} + \lambda_2 M\_LOAN_t + \lambda_3 M\_EBTP_t + \lambda_4 M\_NPL_t + \lambda_5 M\_CO_t \quad (4.7)$$

where *M_UNCAP* is a dummy variable that equals 1 if a bank has not experienced undercapitalization (i.e., the mean value of *UNCAP* for a bank is different from 0) in the sample period and 0 otherwise, *M_SIZE* is the mean value of *SIZE* for a bank in the sample period, *M_LOAN* is the mean value of *LOAN* for a bank in the sample period, *M_EBTP* is the mean value of *EBTP* for a bank in the sample period, *M_NPL* is the mean value of *NPL* for a bank in the sample period, M_CO is the mean value of loan charge-offs scaled by lagged total loans for a bank in the sample period.

Panel A of Table 4.6 provides the logistic regression results of the propensity score matching process. M_UNCAP_t is positively and significantly associated with M_SIZE_{t-1}, M_LOAN_t, M_NPL_t, and M_CO_t, indicating that banks with a greater proportion of total assets, loan-making activities, non-performing loans and loan charge-offs are more likely to be undercapitalized. In contrast, M_UNCAP_t is negatively and significantly related to M_EBTP_t, suggesting that greater earnings before loan loss provisions is associated with lower likelihood of undercapitalization.

In the second stage, we estimate the following regression using a sample that pools both the undercapitalized and matched banks.

$$\Delta ROA_t = \alpha_0 + \alpha_1 D\Delta ROA_{t-1} + \alpha_2 \Delta ROA_{t-1} + \alpha_3 M\_UNCAP_{t-1} + \alpha_4 POST_t + \alpha_5 D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_6 D\Delta ROA_{t-1} * M\_UNCAP_{t-1} + \alpha_7 D\Delta ROA_{t-1} * POST_t + \alpha_8 \Delta ROA_{t-1} * M\_UNCAP_{t-1} + \alpha_9 \Delta ROA_{t-1} * POST_t + \alpha_{10} M\_UNCAP_{t-1} * POST_t + \alpha_{11} D\Delta ROA_{t-1} * \Delta ROA_{t-1} * M\_UNCAP_{t-1} + \alpha_{12} D\Delta ROA_{t-1} * \Delta ROA_{t-1} * POST_t + \alpha_{13} D\Delta ROA_{t-1} * M\_UNCAP_{t-1} * POST_t + \alpha_{14} D\Delta ROA_{t-1} * \Delta ROA_{t-1} * M\_UNCAP_{t-1} * POST_t + \alpha_{15} SIZE_{t-1} + \alpha_{16} SIZE_{t-1} * D\Delta ROA_{t-1} + \alpha_{17} SIZE_{t-1} * \Delta ROA_{t-1} + +\alpha_{18} SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1} + \alpha_{19} LOAN_t + \alpha_{20} TIER1_t + \alpha_{21} EBTP_t + \alpha_{22} \Delta NPL_t + \alpha_{23} PUBLIC_t + \alpha_{24} \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t$$

(4.8)

$$LLA_t = \beta_0 + \beta_1 M\_UNCAP_{t-1} + \alpha_2 POST_t + \beta_3 M\_UNCAP_{t-1} * POST_t + \beta_4 SIZE_{t-1} + \beta_5 LOAN_t + \beta_6 TIER1_t + \beta_7 EBTP_t + \beta_8 \Delta NPL_t + \beta_9 PUBLIC_t + \beta_{10} \Delta UEP_t + \sum State\_Indicators + \sum Year\_Indicators + \varepsilon_t \quad (4.9)$$

where $POST$ is a dummy variable that equals 1 for the bank years after an undercapitalization occurs, and 0 otherwise. This methodology controls for unobservable differences between undercapitalized and matched banks. Our estimate of α_{14} in Equation (4.8) and β_3 in Equation (4.9) captures the undercapitalization effect, representing the change in accounting conservatism specific to banks that have been undercapitalized. H1 predicts that bank accounting becomes more conservative in the wake of a bank-specific crisis. Hence, we expect α_{14} to be negative for Equation (4.8), and β_3 to be positive for Equation (4.9).

