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Do Institutional Investors and Financial Analysts Impact Bank Financial Reporting Quality?

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Do Institutional Investors and Financial Analysts Impact Bank Financial Reporting Quality?

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Dedication

George Burton Adams, a historian and professor around the turn of the 20th century, once made the following statement about the importance of helping others:

> There is no such thing as a 'self-made' man. We are made up of thousands of others. Everyone who has ever done a kind deed for us, or spoken one word of encouragement to us, has entered into the make-up of our character and of our thoughts, as well as our success.

Over the last five years, there have been countless people who have helped me, taught me, encouraged me, and inspired me. This dissertation would not exist without each and every one of them. I will be forever grateful to all of the faculty at UT for taking an interest in me and helping me along, particularly my chair and my other committee members. Without them, this dissertation would likely be a blank page. I will forever treasure the friendships and help of the other Ph.D. students at UT. All of the jokes, coffee breaks, lunches, study sessions, and encouragement we shared kept me going during those rough days… and there are a lot of rough days in a Ph.D program!

Most importantly, I dedicate this to my best friend, my beloved wife. You have encouraged me, motivated me, laughed with me, and cried with me. You deserve an honorary doctorate because this truly is *our* dissertation. I would not have made it without you nor would I be the man I have become. I love you. Thank you Jesus for bringing me this far and helping me know that you are in control and things will always work out. I've had to trust in that for years when I could not see the light at the end of the tunnel. Thank you to all of our family (Brodie and Annie included!) and friends for the encouragement you have given along the way. And to my precious and precocious Lucy, thank you for your tireless energy, your loving personality, and your unending thirst for knowledge. You are a joy and an inspiration.

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Do Institutional Investors and Financial Analysts Impact Bank Financial Reporting Quality?

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The University of Texas at Austin, 2015

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High quality financial reporting is critically important for bank regulation, particularly market discipline, but limited evidence exists on *why* banks provide different levels of financial reporting quality. I examine whether institutional investors and financial analysts impact bank financial reporting quality. Although I find no impact of analysts on bank financial reporting quality, institutional ownership is positively associated with financial reporting quality, and this relation is strongest for banks with high information asymmetry and for "monitoring" institutional investors. Institutional investors also sell shares following the announcement of a restatement, suggesting they are willing to use the threat of exit as a mechanism to influence bank managers and demand financial reporting quality. Finally, I find institutional investors demand financial reporting quality primarily for high risk banks and also reduce ex-ante bank risk and ex-post non-performing loans. Collectively, these results suggest institutional investors are an important component of bank governance.

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"In the light of recent events, it is hard to dispute that high quality financial reporting is essential for the efficiency and stability of the financial systems. It is the cornerstone on which market discipline - a key theme of this conference - rests. But it is a subject that has regrettably not commanded the attention it deserves among researchers…. We need more and better analytical and empirical work. What is the best way to define and articulate the information needed for markets to function effectively? What mechanisms can best ensure that that information is indeed supplied? Answers to these questions are critical for better policy. We, as policy makers, will be eagerly awaiting them."

– Andrew Crockett, General Manager of the Bank for International Settlements (BIS) and Chairman of the Financial Stability Forum, 2002

Chapter 1: *Introduction*

Regulators have called for enhanced market discipline to promote the safety and soundness of the banking system (Bliss and Flannery, 2001). Market discipline incentivizes banks to make good decisions and minimize risk, but it is not possible without high quality financial reporting (BIS, 2001; Federal Deposit Insurance Corporation [FDIC], 1983). Bank regulators also directly benefit from high quality financial reporting separate from the benefits of market discipline (BIS, 2008; Plosser, 2014).

High financial reporting quality reduces information asymmetry and improves the ability of regulators, auditors, and investors to monitor firm risks and decisions (Bushman and Smith, 2001). Given the role banks play in the economy, the opaqueness of their operations, and the role of financial reporting quality in bank regulation, bank financial reporting quality is arguably even more important. As a result, bank regulators stress the importance of bank financial reporting quality for the banking system and global economy (e.g., Chakrabarty, 2013; Crockett, 2002).

Due to the importance of bank financial reporting quality, it is critical to understand the determinants of why some banks provide relatively higher or lower levels of financial reporting quality, but it is a relatively unexplored area in academic research (see Beatty and Liao, 2014 for a recent review paper on bank financial reporting quality). I examine the impact of the two main market information intermediaries that might be expected to impact the level of financial reporting quality provided by bank managers: institutional investors and financial analysts. Regulators recognize that *only* sophisticated market participants possess the analytical skills needed to evaluate and impact bank financial information and provide market discipline (FDIC, 1983). Given the perceived benefits of financial reporting quality, these market participants may demand, and ultimately improve, bank financial reporting quality.

Notwithstanding these benefits, there are numerous reasons institutional investors and financial analysts may not improve or may even reduce bank financial reporting quality due to the differences between banks and non-financial firms. Firstly, it is unclear if even "sophisticated" market participants are able to understand and influence bank financial reporting quality due to the complexity of bank operations and the opaqueness of their assets (FDIC, 1983; Greenspan, 2008). Consistent with not understanding this complexity, sophisticated market participants have been criticized for not providing market discipline and failing to predict, or even contributing to, the financial crisis (e.g., Desai et al, 2015; Greenspan, 2013; Hawley et al., 2011; Reinhart and Rogoff, 2008). Additionally, bank regulation and market discipline may be substitutes rather than complements (Flannery, 1998). That is, institutional investors and financial analysts may lack the incentive to demand high financial reporting quality if they believe regulators will already do so through the supervisory review process.

Moreover, regulators limit the amount of equity an institutional investor can acquire in a bank and their ability to communicate with bank management due to concerns they may increase risk (DLA Piper, 2010; Federal Reserve Board, 2008). Even regulators acknowledge these restrictions reduce institutional investors' economic incentives and ability to influence bank management and decrease bank monitoring (Adams and Mehran, 2003; Prowse, 1997).

Furthermore, several recent theoretical papers argue a unique cost of financial reporting quality in the banking industry whereby they note that banks may be "optimally opaque" due to banks' role in producing money and providing liquidity to the economy (Dang et al., 2013; Dang et al., 2014; Monnet and Quintin, 2014). An implication of this stream of research is that efforts to increase bank transparency can adversely impact the economy and bank profitability. As a result, institutional investors in particular may actually prefer *lower* financial reporting quality if they believe the net impact of such reporting will reduce the value of their bank investments. As summarized by Bushman (2014), "this literature finds that while credible public information about individual banks can enhance the ability of regulators and market participants to monitor and exert discipline on banks' behavior, there are also endogenous costs associated with transparency that can be detrimental to the banking system." Moreover, institutional investors and financial analysts may discourage increased bank transparency if they have access to private information from firms (Ajinkya et al., 2005). In short, it is an empirical question whether institutional investors and financial analysts demand and improve bank financial reporting quality.

I first examine whether institutional investors and financial analysts impact the loan loss provision, the single most important banking accrual, and its ability to predict future

loan charge-offs. I also examine two broad measures of financial reporting quality: earnings persistence and the ability of earnings to predict future cash flows. Collectively, these earnings attributes improve the ability of market participants to understand banks' future risk and performance, which should be particularly important to engage in market discipline. Due to the nature of my tests, I perform my analysis using residual institutional ownership and analyst following, calculated as residuals from cross-sectional regressions on their economic determinants.

Using a large sample of bank holding companies from 1990-2011, I find residual institutional ownership is positively associated with all three measures of financial reporting quality. In cross-sectional tests, I find this positive association is strongest for banks with higher information asymmetry, consistent with institutional investors demanding higher financial reporting quality where direct monitoring is more difficult. In contrast, I find no statistical relation between residual analyst following and financial reporting quality.

I acknowledge the positive relation between residual institutional ownership and financial reporting quality could be endogenous. That is, banks with higher financial reporting quality may attract institutional investors or other factors simultaneously both attract institutions and improve financial reporting. I perform several analyses to help rule out these alternative explanations. I control for residual institutional ownership at the end of the current and following years and find that financial reporting quality is only positive and significantly related to residual institutional ownership at the start of the year. Additionally, changes analyses show an increase in residual institutional ownership explains future, but not past or current, improvements to financial reporting quality.

Furthermore, if the positive relation is due to institutional investors demanding improved financial reporting quality, the relation should be strongest where theory would predict it should be strongest. I first test for cross-sectional differences in the type of institutional investor and examine "monitoring" institutional investors. I define a monitoring institution as one that is both "dedicated" (Bushee, 2001) and "independent" (Brickley et al., 1988). These institutional investors have the most incentive and ability to demand financial reporting quality and provide market discipline due to their investment horizon and lack of potential conflicts of interest. I find that the positive relation between residual institutional ownership and financial reporting quality is driven by these institutions. I also examine time-series differences around the financial crisis where the demand for financial reporting quality by market participants was likely highest and most critical. I find the positive relation between residual institutional ownership and financial reporting quality is even stronger in the financial crisis for most of my measures of financial reporting quality.

In additional analysis, I test one mechanism for institutional investors to influence bank managers: using the threat of selling shares if a bank does not respond to demands for high financial reporting quality. The threat of exit by institutional investors can be a powerful governance mechanism if managers believe the threat is credible (Bharath et al., 2013). Using a restatement announcement as a shock to perceived financial reporting quality, I test whether institutional investors are willing to "vote with their feet" and exit the bank's stock. I find total raw institutional ownership decreases after the announcement relative to a matched sample. This decrease is most significant for monitoring institutions. As a result, bank managers would likely be responsive to institutional investors' ex ante demands for financial reporting quality.

I also examine whether institutional investors reduce earnings management and also demand *more* information, as opposed to improving the quality of existing information, by examining banks' voluntary disclosure. I find residual institutional ownership is negatively associated with earnings management and positively associated with the decision to provide management earnings forecasts. I also examine the role of auditors and audit quality on bank financial reporting quality and find no evidence that higher quality audits also improve financial reporting quality.

Finally, given institutional investors demand high quality financial reporting, I examine the relation between their demand for high quality financial information and bank risk and whether institutional investors appear to engage in market discipline and impact bank risk. I find the positive relation between residual institutional ownership and financial reporting quality is strongest for high risk banks, consistent with financial information being most useful for banks where market discipline is also most critical. I then find residual institutional ownership is negatively associated with a common measure of ex-ante bank risk and future non-performing loans using both levels and changes specifications. These final tests provide the most direct evidence that institutional investors do engage in market discipline and use of the financial statements appears to be one of the main channels for this discipline.

This study makes several contributions. Evidence on the impact of institutional investors and financial analysts on bank financial reporting quality should be informative to regulators, auditors, investors, and standard setters given the importance of bank financial reporting. These findings also contribute to research on the impact of institutional investors and analysts on financial reporting quality for non-banks (e.g., Cornett et al., 2008; Yu, 2008). Additionally, the fact that I find different results from prior non-banking

literature for analysts (see Yu, 2008) provides more evidence that bank governance mechanisms are simply different from non-banks, and these differences need to be carefully considered by researchers (Becht et al., 2011a).

More generally, these findings contribute to the growing literature on bank financial reporting quality by extending knowledge of the economic forces that impact it. Beatty and Liao (2014) conclude there is relatively little evidence about how banks' governance mechanisms interact with regulation to shape financial reporting. Evidence that institutional investors are an important component of bank governance and documenting one mechanism by which they appear to influence financial reporting contributes to this void. Finally, coupled with the evidence that institutional investors also appear to decrease bank risk, these findings help validate regulators' emphasis on market discipline using public bank financial information.

The remainder of the paper is organized as follows. Chapter 2 discusses background and theory development. Chapter 3 presents the sample construction and research design. Chapter 4 discusses the main results. Chapter 5 contains additional analyses. Chapter 6 concludes.

Chapter 2*: Background and Hypothesis Development*

2.1 Market Discipline and Bank Financial Reporting Quality

Regulators are increasingly interested in using outside investors to engage in market discipline to impact banks and accomplish regulatory objectives (Greenspan, 2001; Plossner, 2014). The notion that the market's disciplinary forces can support the regulatory goals of safety and soundness is based on the belief that the market can identify a bank's "true condition" quite well (Bliss and Flannery, 2001).[1] The intuition for how market discipline works is summarized by the FDIC (1983, IV-2) in a Congressional report as follows:

> If the market's general consensus regarding the condition of a particular bank causes it to seek an inordinately large risk premium or to withdraw from existing business relationships with the institution, the bank's cost of doing business will increase and its ability to continue as an operating enterprise may be reduced. To ensure that it remains viable, the bank's expected response to such a situation would be to strive to restore its financial condition to a more acceptable level and to temper those managerial policies responsible for its increased risk.

Even at the time of the FDIC's report to Congress in 1983, banks had grown so complex that regulators acknowledged there were only two paths that regulators could pursue to attempt to effectively regulate banks and limit excessive risk taking: (a) "promulgate countless new regulations governing every aspect of bank behavior and hire

[1] The implicit assumption underlying the use of market discipline for bank regulation is that banking problems are predominantly idiosyncratic and associated with principal-agent frictions due to information asymmetry and incomplete contracting that generate moral hazard and can ultimately lead to excessively risky behavior. Market discipline aligns the incentives of bank managers with the incentives of market participants, allowing them to discipline and influence bank behavior. The role of market discipline at mitigating systematic risk is less clear (Stephanou, 2010).

thousands of additional examiners to enforce them" or (b) "seeking ways to impose a greater degree of marketplace discipline on the system to replace outmoded government controls" (FDIC, 1983, foreword). The FDIC concluded the first approach "would ultimately fail," and chose the latter approach to mobilize the resources of the market. Former Chairman of the Federal Reserve, Alan Greenspan (2001), echoed these comments and stated, "We need to adopt policies that promote private counterparty supervision as the first line of defense for a safe and sound banking system. Uninsured counterparties must price higher or simply not deal with banking organizations that take on excessive risk."

The emphasis on market discipline by banking regulators has only increased over time (Kwan, 2004). To that end, Basel II, the international bank regulatory framework, introduced market discipline as one of three complementary pillars of effective bank regulation, along with minimal capital requirements and the supervisory review process. Each of these pillars is mutually reinforcing and critical to have a safe financial system (BIS, 2001). The importance of market discipline has not only been reaffirmed in the aftermath of the financial crisis but further emphasized in the recently finalized Basel III regulatory framework (BIS, 2011).

However, market discipline is not possible without high quality financial information (e.g., BIS, 2008; Chakrabarty, 2013; McDonough, 2001). In particular, the market needs information about banks' condition, performance, and risk to determine future credit risk and earnings potential (FDIC, 1983; Jalan, 2002). As summarized by the Government Accountability Office (GAO) (1991, 5): "The key to successful bank regulation is knowing what banks are really worth."[2] Expanding on this, Alan Greenspan (2001) noted, "Counterparties need information on which to make informed decisions

[2] The Government Accountability Office was formerly known as the General Accounting Office until 2004.

about the riskiness of bank claims… But the quantity and quality of such disclosure is uneven and all entities could, should, and may soon be required to disclose more and *better* data" (emphasis added).

Financial reporting serves an important role as a governance mechanism that promotes efficient operations of the firm. High financial reporting quality better reflects the underlying economics of the firm and can help managers and investors better identify good and bad investments, discipline managers to make good decisions, and reduce information asymmetry (Bushman and Smith, 2001). For example, higher financial reporting quality improves the ability of outsiders to monitor *non-financial* firms and improves performance as a result (e.g., Bens and Monahan, 2004; Biddle et al., 2009; and Hope and Thomas, 2008). Recent empirical bank research is also consistent with more transparent accounting enabling market discipline and resulting in lower risk (Bushman and Williams, 2012). Bushman and Williams (2012) use a cross-country setting and document that more forward-looking loan loss provisions improves bank risk-shifting, consistent with high financial reporting quality better facilitating market discipline. However, Bushman and Williams (2012) do not provide evidence on *why* within a given country, some banks provide relatively higher or lower levels of financial reporting quality.

Beyond market discipline, bank regulators also directly benefit from high quality financial statements. High quality financial reporting "improves the quality of information relied on by banking supervisors" (BIS, 2008, 2). For example, key components that are reported in the financial statements, such as the loan loss provision, are important for determining regulatory capital (Beatty and Liao, 2014). Additionally, financial statement information has assumed a greater role in the regulatory supervisory process because bank regulators use this information to conduct more in-depth and timely assessments of

emerging bank risk, such as the stress tests required by the Dodd-Frank Act (FDIC, 1983; Plosser, 2014).

As a result, bank regulators stress the importance of high quality financial reporting (e.g., Chakrabarty, 2013; Crockett, 2002; Knight, 2003; Mishkin, 2007). In fact, regulators have noted a paucity of research in the area and explicitly requested academic research on what financial information is needed by the market and how to ensure banks will provide high quality financial information (e.g., Crockett, 2002). This paper helps contribute to this void.

2.2 INFORMATION INTERMEDIARIES

Given high quality financial reporting is crucial for market discipline, it is an empirical question whether market participants will demand it and how they will impact it. However, integral to whether or not market participants will seek out high quality bank information is whether or not market participants have the willingness and ability to understand it. Bank regulators admit banks are too complex for the general public to have the analytical and financial analysis skills necessary to understand bank financial information. As such, only sophisticated users, such as institutional investors and analysts, may have the ability to understand and demand bank financial reporting and ultimately provide market discipline (FDIC, 1983).[3] Consistent with this, academic research generally

[3] Much of the non-financial literature focuses on the monitoring and discipline performed by creditors (e.g., Anderson et al., 2004; Beatty et al., 2010). However, one of the main ways that banks are distinct from non-banks is that banks are largely financed by short-term debt, particularly deposits (Tracy, 2013). These creditors are unlikely to monitor the bank and provide market discipline, which is the very reason that policymakers over time have considered requiring at least the largest banks to have some subordinated debt; in fact, the Gramm-Leach-Bliley Act required most of the largest banks to issue some investment-grade debt (Lang and Robertson, 2002). In recent work, Jayaraman and Thakor (2013) develop an analytical model on capital structure and bank monitoring and show both analytically and empirically that the main source of bank monitoring comes from equity holders.

considers institutional investors and financial analysts to be the main market information intermediaries (Piotroski and Roulstone, 2004).

Both by the nature of their large investments and sophistication, institutional investors have the ability and incentive to scrutinize, monitor, and influence firms (e.g., Bushee, 1998; Hartzell and Starks, 2003; Shleifer and Vishny, 1986).[4] In many cases, institutional investors have been found to be successful activists for public companies with a recent article referring to them as "capitalism's unlikely heroes" (The Economist, 2015). Consistent with this, Hawley et al. (2011, 4) note that a core concept of governance advocated by institutional investors is that "transparency is critical to accountability, which in turn is critical to a well-governed firm in relation to its owners."[5]

Prior research on institutional investors and financial reporting quality has generally excluded banks from their samples and results are mixed. The majority of papers show that institutional investors help financial reporting quality, generally measured using discretionary accruals. For example, Cornett et al. (2008) and Rajgopal and Venkatachalam (1997) find a negative relation between total institutional ownership and discretionary accruals. Ramalingegowda and Yu (2012) find a positive relation between dedicated and independent institutional investors and conservatism. However, Burns et al. (2010) find that institutional ownership is positively associated with restatements. Matsumoto (2002)

4 In contrast, small investors frequently trade for non-information related reasons such as liquidity, speculation, or news attention (Barber and Odean, 2000, 2008; Odean, 1999), and therefore, it is unlikely that they will impact financial reporting quality nor provide the market discipline desired by bank regulators.

5 That said, Hawley et al. (2011, 4) allege institutional investors did not demand enough financial information transparency in the financial sector during the Financial Crisis, saying, "Transparency, accountability, and good governance generally add value. Lack of these was toxic."

finds that firms with higher institutional ownership are more likely to meet or exceed earnings expectations and results are driven by transient investors.[6] [7]

Financial analysts also act as monitors of firms (Healy and Palepu, 2001; Jensen and Meckling, 1976). Analysts review financial statements on a regular basis (Yu, 2008), have been directly involved in the discovery of accounting fraud (Dyck et al. 2010), and have a comparative advantage over other market participants in understanding industry and market trends (Piotroski and Roulstone, 2004).

Limited research examines the impact of analysts on financial reporting quality. Yu (2008) excludes banks from his sample and finds analyst coverage is negatively related with discretionary accruals and narrowly meeting earnings targets, suggesting analysts directly improve financial reporting quality. However, analysts have also been argued to exert pressure on firms, with the analyst consensus forecast being one of the main earnings targets firms try to achieve (Degeorge et al., 1999). Analysts also have incentives to curry favor with management for access and to generate underwriting commissions (Brown et al., 2014; Dechow et al., 2000; Gu and Xue, 2008) although these incentives have likely decreased after Regulation Fair Disclosure (Bushee et al., 2004). Additionally, survey evidence indicates many analysts take the financial statements at "face value," which casts

[6] In related research, institutional investors may trade extensively based on current earnings and place excessive emphasis on short-term performance (e.g., Bushee, 1998, 2001; Yan and Zhang, 2009).