The results of the second stage regressions are reported in Panel B of Table 4.6. For Equation (4.8), we find a negative and significant coefficient on $D\Delta ROA_{t-1} * \Delta ROA_{t-1} * UNCAP_{t-1} * POST_t$, indicating that compared with matched banks, undercapitalized banks recognize earnings decline more timely than earnings increase after undercapitalization. In Column 2, for Equation (4.9), we find that the coefficient on $UNCAP_{t-1} * POST_t$ is 0.011, suggesting that undercapitalized banks have an additional 1.1% net increase in the ratio of loan loss allowance to total loans (LLA_t) after the year of undercapitalization. These results support our prediction that accounting conservatism is higher in banks that have survived bank-specific crisis.

[Table 4.6]

4.6. Additional Analyses

We conduct several additional analyses to assess the robustness of our findings. First, we investigate whether the relationship between bad times and accounting conservatism holds for public and private banks. Prior literature showed that public banks and private banks have different earnings incentives and patterns. For example, Beatty et al. (2002) find that public banks have more incentives to report steadily increasing earnings, as public banks' shareholders are more likely than private banks' shareholders to rely on simple earnings-based heuristics in evaluating firm performance. Therefore, we estimate the regression for both types of banks. The regression results (untabulated) attest to a significantly positive relationship between bad times (bank-specific and macro-level) and accounting conservatism among both public banks subsample and private banks subsample, suggesting that past experiences influence bank accounting policies even if public and private banks have potential different earnings incentives. The baseline regressions estimate the influence of bad times on accounting conservatism for the entire 17 years (1997-2013). Now we repeat the analysis for each of the two sub-periods separately: pre-crisis (1997-2006) and post-crisis (2010-2013). The untabulated results indicate that our main inferences hold for both subsamples. Finally, we assess the robustness of our results by adding several state-level control variables. Following Beatty and Liao (2014), we include GDP growth rate and house price index of the state where the bank headquarter is located. The main results remain robust after we include these macro-level variables.

4.7. Conclusions

Our primary research question is whether and how bad times contribute to bank accounting conservatism. We are interested in two types of bank experiences: 1) bank-specific bad times in which the bank itself is affected and undercapitalized, and 2) the experiences of the bank weathering state-wide and county-wide bank failures. We answer the question by analyzing a sample of banks over the years 1997-2013, a period encompassing both pre- and post-crisis periods.

Our empirical results show that banks' experiences of being exposed to specific bad times such as undercapitalization are associated with greater financial reporting conservatism as reflected in two accounting measures: asymmetric timeliness of recognition of earnings decreases versus earnings increases, and the ratio of loan loss allowance to total loans. In addition, we find that the experiences of witnessing failures of other banks in macro-level economic crisis also increase banks' financial reporting conservatism. These findings hold across both public and private banks that have different earnings incentives, and in both the pre-crisis and post-crisis periods. Overall, our findings indicate that banks' accounting conservatism improves with the experiences of being exposed to bad times. These results are in contrast with Liu and Ryan (2006) that document profitable banks tend to accelerate loan loss provisions around the1990s.

We offer the following explanations. When a bank has experienced crisis or threat of failure, it may reflect on its bad times and become more pessimistic about its future, thus recognizing potential losses in a timelier manner. In addition, loss recognition offers a cushion against potential crisis and failure (Laeven and

Majnoni 2003). Thus, a bank with bad experiences should become more cautious and recognize more allowances to buffer against potential crisis and failure. These findings contrast with Bouwman and Malmendier (2015), whose empirical results suggest that a bank which successfully lives through times of crisis exaggerate its ability to withstand the crisis and become less concerned about future profitability and capital inadequacy issues.

We provide original evidence that banks adopt conservative accounting policies after experiencing bank-specific and economic-wide bad times. Our evidence extends prior studies (e.g., Black and Gallemore 2013; Kanagaretnam et al. 2014; Leventis et al. 2013) by showing that bad time history is another determinant of bank accounting conservatism. Besides, our findings add novel evidence to support the organizational learning theory. Our results indicate that banks could learn by reflecting on their own mistakes and on those of others. In addition, our evidence implies that accounting policies act as a form of routine to capture the experiential lessons in banks.

Our findings have important implications for bank managers, investors, and bank regulators. The timely recognition of earnings declines and loan losses is crucial to the banking sector because the timely recognition of earnings decreases and delayed recognition of earnings increases will directly impact the ratios of profitability and equity capital, which could determine the monitoring intensity of bank regulators (Kanagaretnam et al. 2014). In this sense, bank regulators and investors should remain extra careful in monitoring financial reporting of banks that have rarely been exposed to any form of bad times such as undercapitalization or macro-level banking crisis, as accounting policies of these banks may be aggressive and their financial reports may contain potential risks.

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Appendix 4

Variables	
ΔROA	Change in net income scaled by lagged total assets.
$D\Delta ROA$	A dummy variable that equals 1 if the change in net income is negative, and 0 otherwise.
LLA	Loan loss allowance scaled by total loans.
$UNCAP$	A dummy variable that equals 1 if the tier 1 risk-based capital ratio is less than 4% or the total risk-based capital ratio is less than 8% (after 1990), and 0 otherwise.
$FNMR$	The number of statewide (countywide) bank failures scaled by the number of all banks in the state (county).
$FATR$	The total assets of statewide (countywide) failed banks scaled by the total assets of all banks in the state (county).
$SIZE$	Natural log of total assets.
$LOAN$	Total loans scaled by total assets.
$TIER1$	Tier 1 risk-based capital ratio, calculated by tier 1 capital scaled by total risk-weighted assets.
$EBTP$	Earnings before loan loss provisions and taxes scaled by lagged total assets.
ΔNPL	Change in nonperforming loans scaled by total loans.
$PUBLIC$	A dummy variable that equals 1 for a public bank, and 0 otherwise.
$POST$	A dummy variable that equals 1 after an undercapitalization occurs, and 0 otherwise.
CO	Loan charge-offs scaled by total loans.
ΔUEP	Change in unemployment rate of the state where the bank's headquarter is located over the year.

Table 4.1 Descriptive Statistics

Panel A: Variables Used in Earnings Changes Regressions

Variable	N	Mean	Median	Q1	Q3	Std. Dev.
ΔROA_t	128,381	-0.0001	-0.00003	-0.001	0.001	0.004
$D\Delta ROA_{t-1}$	128,381	0.506	1.000	0.000	1.000	0.500
ΔROA_{t-1}	128,381	-0.0001	-0.00002	-0.001	0.001	0.004
$UNCAP_{t-1}$	128,381	0.002	0.000	0.000	0.000	0.043
$FNMR_{t-1}$ (Statewide)	128,381	0.003	0.000	0.000	0.001	0.012
$FNMR_{t-1}$ (Countywide)	128,381	0.003	0.000	0.000	0.000	0.030
$FATR_{t-1}$ (Statewide)	128,381	0.003	0.000	0.000	0.000	0.014
$FATR_{t-1}$ (Countywide)	128,381	0.004	0.000	0.000	0.000	0.110
$SIZE_{t-1}$	128,381	11.708	11.575	10.841	12.400	1.275
$LOAN_t$	128,381	0.626	0.645	0.535	0.737	0.152
$TIER1_t$	128,381	0.160	0.137	0.111	0.181	0.076
$EBTP_t$	128,381	0.004	0.004	0.002	0.005	0.003
ΔNPL	128,381	0.001	0.000	-0.004	0.004	0.014
$PUBLIC_t$	128,381	0.028	0.000	0.000	0.000	0.164
ΔUEP_t	128,381	0.001	-0.001	-0.005	0.005	0.010