[7] Concerns that any negative impact on financial reporting from the short-term focus of many institutional investors could dominate any positive impact from other institutions such that *on average* institutional investors have a negative impact are uniquely salient in the banking industry. Elyasiani and Jia (2008) note ownership restrictions may disproportionately reduce the number of monitoring institutions willing to invest in banks. Maug (1998) analytically shows part of the incentive to monitor comes from the ability to purchase additional shares at a price that does not reflect the anticipated ex-post improvements. Because the ability to acquire additional shares in banks is limited by ownership restrictions and may require regulator pre-approval, which could result in increasing the stock price prior to the purchase, these regulations my disproportionately limit the interest that dedicated institutions have in acquiring bank stock (Elyasiani and Jia, 2008). Consistent with this prediction, total dedicated institutional investor ownership comprises 21.2% of the total institutional ownership in D'Souza et al. (2010, Table 2, Panel A), using essentially the entire Compustat sample (including banks), versus 11.7% in my sample of banks (untabulated).

doubt on how much analysts will scrutinize and demand improvements to financial reporting (Brown et al., 2014). Finally, specific to banks, Desai et al. (2015) finds that analysts did not appear to understand early distress signals in bank financial statements prior to the financial crisis.

Given the benefits of financial reporting quality, if institutional investors and financial analysts engage in market discipline, one may expect they should demand it. Managers are likely to be receptive to these demands when they set their earnings recognition and financial reporting policies because financial executives view institutional investors, followed by financial analysts, as the most important marginal price setters of their stock.[8] [9]

2.3 UNIQUE BANKING FEATURES

However, there are numerous reasons institutional investors and financial analysts may not demand high quality financial reporting and why these results may be unique in the banking industry. Becht et al. (2011a, 437) note that the distinct features of banks present unique challenges to researchers and argue that "bank governance is different and requires more radical departures from traditional governance for non-financial firms." Firstly, it is unclear institutional investors and financial analysts are even *able* to effectively

[8] Approximately 90% of the CFOs surveyed identify institutional investors or financial analysts as the most important price setter, with 54% (36%) ranking institutional investors (financial analysts) the most important price setter, respectively (Graham et al., 2005, Table 10).

[9] There are other external market participants that could provide market discipline, such as auditors, but I focus on institutional investors and financial analysts for parsimony since they are considered to be the two main information intermediaries and are considered the most important external stakeholders at impacting the stock price by managers. That said, given the importance that bank regulators place on having a high quality external audit (see BIS, 2008, 2014), in Chapter 5.4, I also examine the impact of auditors on bank financial reporting quality. Some other papers have also examined the role of the credit rating agencies in the financial crisis in detail and generally find that they did not appear to forecast future bank difficulties (Desai et al., 2015) and made biased assumptions or even made knowingly inflated rankings that contributed to the crisis (Griffin and Tang, 2011; Griffin and Tang, 2012). As a result, I do not examine the credit rating agencies in this paper.

understand and influence bank financial reporting due to the complexity of bank operations and opaqueness of their assets. Due to this complexity, the FDIC (1983, IV-7) stated, "There are few, if any, institutions which so profoundly affect the public interest, but are so universally misunderstood, as banks."

Recent empirical evidence generally finds banks are more opaque with higher levels of information asymmetry than other industries (see Beatty and Liao, 2014).[10] This underlying business complexity has resulted in bank financial information that is complex and difficult to understand (FDIC, 1983). One financial institution CFO confesses that "some of our own mandated footnotes… are so complex, even I don't understand them" (Graham et al., 2005, 58). This growing complexity has caused even regulators to grow concerned with their ability to monitor banks, and regulators have access to private information (Bliss and Flannery, 2001).

Even prior to the financial crisis, regulators questioned how well even sophisticated market participants understood bank financial information, noting that some sophisticated users "are in fact no more knowledgeable than the general public" (FDIC, 1983, IV-5). Alan Greenspan (2008, 489) noted that the financial markets "have become too huge, complex, and fast-moving…. No wonder this globalized financial behemoth stretches beyond the full comprehension of even the most sophisticated market participants." Consistent with these complexity concerns, in the aftermath of the financial crisis, both institutional investors and financial analysts have been criticized for not predicting, and

[10] Morgan and Strioh (2001) argue increasing business complexity causes banks to have higher levels of information asymmetry, at least during uncertain economic environments. Flannery et al. (2004) argue bank loans are opaque and a source of value uncertainty because no one knows their true value. Most recently, Flannery et al. (2013) find banks have higher bid-ask spreads than non-financial firms in crisis periods.

potentially contributing to, the financial crisis due to their failure to identify future bank risk (Desai et al., 2015; Hawley et al., 2011; Reinhart and Rogoff, 2008).

Additionally, the relationship between bank regulation and market discipline may be substitutionary rather than complementary (e.g., Booth et al., 2002; Elyasiani and Jia, 2008; Plosser, 2014). Banks are different than non-banks in many regards, and one of the main reasons for these differences is bank regulation. Somewhat surprisingly, we know relatively little about how banks' governance mechanisms interact with regulation to shape financial reporting (Beatty and Liao, 2014). Booth et al. (2002) find traditional monitoring mechanisms are less critical for regulated firms since regulators are an alternative monitor. Similarly, Flannery (1998) and Llewellyn (2005) argue that regulatory monitoring decreases the incentives of outside market participants to monitor banks. As noted in Llewellyn (2005), particularly if market participants view bank regulators as having superior information, expertise, and economies of scale, the market may see little value in incurring monitoring costs themselves. As a result, institutional investors and financial analysts may lack incentive to demand high financial reporting quality given the belief that regulators will already do so in the supervisory review process, effectively the standard free-rider problem.

Regulators also limit the amount of equity ownership that an institutional investor can acquire in a bank and limit its ability to communicate with and influence bank management (DLA Piper, 2010). The Bank Holding Company Act requires institutional investors that have "control" over a bank be regulated as a bank themselves, which would require them to reserve additional capital and restrict their activities (DLA Piper, 2010). The determination of control by regulators is subjective and can be triggered if the institutional investor "directly or indirectly exercises a controlling influence over the

management or policies of the banking organization" (Federal Reserve Board, 2008, 1). Historically, the Federal Reserve has determined that an investment as low as 5% of the voting shares of a bank can create a presumption of control and has placed significant limitations on any investments that exceed this threshold (DLA Piper, 2010; Powell Goldstein, 2008). Not surprisingly, these limitations are considered a significant deterrent to large institutional investments in banks, particularly for smaller banks (Kaufman, 2011).

To overcome this presumption of control, institutional investors are forced to either acquire small ownership interests beneath these thresholds or enter into passivity commitments with the Federal Reserve where they agree to, among other things, not have a representative on the Board of directors and not attempt to significantly influence the bank's major policies and operations.[11] As a result, most institutional investors structure their investments to have less than 5% of the stock and avoid showing any significant influence over bank management (DLA Piper, 2010).[12]

The reason for these restrictions is a concern that outside investors and bank regulators have different fundamental objectives: profit maximization versus safety and soundness, respectively. As a result, regulators are concerned institutional investors may increase bank failures (Federal Reserve Board, 2008). However, a consequence of these restrictions is that institutional investor ownership levels in banks are significantly lower than non-financial firms and the banking industry has witnessed far fewer instances of

[11] Bank regulators slightly loosened institutional ownership restrictions in late 2008 in an effort to entice private equity investment in troubled banks, but changes were considered minor and still significantly limit institutional investors' ability to influence bank management (MacIntosh and Scholtes, 2008; Powell Goldstein, 2008).

[12] The Federal Reserve (2008, 12) describes this limited and passive role as follows, "To avoid the exercise of a controlling influence, in all cases, the decision whether or not to adopt a particular position or take a particular action must remain with the banking organization's shareholders as a group, its board of directors, or its management, as appropriate. The role of the minority investor in these decisions must be limited to voting its shares in its discretion at a meeting of the shareholders of the banking organization…."

public shareholder activism (Adams and Mehran, 2003).[13] Becht et al. (2011b) note that hedge-fund activism can be a powerful governance mechanism but is rarely targeted at banks. Prowse (1997), formerly staff at the Federal Reserve, and others argue these restrictions have the unintended consequence of decreasing bank monitoring because institutional investors will not own enough equity to make it worthwhile.

Furthermore, while the discussion above presumes that institutional investors and analysts want high bank financial reporting quality but may lack the incentives or ability to demand and influence it, it is not universally acknowledged that bank transparency is a good thing. A growing area of the literature notes there are significant costs associated with the push, namely by regulators, for increased transparency, particularly for banks. Gorton (2013) discusses the evolution of the banking system from prior to the Civil War up to and including the financial crisis. He argues that regulators actually have shown a preference for *reduced* bank transparency, particularly in bad times, due to concerns it could cause a loss of confidence in the market, which could lead to panic selling and bank runs. To support his contention, he notes the ban on short selling for the largest banks during the financial crisis, despite evidence that short sellers are better able to use public information to make trades that improve the efficiency of stock prices (see Drake et al., 2011; Saffi and Sigurdsson, 2011).

Consistent with Gorton's claims, several recent analytical models demonstrate how bank's role in producing money and providing liquidity to the economy is facilitated largely by their opacity (Dang et al., 2013; Dang et al., 2014; Monnet and Quintin, 2014).

[13] Adams and Mehran (2003, 31), both staff at the Federal Reserve Bank of New York, note that while there have been few documented cases of institutional investors taking a proactive role in bank governance, they may prefer to address governance issues with banks privately and argue that information on whether and how institutional investors influence banks "remains an important area for future research."

To the extent that institutional investors in particular believe increased transparency will harm bank profitability and stock prices for these very reasons, they may not want high quality financial reporting since it would better reflect (and reveal) the underlying economics, risks, and decisions of the bank, inhibiting bank operations and loan and deposit growth.

Another reason institutional investors and financial analysts may discourage increased bank transparency is because they have access to private information from the banks themselves. For example, Ajinkya et al. (2005) find that concentrated and dedicated institutional investors prefer less transparency for non-financial firms because the investors are confident in their ability to understand the firm's performance and risk through other channels such as private communication with management. While private communication between firm management and market participants has reduced post Reg-FD, it has not been eliminated for institutional investors nor for analysts (see. Ajinkya et al, 2005; Brown et al., 2014). In fact, given the opacity in bank financial statements, private information is even more valuable as it could allow institutional investors to earn an abnormal return and analysts to significantly reduce forecast errors. In short, it is an empirical question whether institutional investors and financial analysts demand and improve bank financial reporting quality.

2.4 HYPOTHESIS DEVELOPMENT

Ultimately, it is an empirical question whether and how institutional investors and financial analysts impact bank financial reporting quality. This leads to my first hypothesis (in null form):

H1: Institutional investors and financial analysts are not associated with bank financial reporting quality, ceteris paribas.

While the first hypothesis relates to *all* banks, different bank characteristics may both make market discipline more crucial and, at the same time, more difficult. As shown in Prendergast (2002), when information asymmetry between management and outside investors is higher, investors have less information about which actions managers should take. As a result, monitoring will be more difficult, making the financial statements even more crucial as a means to assess bank condition and engage in market discipline. Related to the discussion above on the potential benefits of bank opacity to market participants, banks with higher information asymmetry likely also have less private information available, increasing the need for reliance on the public financial statements. This leads to my second hypothesis (in null form):

> *H2: The relation between institutional investors and financial analysts and financial reporting quality is equal for banks with higher and lower levels of information asymmetry, ceteris paribas.*

Chapter 3: *Sample and Research Design*

3.1 SAMPLE

I use annual accounting data from the FR Y-9C reports from the Federal Reserve Bank of Chicago.[14] I merge this data with CRSP using the link-table maintained by the Federal Reserve Bank to obtain stock return data necessary for my tests. Institutional investor ownership data is from the Thomson Reuters database which obtains institution holdings data from 13-F filings to the U.S. Securities and Exchange Commission (SEC).[15] Following prior literature, if no institutional investors report holdings data for a bank year in my sample, I set the institutional investor ownership to be zero (Gompers and Metrick, 2001; Piotroski and Roulstone, 2004).[16] Institutional investor classification data from Bushee (2001) is obtained from Brian Bushee's website. Analyst data is obtained from I/B/E/S. Restatement data is obtained from Audit Analytics and begins in 2000. Auditor data is obtained from the FR Y-9C reports and supplemented with Compustat and beings in 2000. My main sample consists of 6,899 bank-years from 1990 – 2011 representing 845 unique bank holding companies (hereafter referred to as "banks") with available data for my tests.[17] The sample construction is summarized in Table 1, Panel A.

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[14] The FR Y-9C contains all balance sheet, income statement, and additional information and is mandated for all BHCs that meet certain size or other requirements (e.g., public debt or complex operations). From 1990 through 2005, the asset-size threshold was $150 million which was increased in 2006 to $500 million. I use all bank-years in my sample with available data, but I obtain similar results if I omit bank years prior to 2006 with assets less than $500 million to make the sample more comparable over time (untabulated).

[15] All institutional investors with more than $100 million securities under management must report quarterly holdings for all common stock positions greater than 10,000 shares or $200,000 (Gompers and Metrick, 2001).

[16] I obtain similar results if I omit all bank-years with zero institutional investor holdings (untabulated).

[17] I omit non-traditional BHCs such as Goldman Sachs and American Express that converted into BHCs during the financial crisis to receive TARP bailout monies to maintain a similar sample of banks over my sample period.

3.2 MEASURES OF INSTITUTIONAL OWNERSHIP AND ANALYST FOLLOWING

Prior research shows institutional ownership and analyst following are endogenously determined by firm and stock characteristics (Bhushan, 1989; Bushee, 2004; Gompers and Metrick, 2001; Hong et al., 2000). Because these firm characteristics may also impact financial reporting quality, this can confound my tests and result in a spurious relation. To mitigate these concerns, I need to control for these variables. I follow prior research and perform all of my analyses unless otherwise noted using a measure of the *residual,* rather than raw, ownership levels (LaFond and Roychowdhury, 2008; Ramalingegowda and Yu, 2012) and analyst following (Clinton et al., 2014; Yu, 2008). That is, I regress the raw institutional ownership percentage or analyst following on firm characteristics that determine such ownership and following, respectively, and use the residuals in my analyses.[18] [19]

The model for institutional ownership is based on Gompers and Metrick (2001) and uses the ten explanatory variables in their analysis to proxy for the three main investment characteristics of institutional ownership: (1) prudence, (2) liquidity, and (3) the historical return pattern. I estimate the following annual regression using ordinary least squares (OLS):

[18] The intuition of interpreting the coefficient on the residual institutional investor or analyst variable in my analyses is similar to interpreting the coefficient on the raw variables in a multivariate setting with the determinants of institutional ownership and analyst following as additional controls. I use the residual variables namely because it is easier to interpret the results since my variables of interest are interaction terms (see Chapter 3.3). Nonetheless, results are similar if I use raw values and include all these determinants as additional covariates interacted with the variable of interest (untabulated).

[19] It should be emphasized that using this residual measure does not resolve the inherent identification issues surrounding using institutional ownership and analyst following. In Chapter 4.4, I discuss additional analyses I perform to help mitigate concerns of alternative explanations for my results, namely simultaneity and reverse causation explanations.

$$OWN_{i,t} = \beta_0 + \beta_1 BM_{i,t-1} + \beta_2 SIZE_{i,t} + \beta_3 VOLATILITY_{i,t} + \beta_4 TURNOVER_{i,t} + \beta_5 STOCKPRICE_{i,t} + \beta_6 SP500_{i,t} + \beta_7 MOMENTUM3_{i,t} + \beta_8 MOMENTUM12_{i,t} + \beta_9 AGE_{i,t} + \beta_{10} YIELD_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

where $OWN_{i,t}$ - raw percentage ownership of bank i at the end of year t held by total institutional investors; $BM_{i,t}$ - book to market ratio of bank i at the end of year t calculated as the book value of the total common equity divided by the market value of common equity; $SIZE_{i,t}$ - natural log of total assets in millions of bank i at the end of year t; $VOLATILITY_{i,t}$ - variance of monthly stock returns of bank i from the beginning of year t-1 to the end of year t; $TURNOVER_{i,t}$ - total monthly volume of bank i common equity divided by total common shares outstanding measured three months prior to the end of year t; $STOCKPRICE_{i,t}$ - common equity stock price of bank i at of the end of year t; $SP500_{i,t}$ - S&P 500 dummy variable equal to one if bank i is included in the S&P 500 index at the end of year t and set to zero otherwise; $MOMENTUM3_{i,t}$ - total gross buy and hold stock return of bank i during the last three months of year t; $MOMENTUM12_{i,t}$ - total gross buy and hold stock return of bank i during the nine month period beginning at the start of year t and ending three months prior to the end of year t; $AGE_{i,t}$ - natural log of bank age calculated as the number of years bank i has been listed on CRSP at of the end of year t; $YIELD_{i,t}$ - total declared cash dividends of bank i during year t scaled by the market value of common equity at the beginning of year t. The prudence motive is captured by $VOLATILITY_{i,t}$, $SP500_{i,t}$, $AGE_{i,t}$, and $YIELD_{i,t}$; the liquidity motive is captured by $SIZE_{i,t}$, $TURNOVER_{i,t}$, and $STOCKPRICE_{i,t}$; and the historical return motive is captured by $SIZE_{i,t}$, $BM_{i,t}$, $MOMENTUM3_{i,t}$, and $MOMENTUM12_{i,t}$.

Table A1 in the Appendix reports the results of estimating Equation (1) for total institutional ownership in banks. Consistent with Gompers and Metrick (2001) for non-

financial firms, $BM_{i,t}$, $SIZE_{i,t}$, $TURNOVER_{i,t}$, $STOCKPRICE_{i,t}$, and $AGE_{i,t}$ are positively associated with total bank institutional ownership, while $YIELD_{i,t}$ is negatively associated. In contrast with prior literature, $SP500_{i,t}$ is negatively associated with total bank institutional ownership and $MOMENTUM3_{i,t}$ and $MOMENTUM12_{i,t}$ are positively associated. This provides some initial evidence that while many of the determinants of institutional ownership for banks work similarly to investment in non-banks, there may be differences in the investment strategies or average institutional owners for banks.[20] The model has good explanatory power ($R^2 = 0.47$) similar to that reported in prior literature (Ramalingegowda and Yu, 2012).

My model for analyst following is based on Hong et al. (2000) who find analyst following is almost exclusively determined by size.[21] I estimate the following regression annually using OLS:

$$LNANALYST_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \varepsilon_{i,t} \quad (2)$$

[20] While the negative coefficient on $SP500_{i,t}$ in particular is surprising, it is important to remember the nature of a multivariate regression. For example, when $OWN_{i,t}$ is regressed *only* on $SP500_{i,t}$, as expected the coefficient on $SP500_{i,t}$ is positive and significant (t = 23.94). However, $SP500_{i,t}$ also has a large positive correlation with $SIZE_{i,t}$ (0.62) and $AGE_{i,t}$ (0.47), so simply adding those two variables to the regression changes the coefficient on $SP500_{i,t}$ to negative and significant (t = -3.37) (untabulated). That said, the very fact that *controlling for all those other factors,* index inclusion is negatively associated with institutional ownership provides further evidence that institutional investors may behave differently for bank investments and could be the subject of future research. For example, it appears that institutional investors on average invest in larger banks that are not members of the S&P 500 than they invest in smaller banks that are members of the S&P 500.

[21] Most other papers that calculate residual analyst coverage similarly regress analyst following on size (e.g., Cao and Narayanamoorthy, 2010; Clinton et al., 2014). However, I obtain similar results if I use the model in Yu (2008), which includes additional controls (untabulated). Consistent with Hong et al. (2000), who find that adding additional variables beyond size in their models of residual analyst coverage virtually has no impact on the model's total explanatory power, adding these additional variables to Equation (2) increases the R2 only from 0.688 to 0.670, untabulated).

where $LNANALYST_{i,t}$ is the natural log of one plus the number of analysts issuing an earnings forecast for bank i in year t and other variables as previously defined.[22] Consistent with Hong et al. (2000), size is positive and significantly related to $LNANALYST_{i,t}$ in each year and the model has high explanatory power (R^2 = 0.69, untabulated) similar to that reported in prior literature (Hong et al., 2000).

To facilitate interpretation of the coefficient estimates, I follow Ramalingegowda and Yu (2012) and use annual scaled decile ranks for all residual institutional ownership and analyst following variables in most of my analyses.[23] To compute scaled decile ranks, I rank the residual institutional ownership percentages and analyst following by year into ten groups and scale the ranks to range from 0 to 1, inclusive. The coefficients in my analysis thus capture the impact of a change from the bottom to top decile of residual institutional ownership or analyst following on financial reporting quality. In all analyses, I also correct standard errors for bank and time-series correlations across observations by clustering on bank and year (Petersen, 2009).[24]

3.3 FINANCIAL REPORTING REGRESSION MODELS

I first examine the relation between institutional ownership and financial analysts and the quality of the loan loss provision. The loan loss provision is the single most important accrual for the average bank.[25] Not surprisingly, many bank studies focus on the

[22] I use logged analysts, rather than the raw number of analysts, following Hong et al. (2000) because it seems more likely that one extra analyst will have more of a potential impact on bank financial reporting quality if a firm has few analysts than if it has many.

[23] Inferences are similar if I use raw values rather than ranks (untabulated).

[24] Results are similar if I use Fama-MacBeth (1985) annual regressions and correct standard errors using the Newey-West (1987) procedure. This helps rule out concerns that my results could be driven by a few years in my sample or time-series trends in financial reporting quality, institutional ownership, or analyst following (untabulated).

[25] Beatty and Liao (2014) note for the years ended 2005-2012, the mean absolute value of the loan loss provision is 56% of the mean absolute value of *total* accruals and it explains 34% of the variance of total accruals.

loan loss provision due to the extreme importance of this accrual for banks, the importance of its ability to assess the quality of bank loans (an opaque asset), and the fact that it significantly impacts regulatory capital ratios (Beatty and Liao, 2014). The loan loss provision is also one of the few policy adjustments that impact net income that a bank manager can make at year end without entailing substantial costs, and is the most common accrual manipulated by mangers (Moyer, 1990).

The loan loss provision reflects the bank's estimate of expected credit losses on loans originated during the year as well as changes in the expected losses of loans held during the period (Ryan, 2007). Loan loss provisions have both been criticized as being too large and too small at different times (GAO, 1994; Pollock, 2012); in both cases, loan loss provisions are inconsistent with the economic credit risk in the loan portfolio as revealed through ex-post credit losses. Bankers acknowledge that managing credit risk is "the most important aspect of the banking business model," (American Bankers Association [ABA], 2010, 5) and regulators have noted that high quality information about bank credit quality in particular is critical for market discipline (BIS, 2001). Due to the magnitude of the loan loss provision, improvements to this accrual may also be a mechanism for improvements in other broader measures of earnings quality. If institutional investors and financial analysts demand a more accurate loan loss provision, all things equal, the provision will have a larger positive association with next period loan charge-offs, controlling for existing loan quality.[26] In fact, one of the recent proposals that

[26] Even if the loan loss provision is estimated with perfect foresight, not all loans that are provisioned in one period will be charged off by the following period. As a result, not all loan loss provisions will be perfectly predictive of an increase by the same amount in next period charge-offs (i.e., the β_1 coefficient in Equation (3) below will not be equal to one). Nonetheless, particularly given the existing "incurred loss" approach in existing accounting standards (see Trott, 2009), a high quality loan loss provision *should* have a strong positive association to the next period charge-offs.

accounting standard setters and regulators have pushed at least in part to enhance market discipline in the aftermath of the financial crisis is to encourage more forward-looking loan loss provisioning (Stephanou, 2010).

I follow the model in Altamuro and Beatty (2010) and estimate the following regression using pooled OLS:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST_{i,t-1} + \beta_6 LLP_{i,t}*SIZE_{i,t-1} + \beta_7 LLP_{i,t}*ROWN_{i,t-1} + \beta_8 LLP_{i,t}*RLNANALYST_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

where $CO_{i,t}$ - total loan charge-offs of bank i in year t scaled by total assets as of the beginning of year t; $LLP_{i,t}$ - total loan loss provisions of bank i in year t scaled by total assets as of the beginning of year t; $NPL_{i,t}$ - total non-performing loans of bank i at the end of year t scaled by total assets as of the beginning of year t; $ROWN_{i,t-1}$ - residual percentage institutional ownership of bank i at the end of year t-1; $RLNANALYST_{i,t-1}$ - residual of one plus logged analyst following of bank i at the end of year t-1; and other variables as previously defined. I use the residual institutional ownership and analyst following levels *as of the start of the year* because I am interested in the influence of the market participants over the current year, and this also helps minimize simultaneity concerns.

I also examine two related but distinct features of general earnings quality: earnings persistence and the ability of earnings to predict future cash flows.[27] Importantly, these measures of financial reporting quality are consistent with the objective of financial

[27] As discussed in Altamuro and Beatty (2010), a positive relation with earnings persistence may reflect increased earnings smoothing through the loan loss provision rather than higher financial reporting quality. As shown in Bushman and Williams (2012), higher smoothing decreases market discipline. However, the persistence of the loan loss provision will not impact the tests on the ability to predict future cash flows by construction. Additionally, as shown in Chapter 5.2, I find residual institutional ownership is *negatively* related to benchmark-beating, which is also inconsistent with any increase in earnings persistence being attributable to smoothing.

reporting as described by the Financial Accounting Standards Board (FASB) which is to provide decision-useful information about the firm's returns on economic resources (e.g., earnings) and prospects for future cash flows (FASB, 2010; Bratten et al., 2012).[28] Additionally, both attributes increase the valuation informativeness of earnings, which is vital for market discipline (e.g., Lee, 1999).[29] I follow the model in Altamuro and Beatty (2010) and estimate the following regression using pooled OLS:

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1[t+2]}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST_{i,t-1} + \beta_5 ROA_{i,t}*SIZE_{i,t-1} + \beta_6 ROA_{i,t}*ROWN_{i,t-1} + \beta_7 ROA_{i,t}*RLNANALYST_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

where $ROA_{i,t}$ - return on assets calculated as pre-tax net income before extraordinary items of bank i in year t scaled by total assets as of the beginning of year t; $CFROA_{i,t}$ - cash return on assets calculated as pre-tax net income before extraordinary items plus the loan loss provision of bank i in year t scaled by total assets as of the beginning of year t (Wahlen, 1994; Kanagaretnam et al., 2004; Altamuro and Beatty, 2010); and other variables as previously defined. Regressions with $ROA_{i,t}$ as the dependent variable allow testing of

[28] These measures of financial reporting quality may also be impacted by, or correlated with, firm performance. In particular, earnings persistence captures the sustainability of earnings and is associated with firm performance (Francis et al., 2004; Li, 2008). To ensure performance is not a correlated omitted variable driving the results, I also include return on assets as of the start and end of the year in Equations (1) and (2) when determining residual institutional ownership and analyst following and obtain similar results (untabulated). Moreover, I rank firm-years based on return on assets or change in return on assets (similar to the structure of the analysis in Table 5) and find neither is significantly associated with changes in future financial reporting quality (untabulated). Finally, as shown in Table 13, rather than high firm performance resulting in both high financial reporting quality and attracting institutional investors and/or financial analysts, I find the positive relation between institutional investors and financial reporting quality is strongest for the worst performing and most risky bank-years.

[29] Easton and Zmijewski (1989) find higher earnings persistence is associated with higher earnings response coefficients and lower equity betas. Francis et al. (2004) find persistence is associated with lower costs of equity capital. Francis and Schipper (1999) and Kim and Kross (2005) state that increased ability of earnings to predict future cash flows increases the relevance of earnings for valuation.

earnings persistence while regressions with $CFROA_{i,t}$ as the dependent variable allow testing of the cash flow predictability of earnings.

Chapter 4: *Results*

4.1 DESCRIPTIVE STATISTICS

Table 1, Panel B reports descriptive statistics. The average raw ownership by institutional investors ($OWN_{i,t-1}$) is 21.15% which is comparable to other banking studies but is significantly less than non-banking studies.[30] Similarly, the average raw analyst following ($ANALYST_{i,t-1}$) of 4.6 is also significantly less than non-banking studies.[31] Accordingly, the unique features of the banking industry do appear to limit institutional ownership and analyst following.

In untabulated analysis, there is considerable over-time variation in $OWN_{i,t-1}$ and $ANALYST_{i,t-1}$ as the standard deviation of the yearly change for each firm in raw institutional ownership (analyst following) is 30.8% (25.8%) of the average raw institutional ownership (analyst following), respectively, indicating there are significant changes in institutional ownership and analyst following for a given bank over time. There is also a significant time trend in $OWN_{i,t-1}$ as it increases from 17% to 38% from 1990 to 2011 while $ANALYST_{i,t-1}$ remains similar over the same time period with relatively minor increases or decreases each year (untabulated). An added benefit of using $ROWN_{i,t-1}$ and $RLNANALYST_{i,t-1}$ in my analysis is it strips out time trends and yearly variation similar to year fixed-effects by using the residual institutional ownership and analyst following from *annual* regressions.

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[30] Over a similar time period (1994-2009), Deng et al. (2013, Table 1) report an average institutional ownership for a sample of BHCs of 23.9%. In contrast, D'Souza et al. (2010, Table 2, Panel A) use essentially the entire Compustat/CRSP sample (including banks) from 1991-2004 and the mean level of institutional ownership is 33.7%. Adams and Mehran (2003) similarly find BHCs have significantly lower institutional ownership totals than manufacturing firms and less than half as many institutional investors (Table 4).

[31] Lehavy et al. (2011) use essentially the entire Compustat/CRSP sample from 1995-2006 and average analyst following is 6.14 (Table 2).

While the average size in my sample is approximately 2.14 billion ($e^{7.669}$) calculated using the sample mean of logged assets ($SIZE_{i,t-1}$), the sample varies significantly cross-sectionally on this dimension with the interquartile range of 667.81 million ($e^{6.504}$) to 5.07 billion ($e^{8.532}$). As a result, my sample captures a broad cross-section of banks in the U.S.[32] Table 1, Panel C reports the Pearson and Spearman correlations among the main variables in my analysis. $ROWN_{i,t-1}$ and $RLNANALYST_{i,t-1}$ have a statistically significant positive correlation (rho = 0.193, $p < 0.01$).

4.2 MAIN RESULTS – FINANCIAL REPORTING

To test H1 and H2, I estimate Equations (3) and (4). Results are presented in Tables 2 and 3. Table 2 shows the relation between information intermediaries and the ability for the loan loss provision to predict loan charge-offs in the following year from estimating Equation (3). Column 1 shows that the coefficient on $LLP_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.1131, $p < 0.01$). This indicates that a change in residual institutional ownership from the bottom to top decile is associated with a dramatic increase in the association between the loan loss provision and next period charge-offs of over 50% (0.1131/0.2025). Financial analysts, however, have no statistically significant relation with financial reporting quality. Columns 2 and 3 report the results of estimating Equation (3) separately in the "high" and "low" information asymmetry banks classified using market-adjusted stock return volatility (Bushee and Noe, 2000; Zhang, 2006). I rank banks each year on the monthly market-adjusted stock return volatility over the prior year and label banks in the top (bottom) two quintiles each year as "high" ("low") information asymmetry banks.[33] The results indicate that $LLP_{i,t}$*$ROWN_{i,t-1}$ is only positive and statistically

[32] See Chapter 5.5 for more discussion on the skewed nature of bank size in my sample.
[33] Results are similar using the bid-ask spread or unexplained volume as a proxy for information asymmetry (untabulated).

significant for the high information asymmetry banks (0.1425, $p < 0.05$), and the difference between the high and low information asymmetry banks is statistically significant ($p < 0.05$).

Table 3, Panel A shows the relation between information intermediaries and earnings persistence from estimating Equation (4). Column 1 of Table 3, Panel A shows that the coefficient on $ROA_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.1319, $p < 0.01$). This indicates that a change in residual institutional ownership from the bottom to top decile is associated with an increase in earnings persistence in the following year by approximately 20% (0.1319/0.6571). However, financial analyst coverage has no statistically significant relation with earnings persistence. Columns 2 and 3 of Table 3, Panel A report the results of estimating Equation (4) separately in the high and low information asymmetry banks. The results indicate that $ROA_{i,t}$*$ROWN_{i,t-1}$ is only positive and statistically significant for the high information asymmetry banks (0.2144, $p < 0.01$), and the difference between the high and low information asymmetry banks is statistically significant ($p < 0.05$). Results are similar although slightly weaker estimating the earnings persistence in year t+2 in Columns 4 – 6.

Table 3, Panel B shows the relation between information intermediaries and the predictability of future cash flows from estimating Equation (4). Column 1 of Table 3, Panel B shows that the coefficient on $ROA_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.0812, $p < 0.05$). This indicates that a change in residual institutional ownership from the bottom to top decile is associated with higher earnings predictability of cash flows in the following year by approximately 13% (0.0811/0.6346). On the other hand, financial analyst coverage has no statistically significant relation with earnings predictability of future cash flows. Columns 2 and 3 of Table 3, Panel B report the results of estimating Equation (2) separately

in the high and low information asymmetry banks. The results indicate that $ROA_{i,t}$*$ROWN_{i,t-1}$ is only positive and statistically significant for the high information asymmetry banks (0.1162, $p < 0.01$), and the difference between the high and low information asymmetry banks is statistically significant ($p < 0.05$). Results are similar estimating the cash flows in year t+2 in Columns 4 – 6.

Collectively, Tables 2 and 3 show a consistent positive relation between residual institutional ownership and financial reporting quality and this relation is strongest for high information asymmetry, rejecting H1 and H2 for institutional investors. However, it is particularly noteworthy that there is no significant relation between analyst following and financial reporting quality, inconsistent with the Yu (2008) result for non-banks. These results provide more evidence that bank governance mechanisms are simply different from non-banks (see Becht et al., 2011a). Possible explanations for the difference in the results between these two information intermediaries and the prior non-banking literature may be due to analysts lacking either the sophistication and/or the incentives to demand higher financial reporting quality, as well as bank managers lacking the incentives to respond to analyst demands. I explore these possible explanations for the analyst following null result in the following section.

4.3 ADDITIONAL RESULTS - ANALYST FOLLOWING

Regulators have emphasized that the marketplace will need sophistication and strong incentives to overcome bank complexity and provide market discipline. For example, the FDIC (1983, IV-3) notes that "The success of market discipline as a means to keep banks operating in a safe and sound manner is directly proportional to the value of the [financial] information available to market participants." Institutional investors have large and direct economic incentives to demand higher quality financial reporting due to

the size of their investments. However, particularly due to conflicts of interest between many analysts and the banks they cover, analysts may lack these incentives. Moreover, analysts may lack the sophistication to understand and demand financial reporting quality, particularly given these lower incentives and bank complexity.

In Table A2 in the Appendix, I examine whether the impact of analyst following on financial reporting quality varies based on analyst sophistication or a lack of independence to ascertain whether complexity and/or conflicts of interest lead to the null result on average for analyst following in Tables 2 and 3, which is different from the non-financial literature (Yu, 2008).

To proxy for analyst sophistication, I separately examine the impact of analyst following for analysts that are banking all-star and non-all-star analysts. I modify Equations 3 and 4 as follows:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST\_ALLSTAR_{i,t-1} + \beta_6 RLNANALYST\_NONALLSTAR_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1} + \beta_{10} LLP_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1} + \varepsilon_{i,t} \quad (3a)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST\_ALLSTAR_{i,t-1} + \beta_5 LNANALYST\_NONALLSTAR_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1} + \beta_9 ROA_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1} + \varepsilon_{i,t} \quad (4a)$$

where $RLNANALYST\_ALLSTAR_{i,t-1}$ - residual of one plus logged all-star analyst following of bank i as identified by the Institutional Investor magazine at the end of year t-1; $RLNANALYST\_NONALLSTAR_{i,t-1}$ - residual of one plus logged non-all-star analyst following of bank i at the end of year t-1 measured as total analyst following less all-star following; and other variables as previously defined.

Results are presented in Table A2, Panel A. Both $LLP_{i,t}$*RLNANALYST_ALLSTAR$_{i,t-1}$ and $LLP_{i,t}$*RLNANALYST_NONALLSTAR$_{i,t-1}$ are statistically insignificant from zero indicating that analyst sophistication does not appear to increase the predictive ability of the loan loss provision. Similarly, $ROA_{i,t}$*RLNANALYST_ALLSTAR$_{i,t-1}$ and $ROA_{i,t}$*RLNANALYST_NONALLSTAR$_{i,t-1}$ are statistically insignificant from zero at increasing earnings persistence in the following year. $ROA_{i,t}$*RLNANALYST_ALLSTAR$_{i,t-1}$ is marginally significant at improving cash flow predictability (0.1224, $p < 0.10$) while $ROA_{i,t}$*RLNANALYST_NONALLSTAR$_{i,t-1}$ is statistically insignificant from zero, but this is the only evidence that a lack of analyst sophistication may be one of the causes of the null result reported in Tables 2 and 3 for total analyst following on average.

In untabulated analysis, I look at alternative measures of analyst sophistication and separately examine the impact of analyst following for analysts that are bank-specific or bank-industry experts. I classify an analyst as a bank-specific expert if the analyst is in the top ten percent of a yearly ranking of all analysts that follow a given bank by the length of time the analyst has followed that bank. Similarly, I classify analysts as industry experts if their length of time providing forecasts for the banking industry is in the top ten percent of a yearly ranking of all analysts providing forecasts in the banking industry. Using these measures of sophistication, I find no type of analyst has a consistent statistically significant relation to financial reporting quality and there are no significant differences between sophisticated and non-sophisticated analysts and their impact on bank financial reporting quality. Accordingly, it does not appear analyst sophistication harms analyst' ability to demand and impact bank financial reporting quality.

To proxy for analyst independence, I separately examine the impact of analyst following for analysts that do and do not have potential conflicts of interest. I modify Equations 3 and 4 as follows:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST\_INDEP_{i,t-1} + \beta_6 RLNANALYST\_NONINDEP_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST\_INDEP_{i,t-1} + \beta_{10} LLP_{i,t}*RLNANALYST\_NONINDEP_{i,t-1} + \varepsilon_{i,t} \quad (3b)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST\_INDEP_{i,t-1} + \beta_5 LNANALYST\_NONINDEP_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST\_INDEP_{i,t-1} + \beta_9 ROA_{i,t}*RLNANALYST\_NONINDEP_{i,t-1} + \varepsilon_{i,t} \quad (4b)$$

where $RLNANALYST\_INDEP_{i,t-1}$ - residual of one plus logged independent analyst following of bank i measured as total analyst following less non-independent analyst following (see below) at the end of year t-1; $RLNANALYST\_NONINDEP_{i,t-1}$ - residual of one plus logged non-independent analyst following of bank i at the end of year t-1 measured as total analysts following bank i that are employed by a firm that has underwritten a debt or equity issuance for bank i listed in SDC Platinum within the past three years; and other variables as previously defined.

Results are presented in Table A2, Panel B. Both $LLP_{i,t}*RLNANALYST\_INDEP_{i,t-1}$ and $LLP_{i,t}*RLNANALYST\_NONINDEP_{i,t-1}$ are statistically insignificant from zero indicating that analyst independence does not appear to increase the predictive ability of the loan loss provision. $ROA_{i,t}*RLNANALYST\_NONINDEP_{i,t-1}$ is actually positive and marginally significant while $ROA_{i,t}*RLNANALYST\_INDEP_{i,t-1}$ is statistically insignificant from zero at predicting earnings persistence in the following year, which provides weak evidence that *independent* analysts may actually be less successful at demanding and impacting bank financial reporting quality. Consistent with this, there is

some research for non-financial firms that independent analysts are actually worse and less accurate than non-independent analysts (e.g., Agrawal and Chen, 2012; Jacob et al., 2008). However, both $ROA_{i,t}$*RLNANALYST_$INDEP_{i,t-1}$ and $ROA_{i,t}$*RLNANALYST_ $NONINDEP_{i,t-1}$ are statistically insignificant from zero at improving cash flow predictability in the following year, so there is no consistent evidence that analyst independence or lack thereof may be one of the causes of the null result for analyst coverage on average reported in Tables 2 and 3.

Given these results for analysts, the remainder of the paper focuses on whether the positive relation between institutional ownership and financial reporting quality is due to institutional investors demanding financial reporting quality or an alternative explanation. Additionally, in Chapter 5, I examine a possible mechanism for institutional investors to impact financial reporting quality, additional analyses, and whether and how institutional investors appear to engage in market discipline.

4.4 ALTERNATIVE EXPLANATIONS

As discussed above, one concern from Tables 2 and 3 is whether the positive relation between residual institutional ownership and financial reporting quality is due to institutional investors demanding financial reporting quality or an alternative explanation. Namely, could this relation be driven by other factors that simultaneously attract institutional ownership and improve financial reporting quality (the "simultaneity" explanation) or by banks with higher financial reporting quality attracting institutional ownership (the "reverse causality" explanation)? The reverse causality explanation is troubling because institutional investors may prefer banks with high financial reporting quality (i.e., a clientele effect). It should be noted that these explanations are not mutually exclusive. However, given public policy interest in *why* banks provide financial reporting

quality, it is critical to identify whether in fact institutional investors appear to impact the level of financial reporting quality or simply accept the level of financial reporting quality as a given to make investment decisions.

In Table 4, I modify Equations (3) and (4) to control for both the residual institutional ownership levels at the end of the year and end of the following year as follows:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-1} + \beta_7 ROWN_{i,t} + \beta_8 LLP_{i,t}*ROWN_{i,t} + \beta_9 ROWN_{i,t+1} + \beta_{10} LLP_{i,t}*ROWN_{i,t+1} + \varepsilon_{i,t} \quad (3c)$$

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-1} + \beta_6 ROWN_{i,t} + \beta_7 ROA_{i,t}*ROWN_{i,t} + \beta_8 ROWN_{i,t+1} + \beta_9 ROA_{i,t}*ROWN_{i,t+1} + \varepsilon_{i,t} \quad (4c)$$

where all variables are as previously defined.