Panel B: Variables Used in Loan Loss Allowance Regressions

Variable	N	Mean	Median	Q1	Q3	Std. Dev.
LLA_t	130,853	0.015	0.013	0.010	0.017	0.008
$UNCAP_{t-1}$	130,853	0.002	0.000	0.000	0.000	0.044
$FNMR_{t-1}$ (Statewide)	130,853	0.004	0.000	0.000	0.001	0.012
$FNMR_{t-1}$ (Countywide)	130,853	0.003	0.000	0.000	0.000	0.030
$FATR_{t-1}$ (Statewide)	130,853	0.003	0.000	0.000	0.000	0.014
$FATR_{t-1}$ (Countywide)	130,853	0.005	0.000	0.000	0.000	0.114
$SIZE_{t-1}$	130,853	11.699	11.564	10.835	12.389	1.273
$LOAN_t$	130,853	0.628	0.646	0.537	0.739	0.152
$TIER1_t$	130,853	0.160	0.137	0.111	0.181	0.076
$EBTP_t$	130,853	0.004	0.004	0.002	0.005	0.004
ΔNPL	130,853	0.001	0.000	-0.004	0.004	0.015
$PUBLIC_t$	130,853	0.028	0.000	0.000	0.000	0.164
ΔUEP_t	130,853	0.001	-0.001	-0.005	0.005	0.010

Table 4.1 provides the descriptive statistics, with Panel (A) for variables in Equations (4.1), (4.2), and (4.3), and Panel B for variables in Equations (4.4), (4.5), and (4.6). Continuous variables are winsorized at top and bottom 1%. Definitions of the variables are provided in Appendix 4.

Table 4.2 Pearson Correlation Matrix

Panel A: Variables Used in Changes Regressions

	Variable	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	ΔROA_t	**0.14**	**-0.33**	**0.10**	**0.09**	**0.03**	**0.06**	**0.02**	**-0.04**	**-0.02**	**0.03**	**0.31**	**-0.19**	**-0.01**	**-0.09**
2	$D\Delta ROA_{t-1}$		**-0.51**	0.00	**-0.01**	**-0.01**	**0.02**	0.00	**0.01**	**-0.01**	0.00	**-0.07**	**0.04**	0.00	**0.10**
3	ΔROA_{t-1}			**-0.01**	**0.02**	**0.01**	**-0.03**	0.00	**-0.02**	**-0.01**	**0.03**	**0.09**	**-0.09**	-0.01	**-0.15**
4	$UNCAP_{t-1}$				**0.12**	**0.06**	**0.07**	**0.04**	**0.01**	**0.01**	**-0.01**	**-0.05**	**-0.07**	0.00	**-0.02**
5	$FNMR_{t-1}$ (Statewide)					**0.30**	**0.66**	**0.14**	**0.09**	0.00	0.00	**-0.12**	**-0.03**	**0.01**	**-0.09**
6	$FNMR_{t-1}$ (Countywide)						**0.21**	**0.56**	**0.04**	**0.01**	**-0.01**	**-0.04**	**-0.02**	0.00	**-0.03**
7	$FATR_{t-1}$ (Statewide)							**0.17**	**0.07**	0.00	0.00	**-0.10**	**0.03**	0.00	**0.04**
8	$FATR_{t-1}$ (Countywide)								0.00	0.00	0.00	**-0.02**	0.00	0.00	**0.01**
9	$SIZE_{t-1}$									**0.18**	**-0.26**	**0.17**	**0.04**	**0.26**	**0.03**
10	$LOAN_t$										**-0.58**	**0.16**	**0.08**	**0.06**	**0.07**
11	$TIER1_t$											**-0.05**	**-0.07**	**-0.08**	**-0.06**
12	$EBTP_t$												**-0.08**	**0.02**	**-0.09**
13	ΔNPL_t													**0.01**	**0.21**
14	$PUBLIC_t$														**0.02**
15	ΔUEP_t														