If institutional investors demand financial reporting quality, the institutional ownership level *as of the start* of the year should be positively related to financial reporting quality. On the other hand, the institutional ownership level as of the end of the year (following year) should be positively related to financial reporting quality under the simultaneity (reverse causation) explanations. I find all three measures of financial reporting quality *only* have a positive and statistically significant relation with residual institutional ownership *at the start of the year*. The residual institutional ownership at the end of the year or the following year is generally insignificantly related to financial reporting quality.[34]

[34] Due to the persistent nature of institutional ownership, this test may suffer from multicollinearity, which will result in variance inflation and bias against finding results for *any* of the coefficients. These concerns are slightly mitigated by using residual, rather than raw, institutional ownership which reduces the correlation between current institutional ownership with past and future institutional ownership by approximately 12%. Additionally, the fact that institutional ownership as of the start of the year has a statistically significant relation with financial reporting quality suggests this test may be effective despite the multicollinearity

Additionally, in Table 5, I further modify Equations (3) and (4) to test whether *changes* in the residual institutional ownership are associated with *changes* in financial reporting quality. While the method of measuring predictability of future charge-offs, earnings persistence, and cash flow predictability make it difficult to estimate changes over time, I follow the approach used in LaFond and Watts (2008) and Ramalingegowda and Yu (2012) and sort bank years into quintiles based on the change in institutions' residual ownership from year t-1 to year t. I then estimate the following regressions for each quintile yearly from year t-2 to year t+1 to identify yearly measures of the level of financial reporting quality (i.e., β_1 in Equations (3) and (4)):

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \varepsilon_{i,t} \quad (3d)$$

$$ROA_{i,t+1}\,(CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \varepsilon_{i,t} \quad (4d)$$

where all variables are as previously defined.

To calculate the year-to-year change in financial reporting quality for each of those quintiles, I examine the change in the coefficient on the variable of interest in the pre-ownership change period ($\beta_{i,t-1} - \beta_{i,t-2}$), during-ownership change period ($\beta_{i,t} - \beta_{i,t-1}$), and post-ownership change period ($\beta_{i,t+1} - \beta_{i,t}$). In the reverse causality (simultaneity) explanation, there should be a positive relation between residual institutional ownership changes from year t-1 to t and financial reporting quality changes from year t-2 to t-1 (year t-1 to t), respectively. If, on the other hand, institutional investors demand financial reporting quality, there should be a positive relation between residual institutional ownership changes from year t-1 to t and financial reporting quality changes from year t to t+1.

concerns. However, the analysis in Table 5, which focuses on *changes* in institutional ownership, should not suffer from the same concerns and is likely more diagnostic.

Table 5 presents the results. By construction, the ownership changes are substantially different in each quintile as the average residual ownership change in quintile 1 is -9.51% versus quintile 5 of 11.23%. As shown in Panels A, B, and C, I find no evidence supporting the reverse causality or simultaneity explanations. In contrast, I find evidence consistent with institutional investors demanding higher financial reporting quality. Specifically, in tests on the predictability of future charge-offs in Panel A, predictability increases by 0.1779 ($p < 0.05$) in quintile 5 which is economically significant representing a 38% in future charge off predictability over the year (compared to the pre-change level of 0.4672, untabulated). The difference in the change in the predictability of future charge-offs between quintiles 5 and 1 is also statistically significant ($p < 0.05$). In the tests on earnings persistence in Panel B, persistence increases by 0.1180 ($p < 0.10$) in quintile 5 which is economically significant representing a 19% increase in persistence over the year (compared to the pre-change level of 0.6170, untabulated). The difference in the change in persistence between quintiles 5 and 1 is also statistically significant ($p < 0.05$). Finally, in the tests on the predictability of cash flows in Panel C, cash flow predictability increases by 0.1100 ($p < 0.01$) in quintile 5 which is economically significant representing a 28% increase in cash flow predictability over the year (compared to the pre-change level of 0.3980, untabulated). The difference in the change in the predictability of cash flows between quintiles 5 and 1 is also statistically significant ($p < 0.01$).

Finally, while Tables 4 and 5 are consistent with institutional investors demanding higher financial reporting quality rather than the alternative explanations, they do not rule

out whether institutional investors can anticipate future improvements to financial reporting quality. That is, an institutional investor could invest in a bank in one year because it anticipates the bank will already be making improvements to financial reporting quality in future years. This alternative explanation is related to the reverse causation explanation because even though the actual investment may take place *before* the actual improvements, the institutional investors are simply investing because they believe financial reporting quality will already be increasing, rather than they will invest and then *demand* financial reporting quality. To rule out this alternative explanation, I re-estimate Equations (3) and (4) using the two-year lagged values of residual institutional ownership ($ROWN_{i,t-3}$) as shown below:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-3} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-3} + \varepsilon_{i,t} \quad (3e)$$

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-3} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-3} + \varepsilon_{i,t} \quad (4e)$$

where all variables are as previously defined.

It is particularly unlikely an institutional investor would anticipate high financial reporting quality three years in advance, causing them to increase their investments at that time. However, if institutional investors are in fact demanding financial reporting quality once they invest in a bank, there should continue to be improvements to financial reporting quality for several years, albeit likely weaker results than using the institutional ownership as of the start of the year.

Results are presented in Table 6. I find all three measures of financial reporting quality continue to have a positive and statistically significant or marginally significant relation with residual institutional ownership as of the start of year t-2.[35] Taken together, the results in Tables 4 – 6 are consistent with institutional investors demanding higher financial reporting quality but are inconsistent with the simultaneity or reverse-causality explanations.[36]

4.5 CROSS-SECTIONAL AND TIME-SERIES VARIATION

Finally, I exploit cross-sectional variation in the *type* of institutional investor and time-series variation to examine whether the results are strongest when one would expect the results to be strongest.

[35] Alternatively, I estimate Equations (3) and (4) using the 2-year *lead* residual institutional ownership and the variable of interest is statistically insignificant from zero in all specifications (untabulated). These results provide assurance that results using the 3-year lagged residual institutional ownership are not simply due to the persistence of institutional ownership and the persistence of the earnings quality proxies.

[36] Some prior literature uses an alternative strategy to identification for asserting the influence of institutional investors by exploiting exogenous shocks to institutional ownership upon the addition to an index such as the S&P 500 (see Aghion et al., 2009) or around the Russell 1000/2000 reconstitution (see Boone and White, 2014). However, by construction, these papers focus primarily on the impact of index funds since those represent the majority of changes in institutional ownership around these events. In contrast, I focus more broadly on total institutional ownership which includes relatively more active institutional investors and is the focus of banking regulators. In fact, as shown in Table 7, I find limited evidence that these quasi-indexers impact bank financial reporting quality. Moreover, as I focus on a single industry, I lack sufficient power to employ these strategies due to small sample sizes. For example, in my sample period, I observe only 25 bank additions to the S&P 500 and only 59 bank years within a fixed bandwidth of ± 50 around the Russell 1000 cutoff (untabulated).

4.5.1 Institutional Investor Type

If the positive relation between institutional ownership and financial reporting quality is due to institutional investor demand, the relation should be strongest for institutional investors more likely to engage in monitoring. Within the group of institutional investors, characteristics such as investment horizons, investment concentration, and independence from firm management cause higher monitoring incentives among some institutions relative to others (Chen et al., 2007; Ramalingegowda and Yu, 2012). Conversely, institutional investors that have short-term investment horizons or are not independent from management may be less likely to improve and may even harm financial reporting quality (Bushee, 1998; Matsumoto, 2002). I use the Bushee (2001) institutional investor classification to identify dedicated institutions based on their investment horizons and concentration and follow Brickley et al. (1988) to identify institutions likely independent of bank management.

As described in Bushee (2001), "dedicated" institutions have low portfolio turnover and higher investment concentration levels, consistent with a long-term strategy to hold a large stake in a relatively few number of firms. In contrast, "transient" institutions have high portfolio turnover and low investment concentration levels, consistent with a short-term strategy for a substantial number of firms. "Quasi-indexing" institutions have low

portfolio turnover and high investment diversification, more consistent with a passive long-term strategy in a number of firms.[37]

Brickley et al. (1988) classify institutions using the entity type category assigned by CDA/Spectrum to gauge potential independence from management.[38] Investment companies, independent investment advisors, and pension funds are less likely to have a business relationship with the investee firm and hence are considered "independent" from management. On the other hand, bank trusts, insurance companies, and other institutions are more likely to have a business relationship with the investee firm and are considered "non-independent." This is particularly true for investments in the banking industry because bank trusts frequently invest in affiliate banks (Elyasiani and Jia, 2008). I use the intersection of these two classification systems and consider "independent" and "dedicated" institutional investors to be the type of institutional investor most likely to monitor bank management and demand improved financial reporting quality (hereafter referred to as "monitoring institutions"). The remaining categories of institutional investors are non-independent and dedicated, quasi-indexers, and transient. I separately estimate Equation (1) using the ownership levels for each type of institutional investor to obtain

[37] Because the Bushee institution classification is highly stable over time, I use the modal classification in my analyses.

[38] CDA/Spectrum classifies institutional investors into 5 categories: (1) bank trusts, (2) insurance companies, (3) investment companies, (4) independent investment advisors, and (5) other, which consists of charitable foundations, employee stock ownership plans (ESOPs), university endowments, and private and public pension funds. Following prior research, I use data from Brian Bushee that manually identifies pension funds for inclusion into my classification of "independent" institutions. There are numerous errors in the institution classification beginning in 1998 due to a data mapping error when CDA Spectrum was acquired. Hence, if an institution was classified by CDA/Spectrum prior to 1998, I use the pre-1998 classifications in subsequent years (Chen et al., 2007).

residual ownership percentages for each type in my analysis. I then augment Equations (3) and (4) as follows:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 RIDEDOWN_{i,t-1} + \beta_5 RNIDEDOWN_{i,t-1} + \beta_6 RQIXOWN_{i,t-1} + \beta_7 RTRAOWN_{i,t-1} + \beta_8 LLP_{i,t}*SIZE_{i,t-1} + \beta_9 LLP_{i,t}*RIDEDOWN_{i,t-1} + \beta_{10} LLP_{i,t}*RNIDEDOWN_{i,t-1} + \beta_{11} LLP_{i,t}*RQIXOWN_{i,t-1} + \beta_{12} LLP_{i,t}*RTRAOWN_{i,t-1} + \varepsilon_{i,t} \quad (3f)$$

$$ROA_{i,t+1(t+2)} (CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 RIDEDOWN_{i,t-1} + \beta_4 RNIDEDOWN_{i,t-1} + \beta_5 RQIXOWN_{i,t-1} + \beta_6 RTRAOWN_{i,t-1} + \beta_7 ROA_{i,t}*SIZE_{i,t-1} + \beta_8 ROA_{i,t}*RIDEDOWN_{i,t-1} + \beta_9 ROA_{i,t}*RNIDEDOWN_{i,t-1} + \beta_{10} ROA_{i,t}*RQIXOWN_{i,t-1} + \beta_{11} ROA_{i,t}*RTRAOWN_{i,t-1} + \varepsilon_{i,t} \quad (4f)$$

where $RIDEDOWN_{i,t-1}$ - residual monitoring institutional ownership of bank i at the end of year t-1; $RNIDEDOWN_{i,t-1}$ - residual non-independent dedicated institutional ownership of bank i at the end of year t-1; $RQIXOWN_{i,t-1}$ - residual quasi-indexer institutional ownership of bank i at the end of year t-1; $RTRAOWN_{i,t-1}$ - residual transient institutional ownership of bank i at the end of year t-1; and other variables as previously defined.

Table 7 presents the results. Column 1 shows $LLP_{i,t}*RIDEDOWN_{i,t-1}$ is positive and significant (0.0672, $p < 0.01$). Columns 2 and 3 show $ROA_{i,t}*RIDEDOWN_{i,t-1}$ is positive and significant for earnings persistence in years t+1 and t+2 (0.1105, $p < 0.01$; 0.1324, $p < 0.01$, respectively). Finally, Columns 4 and 5 show $ROA_{i,t}*RIDEDOWN_{i,t-1}$ is positive and significant for cash flow predictability in years t+1 and t+2 (0.0873, $p < 0.05$; 0.1012, $p < 0.05$, respectively). In all cases, results are consistent with the positive relation between institutional ownership and financial reporting quality being driven by monitoring institutions. The residual ownership of *no* other type of institution is consistently related to financial reporting quality although in Columns 3-5 the residual ownership by dedicated, *non-independent* institutions is negatively related to financial reporting quality and is statistically or marginally statistically significant. Therefore, there is some (weak) evidence

that investments from dedicated non-independent institutions, which may be related parties or have business relationships with the investee bank, may actually harm bank financial reporting quality. Additionally, the coefficient on the residual ownership by quasi-indexers for all measures of financial reporting quality is positive and is marginally significant or close to marginally significant for earnings persistence and the predictability of future cash flows in Columns 2-5 (t = 1.81, 1.59, 1.56, 1.54, respectively). As a result, even though these institutions are relatively passive investors, they may still exert influence over bank financial reporting quality, particularly given that quasi-indexers make up the largest proportion of banks' institutional investors and are generally long-term investors.[39]

4.5.2 Financial Crisis

Given that I find institutional investors improve bank financial reporting quality over this full time period, it is also informative to examine whether their impact differed during the financial crisis. During the financial crisis, the role of financial reporting was arguably even more important. After all, investors allege that a lack of transparency in financial reporting exacerbated the financial crisis by leading to a loss of investor trust (CFA Institute, 2013). As a result, institutional investors may have increased their demands for bank financial reporting quality during the height of the crisis. Moreover, the need for

[39] In untabulated analysis, I also examine the concentration of the institutional ownership because institutional investors would be expected to have more influence when they are larger shareholders (Shleifer and Vishny, 1986; Hartzell and Starks, 2003). I find the ownership percentage by the top 5 institutional investors in a bank year is also positive and significantly associated with financial reporting quality. However, many of those large institutional investors are also monitoring institutions. When I also control for the total monitoring institutional ownership, the top 5 institutional ownership percentage is generally statistically insignificantly related to financial reporting quality, indicating the type of institutional investor is more important than simply the size of their investment in whether or not they will impact bank financial reporting quality.

market discipline through the financial statements is particularly important during times of a crisis.

That said, given the difficulties in estimating future credit losses and profitability during the financial crisis, it is possible that bank managers simply may not have been *able* to increase financial reporting quality. Fahlenbrach and Stulz (2011) find that bank managers lost a considerable portion of their wealth during the financial crisis, suggesting even they did not understand their own credit exposures during the period. Additionally, bank managers and institutional investors may have been fixated more on regulatory capital or other earnings attributes during this time period. As a result, it is not clear whether or not institutional investors would both demand *and* be able to improve bank financial reporting quality in the crisis.

I modify Equations (3) and (4) to interact them with a dummy variable for the financial as follows:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-1} + \beta_7 CRISIS_{i,t} + \beta_8 LLP_{i,t}*CRISIS_{i,t} + \beta_9 SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{10} NPL_{i,t}*CRISIS_{i,t} + \beta_{11} ROWN_{i,t-1}*CRISIS_{i,t} + \beta_{12} LLP_{i,t}*SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{13} LLP_{i,t}*ROWN_{i,t-1}*CRISIS_{i,t} + \varepsilon_{i,t} \quad (3g)$$

$$ROA_{i,t+1}(CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-1} + \beta_6 CRISIS + \beta_7 ROA_{i,t}*CRISIS_{i,t} + \beta_8 SIZE_{i,t-1}*CRISIS_{i,t} + \beta_9 ROWN_{i,t-1}*CRISIS_{i,t} + \beta_{10} ROA_{i,t}*SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{11} ROA_{i,t}*ROWN_{i,t-1}*CRISIS_{i,t} + \varepsilon_{i,t} \quad (4g)$$

where $CRISIS_{i,t}$ is a dummy variable equal to one if the bank year is in 2007 or 2008 and set to zero otherwise; and other variables as previously defined.

Results are presented in Table 8. I find some evidence of an increased ability to improve financial reporting quality by institutional investors. The association between

residual institutional ownership and both the predictability of future charge-offs and earnings persistence increases during the crisis (0.297, $p < 0.01$ and 0.261, $p < 0.05$, respectively). There is no incremental impact of institutional investors on the predictability of future cash flows during the financial crisis. As a result, I provide some evidence that institutional investors either increased their demand or were more successful at impacting bank financial reporting quality when that financial reporting quality was most important for market discipline and a sound banking system.

Chapter 5: *Additional Analysis*

5.1 VOTING WITH THEIR FEET

Given results that institutional investors improve financial reporting quality, I investigate *how* they may improve it, that is, the mechanism for them to demand bank managers to improve financial reporting quality. While institutional investors have historically been prohibited from having a director on the Board and are limited in their ability to engage in shareholder activism, they can still have informal interactions with management as an observer at the Board meetings (Federal Reserve Board, 2008) and/or via private communications with bank management. Moreover, based on informal communications with industry professionals, institutional investors find ways to ensure bank managers know what they want. Thus, while institutional investors are significantly limited by regulatory restrictions in their ability to force bank managers to respond to their demands, they can generally advocate for potential changes in a bank's policies and operations (Federal Reserve Board, 2008). Corporations are also willing to dedicate significant time and attention to managing the needs of their institutional investors (Beyer et al., 2014).

CFOs acknowledge that institutional investors may penalize a firm that has a drop in stock price from something like missing an earnings target by selling shares because investors "sell first and ask questions later" (Graham et al., 2005, 53).[40] Institutional investors themselves acknowledge that they are willing to use their vote to encourage better financial reporting. For example, BlackRock (2014) states, "where company reporting and disclosure is inadequate… we will engage with the company and/or use our vote to

[40] While one could argue whether a diversified institutional investor *should* care about a negative market reaction for a single firm, CFOs indicate that they believe idiosyncratic risk matters and note "these investors diversify by holding less of our stock and more of someone else's" (Graham et al., 2005, 53).

encourage a change in practice." As a result, the threat of institutional investors selling their investments is a very strong ex-ante motivator of firm behavior.

Bharath et al. (2013) show that institutional investors' *threat* of selling a firm's stock is generally a powerful governance mechanism, distinct from other traditional forms of block holder intervention, and managers appear willing to take actions to induce those institutional investors to stay. However, managers must view the threat as credible. In the context of the banking industry, it is less clear whether these threats will be deemed credible due to explicit regulatory prohibitions on using the threat of exit to compel bank managers to respond to demands (Federal Reserve Board, 2008).[41] Accordingly, I test whether institutional investors are willing to "vote with their feet" to communicate their dissatisfaction if a bank does not have high financial reporting quality (see Parrino et al., 2003).[42]

Using the announcement of a restatement as a shock to perceived financial reporting quality, I examine changes in institutional ownership in the quarters around the restatement announcement. To focus on restatements that are most indicative of a lack of financial reporting quality, I omit any restatements resulting solely from clerical errors. Following Parrino et al. (2003), I construct a control sample of banks that are matched to

[41] The Federal Reserve Board (2008) policy on equity investments in banks notes that, "Importantly, communications by minority investors should not be accompanied by explicit or implicit threats to dispose of shares in the banking organization… as a condition of action or non-action by the banking organization or its management." However, in informal communications with industry professionals, this provision would be hard to enforce, and I am unaware of the Federal Reserve ever taking actions against institutional investors based on violations of these restrictions.

[42] It should be emphasized that I am unable to test the *ex-ante* threat of exit but rather test for the actual *ex-post* exit by institutional investors. I then infer that the exit is the consequence of an ex-ante demand made to bank managers. However, even if the exit by institutional investors was not preceded by the threat of exit, because bank managers can observe whether or not institutional investors have sold other bank shares before in response to perceived low financial reporting quality and this is a repeated-game setting, bank managers would implicitly be aware of the consequences of not affirmatively responding to demands for improved financial reporting quality.

the restatement bank based on time, size, and stock returns. Specifically, I find non-restatement banks with a market capitalization between 70% and 130% of the restatement bank prior to the restatement announcement date and then choose the bank with the closest stock return to the restatement bank over the prior year.[43]

The sample period for these tests are restatements announced from 2000-2011 and includes 154 restatement announcements plus the matched control banks if available. It should be noted that these are relatively "minor" restatements on average, so any trading by institutional investors based on this news is unlikely to be directly due to concerns about future cash flows or firm prospects.[44]

Table 9 provides the results for total raw institutional ownership and total raw monitoring ownership. For total institutional ownership in Panel A, I find no significant difference in the changes in institutional ownership relative to the control sample prior to the restatement announcement. Following the restatement announcement, however, I observe a significant decrease in institutional ownership relative to the control sample beginning 3-4 quarters after the restatement announcement (-0.77%, $p < 0.05$) and continuing throughout the following year (-1.64%, $p < 0.05$).[45] In total, I observe a decrease

[43] To mitigate concerns of information leakage around the restatement announcement, I use the market capitalization and end the prior year stock return window 5 days before the announcement date.