Panel B: Variables Used in Loan Loss Allowance Earnings Regressions

	Variable	2	3	4	5	6	7	8	9	10	11	12	13
1	LLA_t	**0.05**	**0.19**	**0.07**	**0.17**	**0.04**	**0.01**	**-0.15**	**0.11**	**-0.10**	**0.11**	0.00	**0.04**
2	$UNCAP_{t-1}$		**0.12**	**0.06**	**0.08**	**0.04**	**0.01**	**0.01**	**-0.01**	**-0.04**	**-0.07**	0.00	**-0.02**
3	$FNMR_{t-1}$ (Statewide)			**0.30**	**0.66**	**0.14**	**0.09**	0.00	0.00	**-0.12**	**-0.03**	**0.01**	**-0.09**
4	$FNMR_{t-1}$ (Countywide)				**0.21**	**0.57**	**0.03**	**0.01**	**-0.01**	**-0.04**	**-0.02**	0.00	**-0.03**
5	$FATR_{t-1}$ (Statewide)					**0.17**	**0.06**	0.00	0.00	**-0.10**	**0.03**	0.00	**0.05**
6	$FATR_{t-1}$ (Countywide)						0.00	0.00	0.00	**-0.02**	0.00	0.00	**0.01**
7	$SIZE_{t-1}$							**0.17**	**-0.25**	**0.17**	**0.04**	**0.26**	**0.03**
8	$LOAN_t$								**-0.58**	**0.15**	**0.08**	**0.06**	**0.07**
9	$TIER1_t$									**-0.05**	**-0.07**	**-0.08**	**-0.06**
10	$EBTP_t$										**-0.09**	**0.02**	**-0.10**
11	ΔNPL_t											**0.01**	**0.22**
12	$PUBLIC_t$												**0.01**
13	ΔUEP_t												

Table 4.2 provides the Pearson correlation Matrix, with Panel (A) for variables in Equations (4.1), (4.2), and (4.3), and Panel B for variables in Equations (4.4), (4.5), and (4.6). Continuous variables are winsorized at top and bottom 1%. Bold numbers are significant at the 5% level, based on a two-tailed test. Definitions of the variables are provided in Appendix 4.

Table 4.3 Univariate Tests

	$UNCAP_{t-1}$	$FNMR_{t-1}$ (Statewide)	$FNMR_{t-1}$ (Countywide)	$FATR_{t-1}$ (Statewide)	$FATR_{t-1}$ (Countywide)
Mean LLA_{it} in Above Median Value of Bad Time Proxies	0.025	0.017	0.022	0.017	0.022
Mean LLA_{it} in Below Median Value of Bad Time Proxies	0.015	0.015	0.015	0.015	0.015
Difference in Mean LLA_{it} between Above and Below Median Value of Bad Time Proxies	0.010	0.002	0.007	0.002	0.007
Test of the Difference (t-Statistic)	18.12***	48.58***	44.89***	48.57***	44.89***

Table 4.3 compares the differences in the mean values of LLA_{it} between banks with high bad time proxies and those with low bad time proxies. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 4.

Table 4.4 Bank-Specific Bad Time Proxy and Accounting Conservatism

	Dep. Var. = ΔROA_t (1)		Dep. Var. = LLA_t (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.004	12.96***	0.017	15.40***
$D\Delta ROA_{t-1}$	0.001	4.70***		
ΔROA_{t-1}	0.234	2.80***		
$UNCAP_{t-1}$	0.005	3.56***	0.009	8.32***
$D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	-1.125	-7.43***		
$D\Delta ROA_{t-1} * UNCAP_{t-1}$	0.001	0.45		
$\Delta ROA_{t-1} * UNCAP_{t-1}$	0.267	2.50**		
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * UNCAP_{t-1}$	-0.288	-2.01**		
$SIZE_{t-1}$	-0.0004	-19.33***	0.0003	4.51***
$SIZE_{t-1} * D\Delta ROA_{t-1}$	-0.0001	-5.32***		
$SIZE_{t-1} * \Delta ROA_{t-1}$	-0.032	-4.54 ***		
$SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	0.049	3.87***		
$LOAN_t$	-0.002	-17.20***	-0.007	-12.56***
$TIER1_t$	-0.002	-5.95***	0.007	5.08***
$EBTP_t$	0.511	56.97***	-0.170	-7.74***
ΔNPL_t	-0.047	-28.63***	0.067	27.30***
$PUBLIC_t$	0.0003	4.13***	0.0001	0.91
ΔUEP_t	-0.029	-9.81***	0.029	5.95***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	128,381		130,853	
Adj. R^2	0.359		0.141	

Table 4.4 provides the OLS regression results of bank-specific bad time proxy and accounting conservatism. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 4.

Table 4.5 Macro-Level Bad Time Proxy and Accounting Conservatism

Panel A: Earnings Changes and Number of Statewide (Countywide) Bank Failures

	Dep. Var. = ΔROA_t Statewide (1)		Dep. Var. = ΔROA_t Countywide (1)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.004	12.70***	0.004	13.02***
$D\Delta ROA_{t-1}$	0.001	5.02***	0.001	4.62***
ΔROA_{t-1}	0.299	3.70***	0.244	2.91***
$FNMR_{t-1}$	0.008	3.45***	0.002	2.12**
$D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	-1.195	-7.98***	-1.152	-7.61***
$D\Delta ROA_{t-1} * FNMR_{t-1}$	-0.010	-3.04***	-0.003	-1.69*
$\Delta ROA_{t-1} * FNMR_{t-1}$	3.431	9.07***	0.305	1.55
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FNMR_{t-1}$	-8.123	-13.42***	-1.111	-2.70***
$SIZE_{t-1}$	-0.0003	-18.97***	-0.0004	-19.30***
$SIZE_{t-1} * D\Delta ROA_{t-1}$	-0.0001	-5.53***	-0.0001	-5.17***
$SIZE_{t-1} * \Delta ROA_{t-1}$	-0.042	-6.03***	-0.032	-4.54***
$SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	0.063	4.98***	0.051	3.99***
$LOAN_t$	-0.002	-16.65***	-0.002	-17.02***
$TIER1_t$	-0.002	-5.70***	-0.002	-5.99***
$EBTP_t$	0.513	57.97***	0.508	56.88***
ΔNPL_t	-0.047	-29.18***	-0.048	-29.40***
$PUBLIC_t$	0.0003	3.77***	0.0003	4.03***
ΔUEP_t	-0.028	-9.49***	-0.029	-9.94***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	128,381		128,381	
Adj. R^2	0.364		0.355	

Panel B: Earnings Changes and Assets of Statewide (Countywide) Failed Banks

	Dep. Var. = ΔROA_t Statewide (1)		Dep. Var. = ΔROA_t Countywide (1)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.004	13.09***	0.004	13.02***
$D\Delta ROA_{t-1}$	0.001	4.52***	0.001	4.70***
ΔROA_{t-1}	0.247	2.98***	0.240	2.86**
$FATR_{t-1}$	-0.004	-1.46	0.0003	1.29
$D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	-1.153	-7.67***	-1.142	-7.56***
$D\Delta ROA_{t-1} * FATR_{t-1}$	-0.003	-0.96	-0.001	-2.71***
$\Delta ROA_{t-1} * FATR_{t-1}$	3.375	8.28***	0.078	2.12**
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * FATR_{t-1}$	-5.725	-9.98***	-0.377	-4.59***
$SIZE_{t-1}$	-0.0004	-19.12***	-0.0004	-19.30***
$SIZE_{t-1} * D\Delta ROA_{t-1}$	-0.0001	-5.09***	-0.0001	-5.26***
$SIZE_{t-1} * \Delta ROA_{t-1}$	-0.036	-5.04***	-0.032	-4.45***
$SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	0.056	4.39***	0.049	3.88***
$LOAN_t$	-0.002	-16.99***	-0.002	-17.04***
$TIER1_t$	-0.002	-5.94***	-0.002	-6.06***

$EBTP_t$	0.509	57.23***	0.507	56.71***
ΔNPL_t	-0.048	-29.63***	-0.048	-29.57***
$PUBLIC_t$	0.0003	3.78***	0.0003	4.05***
ΔUEP_t	-0.031	-10.51***	-0.030	-10.06***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	128,381		128,381	
Adj. R^2	0.359		0.355	