[44] In untabulated analysis, the three day announcement return for the restaters is only a -1.26 market-adjusted return and only 7% of the restatements involve an SEC investigation.

[45] I use the date corresponding to the first public identification of the need to restate because institutional investors may start trading immediately based on this news, but this date may not actually be the date restated financial statements are filed with the SEC. In fact, it is likely that many restatements, particularly more severe ones, are actually filed subsequent to this date, which may explain why I do not observe a significant decrease in the quarters immediately following the restatement announcement. I lack the data to test for changes in ownership around the date that the *actual* restated financial statements were provided to the SEC. However, in untabulated tests, I examine changes in institutional ownership around the date the bank discloses the restatement in Item 4.02 of the 8-K, indicating that previously issued financial statements should not be relied upon. While not all banks even file the need to restate on Item 4.02 and the bank may have previously disclosed the *need* to restate, disclosure of the restatement on Item 4.02 provides additional information on the materiality and severity of the restatement. Using this date, I find a statistically significant

in institutional ownership of 1.83% ($p < 0.10$) relative to the control sample which equates to over 5% of the total institutional ownership as of the end of quarter with the restatement announcement (-1.83/35.06). Panel B similarly reports a significant decrease in the holdings by monitoring institutions after the restatement announcement. Despite comprising only around 11% of the total institutional ownership of the restating banks at time zero (3.83/35.06), the decrease in institutional ownership by monitoring institutions represents nearly 37% of the total institutional ownership decrease (-0.67/-1.83). Importantly, the fact that these *long-term* institutional investors are selling their investments in response to the announcement of relatively minor restatements is consistent with them previously demanding and expecting improvements to financial reporting quality as a condition of their investment. Panel C reports the results of changes in ownership by all other institutional investors. Interestingly, even non-monitoring institutions decrease their ownership by 0.82% in the restatement announcement quarter ($p < 0.10$) driven by quasi-indexing institutions and an additional decrease 3-4 quarters after the announcement (-0.72, $p < 0.05$) driven by both quasi-indexing institutions and transient institutions. Hence, while these other types of institutions place less of a role in ex-ante monitoring of financial reporting quality, they may still respond to ex-post signals of poor financial reporting quality.

Collectively, these results are consistent with institutional investors, particularly monitoring institutions, demanding high financial reporting quality ex-ante and divesting ownership interests ex-post if it is revealed those demands are not met.[46] Given that

decrease in institutional ownership relative to matched firms with a statistically significant decrease in the *first* quarter after the announcement.

[46] These results would also be consistent with a reverse-causality story whereby institutional investors buy (sell) bank stocks with high (low) financial reporting quality. While these stories are not mutually exclusive, it should be noted that on average over my full sample period, I do not find evidence of institutional investors buying (selling) bank stocks based on changes in financial reporting quality (see Table 5).

institutional selling can adversely impact share prices and liquidity, this is likely to be an effective strategy to influence bank management (e.g., Brown and Brooke, 1993; Edmans, 2009; Edmans and Manso, 2011; Gompers and Metrick, 2001; Parrino et al., 2003).[47]

5.2 ALTERNATIVE MEASURES OF FINANCIAL REPORTING QUALITY

There is no universally acknowledged measure of financial reporting or earnings quality (Dechow et al, 2010). Rather, since not all proxies for financial reporting "quality" capture the same fundamental construct, financial reporting quality can only be defined for a specific setting. To that end, I focus in this study on the role of accounting in enhancing the ability for market participants to monitor and discipline a bank. Given my results, it appears that institutional investors believe earnings persistence, the ability of earnings to predict future cash flows, and the ability of the loan loss reserve to predict future loan charge-offs all aid in fulfilling that monitoring objective.

However, given that institutional investors appear to care about financial reporting quality and are effective at impacting it, it is worthwhile to examine some additional measures of financial reporting quality to provide additional evidence on how institutional investors impact bank financial reporting quality. To do so, I follow prior literature and examine whether institutional investors also appear to reduce bank earnings management.

[47] Results that institutional investors indeed sell shares, which may adversely impact share prices, based on financial reporting quality may also help explain the lack of a statistically significant relation between financial analysts and financial reporting quality because analysts lack this mechanism to potentially impact share prices. In untabulated analysis, I examine whether analyst following also decreases subsequent to the announcement of a restatement, and I find no statistically significant change in the post-restatement announcement period. This provides additional evidence that managers will be more incentivized to proactively respond to demands from institutional investors rather than demands from analysts.

While Equation (3) focuses on whether managers use discretion in estimating the loan loss provision to result in a more predictive accrual (which could either be smaller or larger than the provision would have been recorded at in the absence of such discretion), the loan loss provision can also be managed to overstate income and regulatory capital (Beatty et al., 2002; Cornett et al., 2009). Additionally, banks can also manage earnings through selectively selling securities to realize security gains (Beatty et al., 2002). This second method in particular may be effective as it is relatively unregulated and unaudited (Cornett et al., 2009). In either case, given the importance of the earnings number in bank valuation, higher earnings management would make it more difficult for institutional investors to use the financial statements to engage in market discipline.

I follow methods used in prior research to estimate the discretionary portion of the loan loss provision and realized security sales (Beatty et al., 2002; Cornett et al., 2009). I first estimate the following annual regression to estimate the discretionary portion of the loan loss provision:

$$\begin{aligned} LOANLOSS_{i,t} = {} & \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 \Delta NPL_{i,t} + \beta_3 LLR_{i,t} + \beta_4 LOAN\_RE_{i,t} + \\ & \beta_5 LOAN\_COM_{i,t} + \beta_6 LOAN\_DEP_{i,t} + \beta_7 LOAN\_AG_{i,t} + \beta_8 LOAN\_CON_{i,t} + \\ & \beta_9 LOAN\_FOREIGN_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (5)$$

where $LOANLOSS_{i,t}$ - loan loss provision of bank i in year t scaled by average gross loans as of the beginning and end of the year; $LLR_{i,t}$ - loan loss reserve of bank i in year t scaled by gross loans as of the beginning of the year; $LOAN\_RE_{i,t}$ - percentage of total gross loans of bank i in year t that are real estate loans; $LOAN\_COM_{i,t}$ - percentage of total gross loans of bank i in year t that are commercial loans; $LOAN\_DEP_{i,t}$ - percentage of total gross loans of bank i in year t that are depository institution loans; $LOAN\_AG_{i,t}$ - percentage of

total gross loans of bank i in year t that are agricultural loans; $LOAN\_CON_{i,t}$ - percentage of total gross loans of bank i in year t that are other consumer loans; $LOAN\_FOREIGN_{i,t}$ - percentage of total gross loans of bank i in year t that are foreign government loans; and other variables as previously defined.

The discretionary component of the loan loss provision is the error term from this regression. However, because discretionary security sales is standardized by assets, rather than average gross loans, I follow Cornett et al. (2009) and transform the error term as follows to have a common scalar:

$$DLOANLOSS_{i,t} = \varepsilon_{i,t} * ((GROSSLOAN_{i,t} + GROSSLOAN_{i,t-1}) / 2) / AT_{i,t-1} \quad (6)$$

where $DLOANLOSS_{i,t}$ - discretionary loan loss provision of bank i in year t scaled by assets as of the beginning of the year; $GROSSLOAN_{i,t}$ - total gross loans of bank i in year t; $AT_{i,t}$ - total assets of bank i in year t.

Similarly, to find discretionary realized security sales, I follow Beatty et al. (2002) and run the following annual regressions:

$$RSGL_{i,t} = \beta_0 + \beta_1 SIZE_{i,t-1} + \beta_2 UNGL_{i,t} + \varepsilon_{i,t} \quad (7)$$

where $RSGL_{i,t}$ - total security gains on held-to-maturity and available-for-sale securities of bank i in year t scaled by assets as of the beginning of the year; $UNGL_{i,t}$ - total unrealized net gain on available-for-sale securities currently reported in other comprehensive income scaled by assets as of the beginning of the year; and other variables as previously defined.

I then calculate total signed earnings management as the sum of these two discretionary income components. Note, because larger loan loss provisions *decrease* earnings, to calculate the total income increasing earnings management, I have to subtract discretionary loan loss provisions as follows:

$$EM_{i,t} = RSGL_{i,t} - DLOANLOSS_{i,t} \quad (8)$$

where $EM_{i,t}$ – total signed earnings management for bank i in year t scaled by assets as of the beginning of the year; and other variables as previously defined.

Finally, to examine the impact of residual institutional ownership on earnings management, I follow prior literature and perform the following regression following prior literature (Beatty and Altamuro, 2010):

$$EM_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 ATGROWTH_{i,t} + \beta_4 LOANS_{i,t} + \beta_5 NPL_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFGROWTH_{i,t} + \varepsilon_{i,t} \quad (9)$$

where $ATGROWTH_{i,t}$ - change in assets in bank i from the beginning to the end of year t scaled by assets as of the beginning of the year; $LOANS_{i,t}$ - total gross loans of bank i at the end of year t scaled by total assets as of the beginning of year t; $LEV_{i,t}$ - total equity in bank i at the end of year t scaled by total assets as of the end of the year; $CFGROWTH_{i,t}$ - change in total cash flows in bank i from the beginning to the end of year t where cash flows are calculated as net income plus the loan loss provision scaled by assets as of the beginning of the year; and other variables as previously defined.

Results are presented in Table 10, Panel A. $ROWN_{i,t-1}$ has a negative and statistically significant impact on income increasing earnings management (-0.0173, $p < 0.05$). As a result, in additional to having more predictive accruals and earnings numbers, institutional investors appear to demand less earnings management by banks.

I also estimate an alternative measure of earnings management: benchmark beating. Following Beatty and Altamuro (2010), I estimate the following regression:

$$SMALLPOS_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 ATGROWTH_{i,t} + \beta_4 LOANS_{i,t} + \beta_5 NPL_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFGROWTH_{i,t} + \varepsilon_{i,t} \quad (10)$$

where $SMALLPOS_{i,t}$ - is set to one if the change in pre-tax income for bank i from year t-1 to year t scaled by assets as of the beginning of the year is in the interval between 0 and

0.0008, inclusive and set to zero otherwise; and all other variables are as previously defined.

Results are presented in Table 10, Panel B. I find residual institutional ownership is negatively related to benchmark beating (-0.138, $p < 0.05$). Collectively, Table 10 provides additional evidence on how institutional investors improve bank financial reporting quality.

5.3 VOLUNTARY DISCLOSURES

Thus far the paper examines whether information intermediaries demand *better* quality financial reporting. I focus on improvements to required financial reporting given bank regulators' emphasis on improving the quality of the numbers in the financial statements themselves, particularly the loan loss provision (Chakrabarty, 2013; Mishkin, 2007). However, it is also possible that the market may want *additional* supplemental information. Little is known about the determinants of bank voluntary disclosure (Spiegel and Yamori, 2004).

Given that I find institutional investors demand higher quality and arguably more accurate financial reporting, I also examine whether they impact whether or not a bank issues management earnings forecasts. As noted by the International Corporate Governance Network, a group representing major institutional investors, "Corporations should disclose accurate, adequate and timely information… so as to allow investors to make informed decisions about the acquisition… and sale of shares" (The Conference Board, 2001). Providing earnings guidance fulfills the need of providing more timely information, and given the use of financial reporting in market discipline, providing more timely information about the expectation for future earnings would likely be highly desired by bank institutional investors.

Ajinkya et al. (2005) examine the impact of institutional owners on management earnings forecasts for the full sample of firms in First Call and find that institutional ownership, as predicted, is positively associated with the likelihood that a firm issues earnings forecasts. Given the differences between non-financial and financial firms (and institutional investors in those firms), I examine this question in my sample using the following probit model following prior literature:

$$FORECAST_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 LOSS_{i,t} + \beta_4 BM_{i,t} + \beta_5 EARNVOLATILITY_{i,t} + \varepsilon_{i,t} \quad (11)$$

where $FORECAST_{i,t}$ - one if the bank issued any earnings forecasts during the fiscal period and set to zero otherwise; $LOSS_{i,t}$ - one if the firm reported losses before taxes and extraordinary items in the current period and set to zero otherwise; $EARNVOLATILITY_{i,t}$ - standard deviation of three years of income before taxes and extraordinary items ending in the current period; and other variables as previously defined.

Results are presented in Table 11. Consistent with Ajinkya et al. (2005), $ROWN_{i,t-1}$ is positive and significantly associated with the propensity to issue earnings forecasts (0.250, $p < 0.01$). Other variables load in expected directions. Given this positive relation between institutional ownership and earnings forecasts, the lower institutional ownership in banks relative to non-banks may partially explain why so few banks provide management forecasts.[48] Given the potential benefits of voluntary disclosure for market discipline, this suggests an additional unintended consequence of limiting institutional ownership in banks.

[48] In my sample, only approximately 7% of the bank-years provide earnings guidance (untabulated).

5.4 AUDITORS

The focus of this paper is the impact of institutional investors and financial analysts given their critical role as the main information intermediaries in the market (Piotroski and Roulstone, 2004). However, it is also possible that other market participants may improve financial reporting quality, which will improve its ability to facilitate market discipline. One such participant is the external auditor.

While I am not aware of any prior research that has separately examined the impact of audit quality on *bank* financial reporting quality, it is generally held that high-quality audits mitigate earnings management and enhance financial reporting quality (e.g., Bartov et al., 2000; Francis et al., 1999). Moreover, banking regulators have long stressed the importance of a high-quality external audit for banks (BIS, 2008). As summarized in BIS (2014), "External auditors of banks can play an important role in contributing to financial stability when they deliver quality bank audits which foster market confidence in banks' financial statements." At the same time, however, bank regulators have noted numerous instances of audit failures in the financial crisis, and have recently issued new guidance to bank auditors on how to effectively audit a bank (BIS, 2014). This raises the question of whether or not relatively high-quality audits have had an impact on bank financial reporting quality.

To examine whether auditors have also played a role in bank financial reporting quality relative to the other market participants that are the focus of my paper, I augment Equations (3) and (4) as follows to also examine whether or not banks with a Big N auditor had higher financial reporting quality:

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST_{i,t-1} + \beta_6 BIGN_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST_{i,t-1} + \beta_{10} LLP_{i,t}*BIGN_{i,t-1} + \varepsilon_{i,t} \quad (3h)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST_{i,t-1} + \beta_5 BIGN_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST_{i,t-1} + \beta_9 ROA_{i,t}*BIGN_{i,t-1} + \varepsilon_{i,t} \quad (4h)$$

where $BIGN_{i,t-1}$ – dummy variable set equal to one if bank i has a Big N auditor in year t - 1 and zero otherwise; and other variables are as previously defined.

Results are presented in Table 12 and are limited to the 2000-2011 time frame where I have complete auditor data. $LLP_{i,t}*BIGN_{i,t-1}$ and $ROA_{i,t}*BIGN_{i,t-1}$ are insignificantly related to all measures of financial reporting quality. Consistent with Tables 3 and 4, institutional ownership (analyst following) is positive and significantly (insignificantly) related to financial reporting quality. As a result, despite the regulatory focus on audit quality for banks, there is no evidence of a higher audit quality improving financial reporting quality. These findings help validate bank regulators' recent recognition of the need for improvements in bank auditing (BIS, 2014).

5.5 BANK SIZE

As discussed in Chapter 4.1, the distribution of bank size is highly skewed with a few banks having a significant portion of the total assets and deposits in the banking industry. For example, Bank of America, JPMorgan Chase, and Wells Fargo alone had nearly 33% of total bank deposits in 2014 (SNL, 2015). Not surprisingly, these largest banks also have larger levels of institutional ownership and analyst following.[49] To ensure

[49] In my sample, the money center banks average total institutional ownership of 45.5% and total analyst following of 21.9 analysts as of the start of the year (untabulated).

that these largest "money center" banks are not driving my results, I drop the full list of money center banks as identified in Khan (2010) in untabulated analysis.

Results are similar when I omit these largest banks. $LLP_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.1038, $p < 0.05$) indicating that institutional investors are still positively associated with increased predictive ability of the loan loss provision of a similar magnitude as in the full sample. Similarly, $ROA_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.1341, $p < 0.01$) for earnings persistence and is positive and significant (0.0827, $p < 0.01$) for cash flow predictability in the following year. Analyst following remains statistically unrelated to financial reporting quality in all specifications.

Furthermore, in additional untabulated tests, I drop all bank years with total assets less than $500 million, which drops around 16% of my sample. Starting in 2006, bank holding companies less than $500 million were generally exempted from filing the FR Y-9C because the cost of this detailed financial information was deemed to be greater than the benefit it provided for these smaller banks. These banks have significantly lower levels of institutional ownership and analyst following.[50]

Results remain similar to those presented in Tables 2 and 3 in my full sample. $LLP_{i,t}$*$ROWN_{i,t-1}$ is positive and significant (0.1237, $p < 0.01$) indicating that institutional investors are still positively associated with increased predictive ability of the loan loss provision of a similar magnitude as in the full sample. Similarly, $ROA_{i,t}$*$ROWN_{i,t-1}$ is

[50] In my sample, these smaller banks average total institutional ownership of 6.8% and total analyst following of 0.4 analysts (untabulated).

positive and significant (0.1681, $p < 0.01$) for earnings persistence and is positive and significant (0.1037, $p < 0.01$) for cash flow predictability in the following year. Analyst following remains statistically unrelated to financial reporting quality in all specifications.

Accordingly, my results are not driven by the smallest or largest banks in my sample but rather speak to the banking industry as a whole.

5.6 BANK RISK

In my final analyses, given institutional investors demand high financial reporting quality on average, I then examine the relation between this demand and bank risk. Not all bank risk is necessarily sub-optimal. The key for effective bank regulation as noted by Jean Tirole is to prevent banks from taking "*too much* risk" (Moshinsky, 2014, emphasis added). The role of financial reporting in market discipline, therefore, is to allow market participants to "screen out good from bad credit risks or to monitor the firm to ensure that it does not take on too much risk" (Mishkin, 2007). As a result, high financial reporting quality is particularly important for high risk banks (FDIC, 1983). After all, market discipline of these banks is particularly important to help ensure their survival. If institutional investors perform this market discipline using bank financial information, institutional investors in high risk banks should demand higher financial reporting quality.

Table 13 presents the results of examining this question estimating Equations (3) and (4) separately for the "high" and "low" risk banks. I rank banks each year on the ex-ante bank risk as of the start of the year and label banks in the bottom (top) two quintiles each year as "high" ("low") risk. To measure ex-ante bank risk, I follow prior literature

and use the bank's $ZSCORE_{i,t-1}$, the natural logarithm of the sum of the return on assets and capital asset ratio scaled by the standard deviation of the bank's return on assets (Laeven and Levine, 2009; Lepetit and Strobel, 2013). The intuition for $ZSCORE_{i,t}$ is it measures the distance from insolvency, that is, how quickly losses could deplete equity, causing the bank to fail. Note, higher values of $ZSCORE_{i,t}$ indicate less, not more, risk.

The results indicate that $LLP_{i,t}$*$ROWN_{i,t-1}$ is positive and significant for high risk banks at predicting future charge-offs (0.2004, $p < 0.01$), is insignificant for low risk banks, and the difference between the subsamples is statistically significant ($p < 0.05$). $ROA_{i,t}$*$ROWN_{i,t-1}$ is positive and significant for the high risk banks at predicting future period earnings (0.1951, $p < 0.01$), is negative and marginally significant for the low risk banks (-0.1200, $p < 0.10$), and the difference between the subsamples is statistically significant ($p < 0.01$). Similarly $ROA_{i,t}$*$ROWN_{i,t-1}$ is positive and marginally significant for the high risk banks at predicting future period cash flows (0.0670, $p < 0.10$) and is insignificant for the low risk banks.[51] These results are consistent with institutional investors demanding high financial reporting quality from banks where it is particularly crucial to perform market discipline.

Finally, while the focus of this study is on bank financial reporting quality, evidence that institutional investors demand higher financial reporting quality, particularly for high risk banks, suggests there may also be a direct relation between institutional investors and

[51] To ensure that these results are distinct from the sorts on information asymmetry in Tables 2 and 3, in untabulated analysis, I also control for information asymmetry and find similar results.

bank risk. This is important to examine for multiple reasons. First, from a public policy perspective, the ownership restrictions on bank institutional ownership are due to concerns that they may increase bank risk and failures (e.g., Adams and Mehran, 2003; Federal Reserve Board, 2008), so direct evidence on this point should be informative to banking regulators. Second, most research on bank risk does not incorporate information about the bank's ownership structure (Laeven and Levine, (2009), and the limited empirical evidence is not conclusive (Becht et al., 2011a). Finally, as my sample period includes the Financial Crisis, it is a powerful time period to test this question for U.S. banks.

I first test the relation between residual institutional ownership and a commonly accepted measure of *ex-ante* bank risk referred to as ZSCORE in the literature (see Lepetit and Strobel, 2013 for a discussion on the growing use of the ZSCORE in the banking literature). I estimate the following model using pooled OLS:

$$ZSCORE_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 NPL_{i,t} + \beta_3 SIZE_{i,t-1} + \beta_4 GAPRATIO_{i,t} + \beta_5 LOANS_{i,t} + \beta_6 LOANGROWTH_{i,t} + \beta_7 DEPOSITGROWTH_{i,t} + \varepsilon_{i,t} \quad (12)$$

where $ZSCORE_{i,t}$ - ex-ante bank risk calculated as the natural logarithm of the sum of the return on assets and capital asset ratio of bank i at the end of year t scaled by the standard deviation of the bank's return on assets; $GAPRATIO_{i,t}$ - absolute net rate sensitive assets of bank i at the end of year t scaled by total assets as of the beginning of year t; $LOANGROWTH_{i,t}$ - percentage growth in total gross loans of bank i from the beginning to the end of year t; $DEPOSITGROWTH_{i,t}$ - percentage growth in total deposits of bank i from the beginning to the end of year t; and other variables as previously defined.

Table 14, Panel A presents the results from estimating Equation (12). Controlling for a variety of other determinants of bank risk including loan quality, asset composition,

and interest sensitivity, Column 1 shows the relation between $ROWN_{i,t-1}$ and $ZSCORE_{i,t}$ is positive (indicating ex-ante bank risk is lower) and statistically significant (0.1966, $p < 0.05$). In economic terms, this is the equivalent of an increase from the bottom to top decile of residual institutional ownership reducing average bank risk by 7.9% (0.1966/2.494). Column 2 reports the results of modifying Equation (12) using a changes specification by first-differencing all variables. $\Delta ROWN_{i,t}$ is positive and marginally significant (0.1110, $p < 0.10$). Accordingly, institutional ownership appears to reduce ex-ante bank risk.

I then examine the impact of institutional ownership on *realized* future loan quality as an ex-post measure of bank risk and future credit losses. I focus on future non-performing loans because for most banks, lending is the primary source of both value creation and risk (Harris et al., 2013), and the main driver of bank failures was alleged to be bad quality loans (SEC, 2008). Non-performing loans are loans that have been modified in a troubled debt restructuring, are past due, or for which interest revenue is not being recorded. Non-performing loans are relatively non-discretionary and essentially represent economic losses and foregone interest revenue related to poor credit quality of the borrower (Liu et al., 1997; Cantrell et al., 2014). Hence, I estimate the following model using pooled OLS:

$$NPL_{i,t+1} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 NPL_{i,t} + \beta_3 SIZE_{i,t-1} + \beta_4 LOANGROWTH_{i,t} + \beta_5 DEPOSITGROWTH_{i,t} + \varepsilon_{i,t} \quad (13)$$

where all variables are as previously defined.

Table 14, Panel B presents the results from estimating Equation (13). Column 1 shows $ROWN_{i,t-1}$ is negatively related to future non-performing loans (-0.0008, $p < 0.05$). In economic terms, this is the equivalent of an increase from the bottom to top decile of residual institutional ownership reducing the average $NPL_{i,t+1}$ by 7.3% (0.0008/0.011).

Column 2 modifies Equation (13) to use a changes specification and finds a similar negative relation (-0.0007, $p < 0.05$). Hence, institutional ownership appears to reduce the likelihood of future non-performing loans. Thus, contrary to concerns by regulators, higher institutional ownership appears to reduce bank risk and credit losses; however, it should be emphasized that these results cannot speak to whether or not the existing levels of bank risk were sub-optimal.

Chapter 6: *Conclusion*

This study examines the relation between institutional investors and financial analysts, and bank financial reporting quality. High financial reporting quality is necessary for market discipline, one of the three pillars of effective bank regulation, and is also directly important to bank regulators. My main findings can be summarized as follows. First, higher institutional ownership is positively associated with financial reporting quality but analyst following has no statistically significant relation with financial reporting quality. In additional analysis, I also find no statistically significant relation between audit quality and financial reporting quality. Second, this positive association for institutional investors is stronger for banks with higher information asymmetry and for institutional investors likely to demand financial reporting quality. Third, lead-lag tests and changes evidence are consistent with institutional investors demanding financial reporting quality and inconsistent with alternative explanations. In sum, institutional investors, but not analysts, appear to demand and improve financial reporting quality.

Additionally, institutional investors appear willing to vote with their feet if demands for financial reporting quality are not met, reducing their investment upon the announcement of a restatement. These results suggest a possible mechanism for institutional investors to impact financial reporting quality: the threat of exit. Institutional investors also appear to reduce earnings management and demand additional disclosures in the form of management earnings forecasts. Finally, the demand by institutional investors for financial reporting quality is strongest for high risk banks, and institutional investors appear to directly reduce bank ex-ante risk and realized future credit losses, consistent with institutional investors engaging in market discipline.

This study joins a growing empirical literature examining bank financial reporting quality (see Beatty and Liao, 2014). While numerous research has examined *consequences* of bank financial reporting quality (e.g., Bushman and Williams, 2012), less is known about the *determinants* of why financial reporting quality varies across banks. Collectively, the results that institutional investors improve bank financial reporting quality are consistent with institutional investors being an important component of bank governance and bank regulators' growing emphasis on market discipline.

As noted in Llewellyn (2005), market discipline is something of a "Black Box," whereby it is widely assumed that it has some role in disciplining banks but the mechanism of how that happens is not clear. Evidence that institutional investors appear to demand high quality (and additional) accounting information which is a necessary, but not sufficient, condition for market discipline, that they are willing to sell shares if this information is not provided, and that they appear to use this information to impact bank risk levels helps shed light on how market discipline actually works in the banking system.

An additional implication of this paper is that bankers themselves may want to consider ways to reach out to and attract additional institutional ownership, particularly monitoring institutions, as part of their optimal governance structure if they are trying to signal a commitment to high quality financial reporting and transparency. With respect to analysts, the null result I find for the impact of analyst following and financial reporting quality is likely due to a lack of sophistication and/or incentives. The fact that this is opposite of results for non-financial firms (Yu, 2008) further emphasizes the importance of separately examining banks although this can be examined in more detail in future research.

My results cannot speak definitively to whether or not existing bank regulations limiting institutional investor ownership and bank influence are suboptimal because institutional investor and other market participant behavior could change based on changes in bank regulation. Nonetheless, theory predicts that institutions may have even more incentive and ability to demand financial reporting quality and engage in market discipline in the absence of such regulation. This remains an important area for future research.

Chapter 7: *Tables*

Table 1: Sample Selection and Descriptive Statistics

Panel A: Sample Selection

Selection process	**# of bank-years**
Bank-years in bank holding company (BHC) database from 1990-2011 with required financial data for main tests	24,583
Less:	
Bank-years for private BHCs or BHCs unable to match to CRSP	(16,013)
Bank-years in CRSP with missing data to compute residual ownership measures	(1,671)
Final main sample from 1990-2011 (845 BHCs)	6,899

Panel B: Descriptive Statistics

Variable	Mean.	P25	P50	P75	Std Dev
$OWN_{i,t-1}$	21.148	3.638	15.045	33.391	20.840
$ROWN_{i,t-1}$	0.118	-7.625	-1.091	7.311	13.580
$ANALYST_{i,t-1}$	4.631	1.000	2.000	6.000	6.721
$LNANALYST_{i,t-1}$	1.206	0.693	1.099	1.946	0.984
$RLNANALYST_{i,t-1}$	0.059	-0.285	0.106	0.434	0.511
$RIDEDOWN_{i,t-1}$	0.024	-1.509	-0.682	0.346	2.907
$RNIDEDOWN_{i,t-1}$	0.121	-0.972	-0.510	-0.048	2.269
$RQIXOWN_{i,t-1}$	0.093	-5.571	-1.068	5.496	9.619
$RTRAOWN_{i,t-1}$	0.079	-1.731	-0.531	0.792	3.347
$SIZE_{i,t}$	7.669	6.504	7.325	8.532	1.594
$CO_{i,t}$	0.005	0.001	0.003	0.006	0.006
$LLP_{i,t}$	0.005	0.001	0.003	0.005	0.007
$NPL_{i,t}$	0.011	0.003	0.005	0.012	0.014
$ROA_{i,t}$	0.014	0.010	0.016	0.021	0.013
$CFROA_{i,t}$	0.018	0.014	0.019	0.023	0.010
$ZSCORE_{i,t}$	2.494	2.049	2.626	3.157	1.585
$GAPRATIO_{i,t}$	0.163	0.060	0.128	0.229	0.136
$LOANS_{i,t}$	0.721	0.619	0.713	0.811	0.179
$LOANGROWTH_{i,t}$	0.115	0.011	0.084	0.177	0.188
$DEPOSITGROWTH_{i,t}$	0.113	0.018	0.073	0.159	0.174

Table 1, continued

Panel C: Main Correlations: Pearson (Spearman) above (below) the diagonal

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
(1)		*0.193*	*0.489*	*0.234*	*0.888*	*0.633*	-0.005	-0.018	-0.017	-0.016	*0.025*	0.023	*0.034*	0.004	*-0.071*	*-0.040*	-0.023
(2)	*0.213*		*0.082*	0.017	*0.196*	*0.143*	0.030	0.022	*0.037*	*-0.027*	*0.069*	*0.119*	-0.021	*0.038*	*0.167*	*0.085*	*0.087*
(3)	*0.486*	*0.223*		0.013	*0.275*	*0.268*	0.001	0.002	0.000	*0.032*	0.013	0.021	0.016	0.004	*-0.066*	*-0.029*	-0.008
(4)	*0.098*	0.020	*0.453*		*0.031*	0.000	-0.017	0.009	0.006	0.020	*-0.025*	*-0.031*	0.009	*-0.042*	*0.056*	-0.017	-0.019
(5)	0.016	*0.061*	*0.183*	*0.078*		*0.442*	-0.005	-0.013	-0.012	*-0.024*	*0.027*	*0.028*	*0.036*	0.007	*-0.071*	*-0.042*	*-0.028*
(6)	*0.414*	*0.216*	*0.892*	*0.269*	*0.063*		-0.020	*-0.027*	-0.021	-0.018	0.020	0.012	0.003	0.022	*-0.069*	0.010	0.022
(7)	*0.423*	*0.097*	*0.586*	*0.335*	*0.058*	*0.426*		*0.161*	*0.103*	0.005	*0.113*	*0.216*	-0.007	-0.015	*-0.077*	*0.034*	*0.054*
(8)	*0.529*	*0.128*	*0.051*	*-0.147*	*-0.191*	*0.064*	*-0.123*		*0.874*	*0.676*	*-0.629*	*-0.262*	*-0.460*	-0.016	*-0.040*	*-0.272*	*-0.128*
(9)	*0.120*	0.041	-0.012	*-0.034*	0.011	-0.013	*-0.080*	*0.247*		*0.690*	*-0.693*	*-0.263*	*-0.489*	-0.021	*0.054*	*-0.206*	*-0.058*
(10)	*0.090*	*0.043*	*-0.040*	*-0.050*	*0.022*	*-0.038*	*-0.081*	*0.150*	*0.786*		*-0.593*	*-0.334*	*-0.401*	-0.008	0.009	*-0.241*	*-0.106*
(11)	*0.101*	-0.027	-0.019	-0.011	*0.063*	*-0.035*	*-0.056*	*0.061*	*0.652*	*0.603*		*0.873*	*0.524*	*0.084*	*0.137*	*0.348*	*0.255*
(12)	-0.022	0.112	0.020	0.016	*-0.059*	*0.038*	0.010	*0.152*	*-0.381*	*-0.402*	*-0.468*		*0.372*	*0.103*	*0.219*	*0.330*	*0.304*
(13)	*0.029*	0.137	0.018	0.012	*-0.061*	*0.035*	-0.019	*0.240*	*-0.108*	*-0.064*	*-0.267*	*0.897*		*-0.055*	-0.014	*0.179*	*0.145*
(14)	*-0.114*	*-0.077*	*0.024*	*0.030*	*-0.037*	*0.039*	0.016	*-0.054*	*-0.274*	*-0.256*	*-0.292*	*0.267*	*0.199*		*0.074*	0.008	0.020
(15)	0.015	0.040	0.001	-0.004	*-0.054*	0.006	-0.005	*0.062*	*0.121*	*0.076*	*0.049*	*0.130*	*0.166*	*-0.056*		*0.611*	*0.581*
(16)	*-0.048*	*0.173*	*-0.045*	*-0.055*	*0.086*	*-0.043*	*-0.078*	*-0.041*	*-0.026*	*0.152*	*0.028*	*0.188*	*0.252*	*-0.036*	*0.074*		*0.813*
(17)	*-0.083*	*0.087*	*-0.041*	-0.015	0.000	*-0.039*	-0.001	0.016	*-0.350*	*-0.221*	*-0.319*	*0.405*	*0.345*	*0.169*	0.013	*0.530*	

Key

(1) $ROWN_{i,t-1}$
(2) $RLNANALYST1_{i,t-1}$
(3) $RIDEDOWN_{i,t-1}$
(4) $RNIDEDOWN_{i,t-1}$
(5) $RQIXOWN_{i,t-1}$
(6) $RTRAOWN_{i,t-1}$
(7) $SIZE_{i,t}$
(8) $CO_{i,t}$
(9) $LLP_{i,t}$
(10) $NPL_{i,t}$
(11) $ROA_{i,t}$
(12) $CFROA_{i,t}$
(13) $ZSCORE_{i,t}$
(14) $GAPRATIO_{i,t}$
(15) $LOANS_{i,t}$
(16) $LOANGROWTH_{i,t}$
(17) $DEPOSITGROWTH_{i,t}$

Italics indicate statistical significance at the 5% level or better, two tailed.

This table reports the sample construction, basic descriptive statistics, and correlations for the main sample of BHCs from 1990-2011. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. Variables are as defined in the Appendix.

Table 2: Predictability of Future Charge-offs

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST_{i,t-1} + \beta_6 LLP_{i,t}*SIZE_{i,t-1} + \beta_7 LLP_{i,t}*ROWN_{i,t-1} + \beta_8 LLP_{i,t}*RLNANALYST_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

	(1)			(2)			(3)		
	Full sample			High Info Asymmetry			Low Info Asymmetry		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0005	-1.21		0.0000	0.00		-0.0007	-1.29	
$LLP_{i,t}$	0.2025	2.00	**	0.0844	0.66		0.3012	2.28	**
$SIZE_{i,t-1}$	0.0002	3.91	***	0.0002	2.93	***	0.0003	2.97	***
$NPL_{i,t}$	0.1416	6.83	***	0.1716	7.93	***	0.0615	2.99	***
$ROWN_{i,t-1}$	-0.0006	-3.19	***	-0.0008	-2.52	**	-0.0005	-1.65	*
$RLNANALYST_{i,t-1}$	0.0004	1.27		0.0006	1.65	*	-0.0001	-0.14	
$LLP_{i,t}*SIZE_{i,t-1}$	0.0266	2.25	**	0.0308	2.35	**	0.0210	0.90	
$LLP_{i,t}*ROWN_{i,t-1}$	0.1131	2.68	***	0.1425	2.41	**	0.0953	0.91	
$LLP_{i,t}*RLNANALYST_{i,t-1}$	0.0378	0.57		0.0407	0.57		0.0775	0.49	
N	6,899			2,760			2,757		
Adj R^2	0.582			0.574			0.470		

High – Low	Coeff.	t-stat	
$LLP_{i,t}*ROWN_{i,t-1}$	0.0472	2.02	**
$LLP_{i,t}*RLNANALYST_{i,t-1}$	-0.0368	-0.39	

This table reports the results of estimating Equation (3) using pooled OLS regressions from 1990-2011 to examine the impact of institutional ownership on high quality loan loss provisions that are more predictive of future charge-offs. The high (low) information asymmetry subsamples are formed by yearly ranking banks on the market-adjusted volatility of stock returns over the prior year. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-1}$ and $RLNANALYST_{i,t-1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 3: Earnings Persistence and Predictability of Cash Flows

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST_{i,t-1} + \beta_5 ROA_{i,t}*SIZE_{i,t-1} + \beta_6 ROA_{i,t}*ROWN_{i,t-1} + \beta_7 ROA_{i,t}*RLNANALYST_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

Panel A: Earnings Persistence

	Dependent Variable = $ROA_{i,t+1}$									Dependent Variable = $ROA_{i,t+2}$								
	(1)			(2)			(3)			(4)			(5)			(6)		
	Full sample			High Info Asymmetry			Low Info Asymmetry			Full sample			High Info Asymmetry			Low Info Asymmetry		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	0.0025	1.51		0.0035	1.76	*	0.0036	2.32	**	0.0019	0.84		0.0013	0.40		0.0059	1.71	*
$ROA_{i,t}$	0.6571	8.21	***	0.5942	6.10	***	0.6653	8.53	***	0.5540	5.49	***	0.4480	3.10	***	0.6020	2.88	***
$SIZE_{i,t-1}$	0.0003	1.21		0.0261	1.08		-0.0204	-0.45		0.0008	2.46	**	0.0847	2.45	**	-0.0199	-0.26	
$ROWN_{i,t-1}$	-0.0014	-2.44	**	-0.0022	-2.28	**	0.0007	0.36		-0.0002	-0.19		0.0005	0.37		0.0004	0.16	
$RLNANALYST_{i,t-1}$	-0.0014	-0.97		-0.0022	-1.61		0.0013	0.52		-0.0019	-1.42		-0.0025	-1.35		-0.0013	-0.59	
$ROA_{i,t}*SIZE_{i,t-1}$	-0.0064	-0.50		-0.0071	-0.51		0.0152	0.91		-0.0214	-1.30		-0.0158	-0.83		-0.0011	-0.03	
$ROA_{i,t}*ROWN_{i,t-1}$	0.1319	3.02	***	0.2144	4.21	***	-0.0314	-0.29		0.0785	1.61		0.1144	1.97	**	-0.0118	-0.10	
$ROA_{i,t}*RLNANALYST_{i,t-1}$	0.0719	1.05		0.0440	0.98		0.0008	0.01		0.0886	1.55		0.0363	0.45		0.1531	1.24	
N	6,899			2,760			2,757			6,096			2,404			2,474		
Adj R^2	0.446			0.440			0.429			0.189			0.160			0.230		

High – Low	Coeff.	t-stat		Coeff.	t-stat	
$ROA_{i,t}*ROWN_{i,t-1}$	0.2458	2.20	**	0.1262	0.87	
$ROA_{i,t}*RLNANALYST_{i,t-1}$	0.0432	0.46		-0.1168	-0.85	

Table 3, continued
Panel B: Predictability of Cash Flows

	Dependent Variable = $CFROA_{i,t+1}$									Dependent Variable = $CFROA_{i,t+2}$								
	(1)			(2)			(3)			(4)			(5)			(6)		
	Full sample			High Info Asymmetry			Low Info Asymmetry			Full sample			High Info Asymmetry			Low Info Asymmetry		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	0.0026	1.30		0.0028	1.63		0.0066	2.51	**	0.0039	2.17	**	0.0041	1.77	*	0.0073	2.79	***
$ROA_{i,t}$	0.6346	7.07	***	0.6112	5.92	***	0.4990	3.83	***	0.4696	5.59	***	0.3855	3.13	***	0.4703	2.95	***
$SIZE_{i,t-1}$	0.0012	4.59	***	0.1288	6.14	***	0.0206	0.47		0.0012	5.63	***	0.1264	5.11	***	0.0388	0.92	
$ROWN_{i,t-1}$	-0.0012	-1.63		-0.0014	-2.16	**	-0.0005	-0.21		-0.0011	-1.44		-0.0006	-0.69		-0.0012	-0.65	
$RLNANALYST_{i,t-1}$	0.0014	2.77	***	0.0010	1.32		0.0032	1.26		0.0006	0.87		0.0003	0.28		0.0011	0.67	
$ROA_{i,t}$*$SIZE_{i,t-1}$	-0.0283	-2.07	**	-0.0311	-2.23	**	0.0154	0.78		-0.0215	-1.72	*	-0.0157	-1.02		0.0006	0.02	
$ROA_{i,t}$* $ROWN_{i,t-1}$	0.0812	2.33	**	0.1162	4.74	***	0.0220	0.18		0.0903	2.09	**	0.1073	2.50	**	0.0568	0.56	
$ROA_{i,t}$* $RLNANALYST_{i,t-1}$	-0.0067	-0.30		-0.0210	-0.66		-0.0732	-0.51		0.0330	0.98		0.0117	0.22		0.0426	0.46	
N	6,899			2,760			2,757			6,095			2,403			2,474		
Adj R^2	0.395			0.407			0.414			0.247			0.235			0.288		

High – Low	Coeff.	t-stat		Coeff.	t-stat	
$ROA_{i,t}$* $ROWN_{i,t-1}$	0.0942	2.34	**	0.0505	0.46	
$ROA_{i,t}$* $RLNANALYST_{i,t-1}$	0.0522	0.36		-0.0309	-0.30	

This table reports the results of estimating Equation (4) using pooled OLS regressions from 1990-2011 to examine the impact of institutional ownership on earnings persistence and cash flow predictability. The high (low) information asymmetry subsamples are formed by yearly ranking banks on the market-adjusted volatility of stock returns over the prior year. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-1}$ and $RLNANALYST_{i,t-1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 4: Financial Reporting Quality – Lead, Current, and Lagged Institutional Ownership