Panel C: Loan Loss Allowance and Number of Statewide (Countywide) Bank Failures

	Dep. Var. = LLA_t Statewide (1)		Dep. Var. = LLA_t Countywide (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.017	15.15***	0.017	15.38***
$FNMR_{t-1}$	0.073	17.41***	0.010	8.25***
$SIZE_{t-1}$	0.0003	4.43***	0.0003	4.49***
$LOAN_t$	-0.007	-12.48***	-0.007	-12.46***
$TIER1_t$	0.007	5.01***	0.007	5.07***
$EBTP_t$	-0.159	-7.24***	-0.173	-7.88***
ΔNPL_t	0.067	27.61***	0.065	26.98***
$PUBLIC_t$	0.0002	0.92	0.0002	0.91
ΔUEP_t	0.035	7.26***	0.028	5.92***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	130,853		130,853	
Adj. R^2	0.146		0.140	

Panel D: Loan Loss Allowance and Assets of Statewide (Countywide) Failed Banks

	Dep. Var. = LLA_t Statewide (1)		Dep. Var. = LLA_t Countywide (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.017	15.39***	0.017	15.36***
$FATR_{t-1}$	0.040	14.82***	0.001	3.56***
$SIZE_{t-1}$	0.0003	4.50***	0.0003	4.56***
$LOAN_t$	-0.007	-12.53***	-0.007	-12.44***
$TIER1_t$	0.007	4.99***	0.007	5.07***
$EBTP_t$	-0.169	-7.68***	-0.176	-7.97***
ΔNPL_t	0.065	26.73***	0.065	26.81***
$PUBLIC_t$	0.0002	0.88	0.0002	0.89
ΔUEP_t	0.024	5.01***	0.028	5.73***
State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	130,853		130,853	
Adj. R^2	0.142		0.139	

Table 4.5 provides the OLS regression results of macro-level bad time proxy and accounting conservatism. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 4.

Table 4.6 Endogeneity Test for Bank-Specific Bad Time Proxy and Accounting Conservatism

Panel A: Undercapitalization Using Propensity Score Matching

	Dep. Var. = M_UNCAP_t (1)	
Variable	Coefficient	t-Statistic
Intercept	-10.252	184.65***
M_SIZE_{t-1}	0.150	7.93***
M_LOAN_t	5.935	88.69***
M_EBTP_t	-109.200	42.63***
M_NPL_t	37.595	152.27***
M_CO_t	136.900	59.78***
N	11,846	
Pseudo. R^2	0.275	

Panel B: Undercapitalization and Accounting Conservatism Using Difference in Difference

	Dep. Var. = ΔROA_t (1)		Dep. Var. = LLA_t (2)	
Variable	Coefficient	t-Statistic	Coefficient	t-Statistic
Intercept	0.008	3.59***	0.036	8.87***
$D\Delta ROA_{t-1}$	0.001	0.78		
ΔROA_{t-1}	0.496	1.64		
M_UNCAP_{t-1}	-0.001	-2.41**	-0.001	-1.91*
$POST_{it}$	-0.002	-3.12***	-0.002	-2.40***
$D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	-1.612	-2.98***		
$D\Delta ROA_{t-1} * M\_UNCAP_{t-1}$	-0.0004	-1.01		
$D\Delta ROA_{t-1} * POST_t$	0.001	0.85		
$\Delta ROA_{t-1} * M\_UNCAP_{t-1}$	0.038	0.61		
$\Delta ROA_{t-1} * POST_t$	0.076	1.27		
$M\_UNCAP_{t-1} * POST_t$	0.002	1.83*	0.011	9.49***
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * M\_UNCAP_{t-1}$	0.068	0.56		
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * POST_t$	-0.111	-0.85		
$D\Delta ROA_{t-1} * UNCAP_{t-1} * POST_t$	-0.005	-3.20***		
$D\Delta ROA_{t-1} * \Delta ROA_{t-1} * M\_UNCAP_{t-1} * POST_t$	-0.336	-2.37**		
$SIZE_{t-1}$	-0.0004	-3.62***	-0.0004	-1.51
$SIZE_{t-1} * D\Delta ROA_{t-1}$	-0.0001	-0.77		
$SIZE_{t-1} * \Delta ROA_{t-1}$	-0.051	-2.04**		
$SIZE_{t-1} * D\Delta ROA_{t-1} * \Delta ROA_{t-1}$	0.076	1.78*		
$LOAN_t$	-0.006	-4.66***	-0.013	-4.97***
$TIER1_t$	-0.001	-0.48	-0.015	-3.07***
$EBTP_t$	0.702	19.78***	-0.097	-1.49
ΔNPL_t	-0.059	-10.81***	0.091	13.72***
$PUBLIC_t$	0.0002	0.50	-0.002	-2.11**
ΔUEP_t	-0.036	-1.59	0.022	0.82