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-1} + \beta_7 ROWN_{i,t} + \beta_8 LLP_{i,t}*ROWN_{i,t} + \beta_9 ROWN_{i,t+1} + \beta_{10} LLP_{i,t}*ROWN_{i,t+1} + \varepsilon_{i,t} \quad (3c)$$

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-1} + \beta_6 ROWN_{i,t} + \beta_7 ROA_{i,t}*ROWN_{i,t} + \beta_8 ROWN_{i,t+1} + \beta_9 ROA_{i,t}*ROWN_{i,t+1} + \varepsilon_{i,t} \quad (4c)$$

	Dependent Variable														
	(1)			(2)			(3)			4)			(5)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$ROA_{i,t+2}$			$CFROA_{i,t+1}$			$CFROA_{i,t+2}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0008	-1.77	*	0.0022	1.66	*	0.0012	0.56		0.0026	1.32		0.0042	2.29	**
$LLP_{i,t}$	0.2561	2.22	**												
$SIZE_{i,t-1}$	0.0003	4.17	***	0.0003	0.90		0.0007	2.17	**	0.0013	4.65	***	0.0012	5.46	***
$NPL_{i,t}$	0.1524	7.74	***												
$ROWN_{i,t-1}$	-0.0009	-2.48	**	-0.0026	-3.78	***	-0.0012	-1.40		-0.0015	-2.22	**	-0.0017	-2.12	**
$LLP_{i,t}*SIZE_{i,t-1}$	0.0241	1.94	*												
$LLP_{i,t}*ROWN_{i,t-1}$	0.1680	1.81	*												
$ROWN_{i,t}$	0.0004	0.83		0.0011	0.58		-0.0010	-0.64		0.0005	0.34		-0.0003	-0.38	
$ROWN_{i,t+1}$	0.0002	0.41		0.0000	-0.01		0.0023	1.60		0.0002	0.19		0.0014	1.65	*
$LLP_{i,t}*ROWN_{i,t}$	-0.1446	-1.66	*												
$LLP_{i,t}*ROWN_{i,t+1}$	0.0411	0.60													
$ROA_{i,t}$				0.6660	10.45	***	0.5760	5.81	***	0.6398	6.93	***	0.4716	5.62	***
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0032	-0.25		-0.0187	-1.12		-0.0295	-2.09	**	-0.0195	-1.53	
$ROA_{i,t}*ROWN_{i,t-1}$				0.1445	3.32	***	0.0808	1.56		0.0876	2.47	**	0.0898	2.04	**
$ROA_{i,t}*ROWN_{i,t}$				0.0027	1.22		0.0000	0.00		0.0020	1.15		0.0000	0.01	
$ROA_{i,t}*ROWN_{i,t+1}$				-0.0016	-0.55		0.0041	0.77		-0.0005	-0.18		0.0023	0.63	
N	6,537			6,537			6,042			6,537			6,041		
Adj R^2	0.585			0.439			0.187			0.388			0.245		

Table 4, continued

This table reports the results of modifying Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to provide evidence on the direction of causality between institutional ownership and financial reporting quality. Equations (3c) and (4c) control for the impact of the contemporaneous and future residual institutional ownership levels. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-1}$, $ROWN_{i,t}$, and $ROWN_{i,t+1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 5: Change in Financial Reporting Quality Prior to, Concurrent with, and After the Change in Institutional Ownership

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \varepsilon_{i,t} \quad (3d)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \varepsilon_{i,t} \quad (4d)$$

Panel A: Predictability of Future Charge-offs

(1)	(2)		(3)			(4)		
Quintiles of change in institutions' residual percentage ownership	Mean value of change in institutions' residual percentage ownership from year t-1 to t	Change in predictability of future charge-offs in **pre**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-2 to t-1)		Change in predictability of future charge-offs **during**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-1 to t)			Change in predictability of future charge-offs in **post**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t to t+1)		
	$\Delta ROWN_{i,t-1}$	$\beta_{1,i,t-1} - \beta_{1,i,t-2}$	p-value	$\beta_{1,i,t} - \beta_{1,i,t-1}$	p-value		$\beta_{1,i,t+1} - \beta_{1,i,t}$	p-value	
Quintile 1	-9.51	-0.1504	0.113	0.1252	0.131		-0.0796	0.267	
Quintile 2	-3.12	-0.0749	0.227	0.1549	0.068	*	-0.0071	0.927	
Quintile 3	-0.51	-0.0682	0.494	0.1735	0.091	*	-0.0631	0.538	
Quintile 4	2.29	-0.0450	0.652	0.0460	0.490		0.0437	0.598	
Quintile 5	11.23	-0.0921	0.293	0.0270	0.697		0.1779	0.036	**
Quintile 5 – Quintile 1	20.74	0.0584	0.289	-0.0981	0.364		0.2574	0.020	**

Table 5, continued

Panel B: Earnings Persistence

(1)	(2)		(3)			(4)		
Quintiles of change in institutions' residual percentage ownership	Mean value of change in institutions' residual percentage ownership from year t-1 to t	Change in earnings persistence in **pre**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-2 to t-1)		Change in earnings persistence **during**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-1 to t)			Change in earnings persistence in **post**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t to t+1)		
	$\Delta ROWN_{i,t-1}$	$\beta_{1,i,t-1} - \beta_{1,i,t-2}$	p-value	$\beta_{1,i,t} - \beta_{1,i,t-1}$	p-value		$\beta_{1,i,t+1} - \beta_{1,i,t}$	p-value	
Quintile 1	-9.51	-0.0777	0.877	-0.0008	0.994		-0.0982	0.108	
Quintile 2	-3.12	0.0402	0.641	0.1210	0.082	*	-0.0442	0.541	
Quintile 3	-0.51	0.1241	0.112	-0.0101	0.889		-0.0433	0.583	
Quintile 4	2.29	0.1123	0.112	-0.1136	0.115		0.0352	0.616	
Quintile 5	11.23	-0.0934	0.207	-0.0561	0.356		0.1180	0.081	*
Quintile 5 – Quintile 1	20.74	-0.1010	0.257	-0.0553	0.444		0.2162	0.018	**

Table 5, continued

Panel C: Predictability of Cash Flows

	(1)	(2)		(3)		(4)		
Quintiles of change in institutions' residual percentage ownership	Mean value of change in institutions' residual percentage ownership from year t-1 to t	Change in predictability of cash flows in **pre**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-2 to t-1)		Change in predictability of cash flows **during**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t-1 to t)		Change in predictability of cash flows in **post**-ownership-change period (i.e., test of difference in β_1 in Equation (2c) from year t to t+1)		
	$\Delta ROWN_{i,t-1}$	$\beta_{1,i,t-1} - \beta_{1,i,t-2}$	p-value	$\beta_{1,i,t} - \beta_{1,i,t-1}$	p-value	$\beta_{1,i,t+1} - \beta_{1,i,t}$	p-value	
Quintile 1	-9.51	-0.0544	0.249	0.0115	0.749	-0.0381	0.360	
Quintile 2	-3.12	0.0626	0.306	0.0601	0.169	-0.0366	0.431	
Quintile 3	-0.51	0.0878	0.113	-0.0500	0.333	-0.0386	0.494	
Quintile 4	2.29	-0.0389	0.247	-0.0347	0.305	-0.0562	0.102	
Quintile 5	11.23	-0.0751	0.127	-0.0320	0.463	0.1100	0.002	***
Quintile 5 – Quintile 1	20.74	-0.0207	0.762	-0.0435	0.441	0.1481	0.007	***

This table reports the results of modifying Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to provide evidence on the direction of causality between institutional ownership and financial reporting quality. I sort bank-years into quintiles based on the change in institutions' residual percentage ownership from year t-1 to t and then estimate Equations (3d) and (4d) for each quintile yearly from t-2, t-1, t, and t+1. This allows me to examine the change in accounting quality (earnings persistence, cash flow predictability or predictability of future charge-offs) in the *pre*-ownership change period (t-2 to t-1), *during* the ownership change period (t-1 to t) and *post*-ownership change period (t to t+1). The table then reports tests of the difference in the coefficient of interest in each quintile in each period. Panel A reports the results of modifying Equation (3) to estimate the change in predictability of future charge-offs. Panel B reports the results of modifying Equation (4) to estimate the change in earnings persistence. Panel C reports the results of modifying Equation (4) to estimate the change in the cash flow predictability. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 6: Financial Reporting Quality – Demand vs Anticipation

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-3} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-3} + \varepsilon_{i,t} \quad (3e)$$

$$ROA_{i,t+1(t+2)}\,(CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-3} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-3} + \varepsilon_{i,t} \quad (4e)$$

	Dependent Variable														
	(1)			(2)			(3)			4)			(5)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$ROA_{i,t+2}$			$CFROA_{i,t+1}$			$CFROA_{i,t+2}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0005	-1.18		0.000	-0.01		-0.0004	-0.15		0.0015	0.74		0.0024	1.18	
$LLP_{i,t}$	0.2815	2.27	**												
$SIZE_{i,t-1}$	0.0002	3.89	***	0.005	2.24	**	0.0009	2.79	***	0.0014	5.34	***	0.0014	6.66	***
$NPL_{i,t}$	0.1360	6.89	***												
$ROWN_{i,t-3}$	0.0000	-0.66		-0.0010	-1.27		-0.0008	-0.63		-0.0006	-0.70		-0.0009	-0.87	
$LLP_{i,t}*SIZE_{i,t-1}$	0.0308	3.95	***												
$LLP_{i,t}*ROWN_{i,t-3}$	0.0199	1.76	*												
$ROA_{i,t}$				0.7983	14.59	***	0.6321	6.70	***	0.6812	8.36	***	0.5280	7.05	***
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0157	-1.68	*	-0.0270	-1.76	*	-0.0326	-2.74	***	-0.0264	-2.57	**
$ROA_{i,t}*ROWN_{i,t-3}$				0.1062	2.46	**	0.1516	1.91	*	0.0733	1.70	*	0.1191	1.89	*
N	5,264			5,264			4,605			5,264			4,605		
Adj R^2	0.591			0.462			0.194			0.404			0.254		

This table reports the results of modifying Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to provide evidence on the direction of causality between institutional ownership and financial reporting quality. Equations (3e) and (4e) use the residual institutional ownership as of the start of two years prior to the current year to examine the impact on current year financial reporting. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-3}$, is decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 7: Financial Reporting Quality – Monitoring Institutions

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 RIDEDOWN_{i,t-1} + \beta_5 RNIDEDOWN_{i,t-1} + \beta_6 RQIXOWN_{i,t-1} + \beta_7 RTRAOWN_{i,t-1} + \beta_8 LLP_{i,t}*SIZE_{i,t-1} + \beta_9 LLP_{i,t}*RIDEDOWN_{i,t-1} + \beta_{10} LLP_{i,t}*RNIDEDOWN_{i,t-1} + \beta_{11} LLP_{i,t}*RQIXOWN_{i,t-1} + \beta_{12} LLP_{i,t}*RTRAOWN_{i,t-1} + \varepsilon_{i,t} \quad (3f)$$

$$ROA_{i,t+1(t+2)}\ (CFROA_{i,t+1(t+2)}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 RIDEDOWN_{i,t-1} + \beta_4 RNIDEDOWN_{i,t-1} + \beta_5 RQIXOWN_{i,t-1} + \beta_6 RTRAOWN_{i,t-1} + \beta_7 ROA_{i,t}*SIZE_{i,t-1} + \beta_8 ROA_{i,t}*RIDEDOWN_{i,t-1} + \beta_9 ROA_{i,t}*RNIDEDOWN_{i,t-1} + \beta_{10} ROA_{i,t}*RQIXOWN_{i,t-1} + \beta_{11} ROA_{i,t}*RTRAOWN_{i,t-1} + \varepsilon_{i,t} \quad (4f)$$

Dependent Variable

	(1)			(2)			(3)			(4)			(5)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$ROA_{i,t+2}$			$CFROA_{i,t+1}$			$CFROA_{i,t+2}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0005	-0.83		0.0016	1.31		-0.0002	-0.08		0.0022	1.42		0.0026	1.26	
$LLP_{i,t}$	0.2058	1.53													
$ROA_{i,t}$				0.7339	9.88	***	0.7027	7.50	***	0.6676	8.84	***	0.5576	6.30	***
$SIZE_{i,t-1}$	0.0002	3.86	***	0.0003	1.42		0.0008	2.94	***	0.0012	5.07	***	0.0013	6.40	***
$NPL_{i,t}$	0.1388	6.93	***												
$RIDEDOWN_{i,t-1}$	-0.0005	-3.31	***	-0.0014	-2.46	**	-0.0018	-2.00	**	-0.0010	-1.24		-0.0014	-2.31	**
$RNIDEDOWN_{i,t-1}$	0.0004	1.03		0.0013	0.96		0.0022	1.58		0.0015	2.16	**	0.0023	2.13	**
$RQIXOWN_{i,t-1}$	0.0000	-0.12		-0.0005	-1.02		-0.0003	-0.25		-0.0003	-0.69		-0.0003	-0.55	
$RTRAOWN_{i,t-1}$	-0.0004	-2.00	**	-0.0008	-3.44	***	0.0008	0.86		-0.0001	-0.26		0.0002	0.25	
$LLP_{i,t}*SIZE_{i,t-1}$	0.0277	2.57	**												
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0077	-0.66		-0.0256	-1.71	*	-0.0295	-2.30	**	-0.0240	-2.03	**
$LLP_{i,t}*RIDEDOWN_{i,t-1}$	0.0672	2.67	***												
$LLP_{i,t}*RNIDEDOWN_{i,t-1}$	-0.0341	-0.30													
$LLP_{i,t}*RQIXOWN_{i,t-1}$	0.0149	0.28													
$LLP_{i,t}*RTRAOWN_{i,t-1}$	0.0974	1.37													
$ROA_{i,t}*RIDEDOWN_{i,t-1}$				0.1105	6.42	***	0.1324	2.63	***	0.0873	2.00	**	0.1012	2.39	**
$ROA_{i,t}*RNIDEDOWN_{i,t-1}$				-0.1307	-1.44		-0.2115	-2.27	**	-0.0843	-1.67	*	-0.1440	-2.29	**
$ROA_{i,t}*RQIXOWN_{i,t-1}$				0.0851	1.81	*	0.0939	1.59		0.0603	1.56		0.0687	1.54	
$ROA_{i,t}*RTRAOWN_{i,t-1}$				0.0197	0.49		-0.0615	-1.32		-0.0244	-1.00		-0.0236	-0.46	

Table 7, continued

N	6,899	6,899	6,096	6,899	6,095
Adj R^2	0.582	0.447	0.193	0.396	0.249

This table reports the results of modifying Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to provide evidence on whether independent monitoring institutions are responsible for the positive relation between institutional ownership and financial reporting quality. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $RIDEDOWN_{i,t-1}$, $RNIDEDOWN_{i,t-1}$, $RQIXOWN_{i,t-1}$, and $RTRAOWN_{i,t-1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 8: Financial Reporting Quality in the Financial Crisis

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-1} + \beta_7 CRISIS_{i,t} + \beta_8 LLP_{i,t}*CRISIS_{i,t} + \beta_9 SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{10} NPL_{i,t}*CRISIS_{i,t} + \beta_{11} ROWN_{i,t-1}*CRISIS_{i,t} + \beta_{12} LLP_{i,t}*SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{13} LLP_{i,t}*ROWN_{i,t-1}*CRISIS_{i,t} + \varepsilon_{i,t} \quad (3g)$$

$$ROA_{i,t+1}(CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-1} + \beta_6 CRISIS + \beta_7 ROA_{i,t}*CRISIS_{i,t} + \beta_8 SIZE_{i,t-1}*CRISIS_{i,t} + \beta_9 ROWN_{i,t-1}*CRISIS_{i,t} + \beta_{10} ROA_{i,t}*SIZE_{i,t-1}*CRISIS_{i,t} + \beta_{11} ROA_{i,t}*ROWN_{i,t-1}*CRISIS_{i,t} + \varepsilon_{i,t} \quad (4g)$$

	Dependent Variable								
	(1)			(2)			(3)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$CFROA_{i,t+1}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.001	-1.09		0.002	1.51		0.005	3.02	***
LLPi,t	0.255	1.73	*						
SIZEi,t-1	0.000	3.24	***	0.055	2.74	***	0.109	3.61	***
NPLi,t	0.130	8.03	***						
ROWNi,t-1	0.000	-2.23	**	-0.001	-1.75	*	-0.002	-2.23	**
LLPi,t*SIZEi,t-1	0.020	1.18							
LLPi,t*ROWNi,t-1	0.052	2.90	***						
CRISISi,t	0.000	-0.23		-0.023	-18.43	***	-0.021	-11.48	***
LLPi,t*CRISISi,t	0.450	2.51	**						
SIZEi,t-1*CRISISi,t	0.000	2.49	**	0.001	2.32	**	0.002	4.47	***
NPLi,t*CRISISi,t	0.073	2.81	***						
ROWNi,t-1*CRISISi,t	-0.001	-10.44	***	0.003	1.60		0.005	2.74	***
LLPi,t*SIZEi,t-1*CRISISi,t	-0.039	-2.22	**						
LLPi,t*ROWNi,t-1*CRISISi,t	0.297	6.89	***						
ROAi,t				0.670	7.79	***	0.550	6.49	***
ROAi,t*SIZEi,t-1				-0.010	-0.89		-0.020	-1.27	
ROAi,t*ROWNi,t-1				0.097	2.35	**	0.094	2.37	**
ROAi,t*CRISISi,t				0.380	1.31		0.367	1.48	
ROAi,t*SIZEi,t-1*CRISISi,t				-0.060	-1.77	*	-0.062	-2.34	**
ROAi,t*ROWNi,t-1*CRISISi,t				0.261	2.45	**	0.013	0.13	
N	6,899			6,899			6,899		
Adj R2	0.644			0.551			0.445		

Table 8, continued

This table reports the results of estimating Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to examine the impact of institutional ownership on financial reporting quality varied during the Financial Crisis of 2007-2008. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). ROWNi,t-1 is decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 9: Changes in Institutional Ownership around Restatement Announcements – Voting with their Feet

Panel A: Total Institutional Ownership

		Change over Quarters							
	Level at t = 0	-7 thru 0	-7 thru -4	-3 thru -2	-1 thru 0	1 thru 2	3 thru 4	5 thru 8	1 thru 8
Restaters	35.06%	5.31%	2.38%	0.35%	0.64%	0.69%	0.40%	0.15%	2.86%
Matched	29.62%	4.11%	1.63%	0.62%	1.29%	0.47%	1.17%	1.79%	4.69%
Difference		1.20%	0.75%	-0.27%	-0.65%	0.22%	-0.77% **	-1.64% **	-1.83% *
t-stat		0.9	0.98	-0.7	-0.97	0.49	-1.85	-1.72	-1.48

Panel B: Total Monitoring Ownership

		Change over Quarters							
	Level at t = 0	-7 thru 0	-7 thru -4	-3 thru -2	-1 thru 0	1 thru 2	3 thru 4	5 thru 8	1 thru 8
Restaters	3.83%	0.63%	0.24%	0.15%	0.05%	0.17%	-0.06%	-0.89%	-0.93%
Matched	3.39%	0.52%	0.16%	0.01%	0.17%	0.04%	-0.03%	0.00%	-0.26%
Difference		0.11%	0.09%	0.14%	-0.13%	0.14%	-0.03%	-0.89% ***	-0.67% *
t-stat		0.28	0.35	1.33 *	-0.61	1.11	-0.23	-2.54	-1.42

Panel C: Total Non-Monitoring Ownership

		Change over Quarters							
	Level at t = 0	-7 thru 0	-7 thru -4	-3 thru -2	-1 thru 0	1 thru 2	3 thru 4	5 thru 8	1 thru 8
Restaters	31.23%	4.21%	2.14%	0.17%	0.29%	0.95%	0.47%	1.19%	4.13%
Matched	26.22%	3.55%	1.43%	0.58%	1.10%	0.47%	1.19%	1.70%	4.88%
Difference		0.66%	0.71%	-0.41%	-0.82% *	0.49%	-0.72%	-0.51%	-0.75%
t-stat		0.54	0.98	-1.11	-1.63	0.89	-1.74 **	-0.54	-0.61

Table 9, continued

This table reports the results of estimating changes in raw institutional ownership in the quarters around the announcement of a restatement. The sample for this table includes 154 restatement announcements from 2000-2011. The quarter zero refers to the quarter in which a bank announces a restatement, with all other quarters numbered relative to it. Banks are matched to provide a benchmark to control for other changes that may impact institutional ownership based on size and stock returns over the year prior to the announcement (Parrino et al. 2003). Panel A presents the changes based on total institutional ownership. Panel B presents the changes solely for "monitoring" institutions as defined in the appendix. Panel C presents the changes for all other institutional owners. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, one-tailed, respectively.