State Fixed Effects	Yes		Yes	
Year Fixed Effects	Yes		Yes	
N	5,796		6,143	
Adj. R^2	0.438		0.461	

Table 4.6 provides the regression results of endogeneity test for bank-specific bad time proxy and accounting conservatism. Panel A presents the logistic regression results using propensity score matching method, and Panel B presents the OLS regression results using a sample that pools both the undercapitalized and matched banks. Continuous variables are winsorized at top and bottom 1%. *, **, *** denote significance at the 10%, 5%, and 1% levels, respectively, based on a two-tailed test. Standard errors are clustered at the bank level. Definitions of the variables are provided in Appendix 4.

Chapter 5: Conclusions

The three essays of this thesis investigate 1) the impact of banks' retail versus wholesale funding structure on their earnings quality, 2) the influence of economic and monetary policy uncertainty on banks' earnings opacity, and 3) the relationship between banks' bad time history and accounting conservatism.

The first essay examines how banks' retail versus wholesale funding structures affect their earnings quality. Our empirical results indicate that greater reliance on retail deposits over wholesale funds increases the earnings quality of banks, as more retail deposits are associated with smaller magnitude of earnings management through discretionary loan loss provisions. Meanwhile, higher retail deposit ratio also moderates the likelihood of meeting-or-beating earnings benchmark in the form of loss avoidance and the propensity of income smoothing through loan loss provisions. Overall, our findings indicate that banks' earnings quality improves with the share of retail deposits in bank liability structure. These findings are consistent with the arguments that retail deposits are relatively more stable and information-insensitive than wholesale funds and receive more intensive monitoring from the Federal Deposit Insurance Corporation, thus increasing banks' financial reporting quality. Our evidence offers important insights for the roles of different suppliers of bank funds in influencing the quality of bank accounting information. It is also relevant to policymakers in their future deliberations related to accounting requirements and monitoring mechanisms.

The second essay examines whether economic and monetary policy uncertainties affect the opacity of banks' financial reporting. Economic and monetary policies have been accused of being so discretionary and unpredictable that they may have contributed to the financial crisis and the slow economic recovery in the U.S. This paper supports this criticism of policy uncertainty by documenting a positive association between policy uncertainty and banks' earnings opacity. We reason that, when economic and monetary policies are uncertain, it is easier for bank managers to hide adverse news from investors and creditors. In addition, policy uncertainty increases the fluctuation in banks' earnings and cash flows, providing additional incentives for bank managers to engage in earnings management. Therefore, we call for a clearer and more consistent framework of policies to enhance bank stability.

The third essay investigates the impact of banks' experiences in bad times on the conservatism of their accounting policies. Organizational learning theory implies that a bank should adopt accounting policies that incorporate feedback about its past financial outcomes. We investigate whether banks that have been exposed to some specific bad times such as undercapitalization or have withstood statewide or countywide banking crises would set different verification standards for recognizing good news as opposed to bad news. Our empirical results reveal that, following exposure to bad times, banks recognize earnings declines timelier and increase their allowance for loan losses, suggesting that banks learn from their bad time experiences and become more cautious/pessimistic about their future earnings performance and loan quality. This work is one of the first in the accounting literature to study accounting choices from the organizational learning's perspective. In addition, it helps investors and regulators understand the different practices that underlie bank accounting policies.

The rapid change in banks' funding structure, the increasing discretion and intervention associated with economic and monetary policies, as well as banks' undercapitalization and macro-level economic crisis have challenged the stability of the banking sector and the integrity of bank managers. In this regard, the results documented by this thesis provide timely evidence that would be of great interest to academics, accounting professionals, financial institutions, and policymakers.