Table 10: Additional Measures of Financial Reporting Quality

Panel A: Earnings Management

$$EM_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 ATGROWTH_{i,t} + \beta_4 LOANS_{i,t} + \beta_5 NPL_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFGROWTH_{i,t} + \varepsilon_{i,t} \quad (9)$$

Variable	Coeff.	t-stat	
Intercept	0.1152	3.39	***
$ROWN_{i,t-1}$	-0.0173	-2.15	**
$SIZE_{i,t-1}$	-0.0017	-0.91	
$ATGROWTH_{i,t}$	0.0697	3.94	***
$LOANS_{i,t}$	-0.0985	-4.06	***
$NPL_{i,t}$	0.1448	0.36	
$LEV_{i,t}$	-0.4170	-2.36	**
$CFGROWTH_{i,t}$	5.8066	1.95	*
N	5,702		
Adj R2	0.053		

Panel B: Benchmark Beating

$$SMALLPOS_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 ATGROWTH_{i,t} + \beta_4 LOANS_{i,t} + \beta_5 NPL_{i,t} + \beta_6 LEV_{i,t} + \beta_7 CFGROWTH_{i,t} + \varepsilon_{i,t} \quad (10)$$

Variable	Coeff.	z-stat	
Intercept	-0.860	-4.02	***
$ROWN_{i,t-1}$	-0.138	-2.15	**
$SIZE_{i,t-1}$	-0.032	-1.66	*
$ATGROWTH_{i,t}$	-0.617	-2.78	***
$LOANS_{i,t}$	0.064	0.38	
$NPL_{i,t}$	-17.364	-4.42	***
$LEV_{i,t}$	-0.747	-0.72	
$CFGROWTH_{i,t}$	-12.47	-1.71	*
N	6,898		

This table reports the results of estimating the impact of institutional ownership on alternative measures of financial reporting quality. Panel A reports the results of estimating Equation (9) using pooled OLS regressions to estimate the impact of institutional ownership on income increasing earnings management. Panel B reports the results of estimating Equation (10) using probit estimation to examine the impact of institutional ownership on the propensity to have a small positive earnings increase. t and z-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). ROWNi,t-1 is decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 11: Propensity to Issue Management Earnings Forecasts

$$FORECAST_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 SIZE_{i,t-1} + \beta_3 LOSS_{i,t} + \beta_4 BM_{i,t} + \beta_5 EARNVOLATILITY_{i,t} + \varepsilon_{i,t} \quad (11)$$

Variable	Coeff.	z-stat	
Intercept	-4.125	-18.44	***
$ROWN_{i,t-1}$	0.250	3.33	***
$SIZE_{i,t-1}$	0.356	13.44	***
$LOSS_{i,t}$	-0.011	-0.05	
$BM_{i,t-1}$	-0.953	-5.30	***
$EARNVOLATILITY_{i,t}$	-0.000	-4.25	***
N	6,899		

This table reports the results of estimating Equation (11) using probit estimation from 1990-2011 to examine the impact of institutional ownership on the propensity to issue management earnings forecasts. z-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). ROWNi,t-1 is decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 12: Auditors and Financial Reporting Quality

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST_{i,t-1} + \beta_6 BIGN_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST_{i,t-1} + \beta_{10} LLP_{i,t}*BIGN_{i,t-1} + \varepsilon_{i,t} \quad (3h)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST_{i,t-1} + \beta_5 BIGN_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST_{i,t-1} + \beta_9 ROA_{i,t}*BIGN_{i,t-1} + \varepsilon_{i,t} \quad (4h)$$

	Dependent Variable								
	(1)			(2)			(3)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$CFROA_{i,t+1}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0008	-1.20		0.0021	1.37		-0.0008	-0.43	
$LLP_{i,t}$	0.1280	1.59							
$SIZE_{i,t-1}$	0.0003	2.66	***	0.0001	0.26		0.0015	6.51	***
$NPL_{i,t}$	0.1335	5.21	***						
$ROWN_{i,t-1}$	-0.0007	-2.59	***	-0.0020	-15.84	***	-0.0011	-1.29	
$RLNANALYST_{i,t-1}$	0.0006	1.14		-0.0022	-0.94		0.0016	1.91	*
$BIGN_{i,t-1}$	-0.0009	-2.04	**	0.0026	1.47		0.0003	0.19	
$LLP_{i,t}*SIZE_{i,t-1}$	0.0361	6.67	***						
$LLP_{i,t}*ROWN_{i,t-1}$	0.1723	3.43	***						
$LLP_{i,t}*RLNANALYST_{i,t-1}$	0.0106	0.13							
$LLP_{i,t}*BIGN_{i,t-1}$	0.0296	1.24							
$ROA_{i,t}$				0.7681	7.44	***	0.7958	7.42	***
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0314	-1.81	*	-0.0597	-4.40	***
$ROA_{i,t}*ROWN_{i,t-1}$				0.1676	4.82	***	0.0975	3.13	***
$ROA_{i,t}*RLNANALYST_{i,t-1}$				0.0896	0.80		-0.0119	-0.41	
$ROA_{i,t}*BIGN_{i,t-1}$				0.0629	1.22		0.0916	1.64	
N	3,594			3,594			3,594		
Adj R2	0.590			0.404			0.343		

This table reports the results of estimating modified Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 2000-2011 to examine the incremental impact of auditors and higher audit quality on financial reporting quality. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). ROWNi,t-1 and $LNANALYST_{i,t-1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 13: Financial Reporting Quality and Bank Risk

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 LLP_{i,t}*SIZE_{i,t-1} + \beta_6 LLP_{i,t}*ROWN_{i,t-1} + \varepsilon_{i,t} \quad (3)$$

$$ROA_{i,t+1}\,(CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 ROA_{i,t}*SIZE_{i,t-1} + \beta_5 ROA_{i,t}*ROWN_{i,t-1} + \varepsilon_{i,t} \quad (4)$$

Dependent Variable

	$CO_{i,t+1}$						$ROA_{i,t+1}$						$CFROA_{i,t+1}$					
	(1)			(2)			(3)			(4)			(5)			(6)		
	High			Low			High			Low			High			Low		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	0.0006	0.97		-0.0004	-0.67		0.0012	0.55		-0.0006	-0.18		0.0025	1.08		0.0009	0.23	
$LLP_{i,t}$	0.0008	0.01		0.3855	2.95	***												
$SIZE_{i,t-1}$	0.0002	2.15	**	0.0002	2.67	***	0.0003	1.14		0.0003	0.72		0.0013	5.02	***	0.0010	1.66	*
$NPL_{i,t}$	0.1753	8.38	***	0.0456	3.00	***												
$ROWN_{i,t-1}$	-0.0008	-3.03	***	-0.0001	-0.41		-0.0025	-2.54	**	0.0026	2.16	**	-0.0010	-1.11		0.0005	0.48	
$LLP_{i,t}*SIZE_{i,t-1}$	0.0439	3.06	***	0.0227	1.77	*												
$LLP_{i,t}*ROWN_{i,t-1}$	0.2004	4.03	***	0.0173	0.25													
$ROA_{i,t}$							0.6044	7.83	***	0.9187	4.31	***	0.5833	6.52	***	0.8587	3.94	***
$ROA_{i,t}*SIZE_{i,t-1}$							-0.0016	-0.13		-0.0079	-0.30		-0.0250	-1.97	**	-0.0262	-0.82	
$ROA_{i,t}*ROWN_{i,t-1}$							0.1951	3.09	***	-0.1200	-1.76	*	0.0670	1.64	*	-0.0087	-0.13	
N	2,640			2,643			2,640			2,643			2,640			2,643		
Adj R^2	0.585			0.511			0.400			0.557			0.355			0.491		

High – Low	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat
$LLP_{i,t}*ROWN_{i,t-1}$	0.1831	2.04	**					
$ROA_{i,t}*ROWN_{i,t-1}$				0.3151	3.04	***	0.0757	0.95

Table 13, continued

This table reports the results of estimating Equations (3) and (4) using pooled OLS regressions from 1990-2011 to examine the impact of bank risk and credit losses on the demand for financial reporting quality. The high (low) risk subsamples are formed by yearly ranking banks on the ex-ante bank risk at the start of the year. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-1}$ is decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table 14: Bank Risk and Credit Losses

Panel A: Ex-Ante Bank Risk

$$ZSCORE_{i,t} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 NPL_{i,t} + \beta_3 SIZE_{i,t-1} + \beta_4 GAPRATIO_{i,t} + \beta_5 LOANS_{i,t} + \beta_6 LOANGROWTH_{i,t} + \beta_7 DEPOSITGROWTH_{i,t} + \varepsilon_{i,t} \quad (12)$$

	Levels Specification			Changes Specification		
	(1)			(2)		
Variable	Coeff.	t-stat		Coeff.	t-stat	
Intercept	3.3651	16.33	***	0.0098	0.17	
$ROWN_{i,t-1}$	0.1966	2.18	**	0.1110	1.95	*
$NPL_{i,t}$	-42.0015	-6.73	***	-35.5655	-5.12	***
$SIZE_{i,t-1}$	-0.0204	-1.31		-0.3687	-0.86	
$GAPRATIO_{i,t}$	-0.5196	-3.35	***	0.0817	0.81	
$LOANS_{i,t}$	-0.4796	-2.45	***	1.4449	2.21	**
$LOANGROWTH_{i,t}$	0.5095	2.73	***	-0.2935	-1.59	
$DEPOSITGROWTH_{i,t}$	0.8788	3.97	***	0.1204	0.80	
N	6,896			6,032		
Adj R^2	0.177			0.080		

Table 14, continued

Panel B: Ex-Post Credit Losses

$$NPL_{i,t+1} = \beta_0 + \beta_1 ROWN_{i,t-1} + \beta_2 NPL_{i,t} + \beta_3 SIZE_{i,t-1} + \beta_4 LOANGROWTH_{i,t} + \beta_5 DEPOSITGROWTH_{i,t} + \varepsilon_{i,t} \quad (13)$$

	Levels Specification (1)			Changes Specification (2)		
Variable	Coeff.	t-stat		Coeff.	t-stat	
Intercept	0.0035	2.91	***	0.0008	0.76	
$ROWN_{i,t-1}$	-0.0008	-2.32	**	-0.0007	-2.02	**
$NPL_{i,t}$	0.8979	12.83	***	0.1167	0.79	
$SIZE_{i,t-1}$	-0.0001	-0.96		0.0022	1.03	
$LOANGROWTH_{i,t}$	0.0022	0.62		-0.0021	-1.02	
$DEPOSITGROWTH_{i,t}$	-0.0062	-1.64		-0.0014	-0.50	
N	6,889			6,032		
Adj R^2	0.622			0.024		

This table reports the results of using pooled OLS from 1990-2011 to examine the impact of institutional ownership on ex-ante bank risk and ex-post realized credit losses. Panel A reports the results of estimating ex-ante bank risk. Column (1) estimates Equation (12) and Column (2) estimates a changes specification of Equation (12) by first-differencing all variables. Panel B reports the results of estimating ex-post credit losses. Column (1) estimates Equation (13) and Column (2) estimates a changes specification of Equation (13) by first-differencing all variables. t-statistics are based on standard errors that are adjusted for clustering by both bank and year (Petersen, 2009). $ROWN_{i,t-1}$, and $\Delta ROWN_{i,t}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table A1: Estimation of Residual Institutional Ownership

$$OWN_{i,t} = \beta_0 + \beta_1 BM_{i,t-1} + \beta_2 SIZE_{i,t} + \beta_3 VOLATILITY_{i,t} + \beta_4 TURNOVER_{i,t} + \beta_5 STOCKPRICE_{i,t} + \beta_6 SP500_{i,t} + \beta_7 MOMENTUM3_{i,t} + \beta_8 MOMENTUM12_{i,t} + \beta_9 AGE_{i,t} + \beta_{10} YIELD_{i,t-1} + \varepsilon_{i,t} \quad (1)$$

Variable	Coeff.	t-stat		[+ significant, - significant]
Intercept	-0.272	-11.44	***	[0, 22]
$BM_{i,t-1}$	0.017	3.24	***	[2, 1]
$SIZE_{i,t}$	0.055	10.71	***	[22, 0]
$VOLATILITY_{i,t}$	-0.985	-1.74	*	[0, 3]
$TURNOVER_{i,t}$	0.984	7.50	***	[20, 0]
$STOCKPRICE_{i,t}$	0.001	8.12	***	[8, 0]
$SP500_{i,t}$	-0.093	-4.00	***	[0, 11]
$MOMENTUM3_{i,t}$	0.037	2.27	**	[4, 0]
$MOMENTUM12_{i,t}$	0.017	1.33		[5, 0]
$AGE_{i,t}$	0.002	8.39	***	[11, 0]
$YIELD_{i,t-1}$	-1.004	-4.44	***	[0, 9]
N	22			
Adj R^2	0.467			

This table reports the results of estimating Equation (1) using annual cross-sectional Fama-MacBeth regressions from 1990-2011 of ownership by different types of institutions on the economic determinants of their investments. While Equation (1) is estimated separately for total institutional ownership and institutional ownership by type of institution, for brevity only the results for $OWN_{i,t}$ are tabulated here. Consistent with Gompers and Metrick (2001), the table reports the average coefficient estimates and the number of yearly significant positive and negative coefficients at the 5% level in addition to the Fama-MacBeth test statistic. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Table A2: Financial Reporting Quality – Analyst Type

Panel A: Analyst Sophistication

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST\_ALLSTAR_{i,t-1} + \beta_6 RLNANALYST\_NONALLSTAR_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1} + \beta_{10} LLP_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1} + \varepsilon_{i,t} \quad (3a)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST\_ALLSTAR_{i,t-1} + \beta_5 LNANALYST\_NONALLSTAR_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1} + \beta_9 ROA_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1} + \varepsilon_{i,t} \quad (4a)$$

	Dependent Variable								
	(1)			(2)			(3)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$CFROA_{i,t+1}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0009	-1.75	*	0.0036	1.71	*	0.0043	2.26	**
$LLP_{i,t}$	0.2488	2.23	**						
$SIZE_{i,t-1}$	0.0003	3.89	***	0.0002	0.83		0.0011	4.16	***
$NPL_{i,t}$	0.1406	6.57	***						
$ROWN_{i,t-1}$	-0.0007	-3.32	***	-0.0016	-2.53	**	-0.0012	-1.51	
$RLNANALYST\_ALLSTAR_{i,t-1}$	0.0004	2.24	**	-0.0007	-0.44		0.0011	1.54	
$RLNANALYST\_NONALLSTAR_{i,t-1}$	0.0006	1.88	*	-0.0016	-1.81	*	-0.0018	-2.11	**
$LLP_{i,t}*SIZE_{i,t-1}$	0.0253	2.07	**						
$LLP_{i,t}*ROWN_{i,t-1}$	0.1232	2.80	***						
$LLP_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1}$	-0.0265	-0.76							
$LLP_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1}$	-0.0122	-0.22							
$ROA_{i,t}$				0.6062	5.94	***	0.5337	6.39	***
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0029	-0.21		-0.0232	-1.74	*
$ROA_{i,t}*ROWN_{i,t-1}$				0.1411	3.00	***	0.0811	2.04	**
$ROA_{i,t}*RLNANALYST\_ALLSTAR_{i,t-1}$				0.0867	1.23		0.1224	1.71	*
$ROA_{i,t}*RLNANALYST\_NONALLSTAR_{i,t-1}$				0.0291	0.35		0.0005	0.01	
N	6,899			6,899			6,899		
Adj R2	0.582			0.446			0.397		

Table A2, continued

Panel B: Analyst Independence

$$CO_{i,t+1} = \beta_0 + \beta_1 LLP_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 NPL_{i,t} + \beta_4 ROWN_{i,t-1} + \beta_5 RLNANALYST\_INDEP_{i,t-1} + \beta_6 RLNANALYST\_NONINDEP_{i,t-1} + \beta_7 LLP_{i,t}*SIZE_{i,t-1} + \beta_8 LLP_{i,t}*ROWN_{i,t-1} + \beta_9 LLP_{i,t}*RLNANALYST\_INDEP_{i,t-1} + \beta_{10} LLP_{i,t}*RLNANALYST\_NONINDEP_{i,t-1} + \varepsilon_{i,t} \quad (3b)$$

$$ROA_{i,t+1}\ (CFROA_{i,t+1}) = \beta_0 + \beta_1 ROA_{i,t} + \beta_2 SIZE_{i,t-1} + \beta_3 ROWN_{i,t-1} + \beta_4 RLNANALYST\_INDEP_{i,t-1} + \beta_5 LNANALYST\_NONINDEP_{i,t-1} + \beta_6 ROA_{i,t}*SIZE_{i,t-1} + \beta_7 ROA_{i,t}*ROWN_{i,t-1} + \beta_8 ROA_{i,t}*RLNANALYST\_INDEP_{i,t-1} + \beta_9 ROA_{i,t}*RLNANALYST\_NONINDEP_{i,t-1} + \varepsilon_{i,t} \quad (4b)$$

	Dependent Variable								
	(1)			(2)			(3)		
	$CO_{i,t+1}$			$ROA_{i,t+1}$			$CFROA_{i,t+1}$		
Variable	Coeff.	t-stat		Coeff.	t-stat		Coeff.	t-stat	
Intercept	-0.0009	-1.64		0.0045	2.07	**	0.0043	2.07	**
$LLP_{i,t}$	0.2241	2.36	**						
$SIZE_{i,t-1}$	0.0003	3.84	***	0.0005	1.83	*	0.0011	4.01	***
$NPL_{i,t}$	0.1398	6.73	***						
$ROWN_{i,t-1}$	-0.0007	-2.93	***	-0.0001	-0.10		-0.0010	-1.36	
$RLNANALYST\_INDEP_{i,t-1}$	0.0005	1.79	*	-0.0034	-3.42	***	-0.0016	-2.77	***
$RLNANALYST\_NONINDEP_{i,t-1}$	0.0003	1.28		-0.0004	-0.33		0.0013	2.38	**
$LLP_{i,t}*SIZE_{i,t-1}$	0.0256	2.23	**						
$LLP_{i,t}*ROWN_{i,t-1}$	0.1185	2.28	**						
$LLP_{i,t}*RLNANALYST\_INDEP_{i,t-1}$	0.0046	0.10							
$LLP_{i,t}*RLNANALYST\_NONINDEP_{i,t-1}$	0.0073	0.11							
$ROA_{i,t}$				0.4754	4.52	***	0.5351	5.51	***
$ROA_{i,t}*SIZE_{i,t-1}$				-0.0122	-0.81		-0.0208	-1.55	
$ROA_{i,t}*ROWN_{i,t-1}$				0.0795	1.72	*	0.0716	2.02	**
$ROA_{i,t}*RLNANALYST\_INDEP_{i,t-1}$				-0.0019	-0.03		-0.0006	-0.02	
$ROA_{i,t}*RLNANALYST\_NONINDEP_{i,t-1}$				0.1087	1.77	*	0.0902	1.34	
N	6,899			6,899			6,899		
Adj R2	0.582			0.444			0.396		

Table A2, continued

This table reports the results of estimating modified Equations (3) and (4) in Tables 2 and 3, respectively, using pooled OLS regressions from 1990-2011 to examine possible reasons for the non-result on average of analyst following reported in Tables 2 and 3. Panel A reports the results splitting analyst following based on analyst sophistication. Panel B reports the results splitting analyst following based on analyst independence. t-statistics are based on standard errors that are adjusted for clustering on both bank and year (Petersen, 2009). $ROWN_{i,t-1}$, $LNANALYST\_ALLSTAR_{i,t-1}$, $LNANALYST\_NONALLSTAR_{i,t-1}$, $LNANALYST\_INDEP_{i,t-1}$, $LNANALYST\_NONINDEP_{i,t-1}$ are decile ranked yearly and scaled from [0,1]. To minimize the influence of outliers, all variables are winsorized yearly at the 1% and 99% levels. *, **, *** indicates significance at the 10%, 5%, and 1% levels, two-tailed, respectively. Variables are as defined in the Appendix.

Appendix: *Variable Definitions*

$AGE_{i,t}$	Natural logarithm of bank age calculated as the number of years bank i has been listed on CRSP at of the end of year t.
$ANALYST_{i,t-1}$	Raw number of analysts issuing an earnings forecast for bank i in year t-1.
$AT_{i,t}$	Total assets of bank i at the end of year t.
$ATGROWTH_{i,t}$	Change in assets in bank i from the beginning to the end of year t scaled by assets as of the beginning of year t.
$BIGN_{i,t-1}$	Auditor dummy variable equal to one if the auditor for bank i in year t-1 is a Big N auditor and set to zero otherwise.
$BM_{i,t}$	Book to market ratio of bank i at the end of year t calculated as the book value of the total common equity divided by the market value of common equity (stock price multiplied by common shares outstanding).
$CFGROWTH_{i,t}$	Change in total cash flows in bank i from the beginning to the end of year t, where cash flows are calculated as pre-tax net income before extraordinary items plus the loan loss provision, scaled by assets as of the beginning of year t.
$CFROA_{i,t}$	Cash return on assets calculated as pre-tax net income before extraordinary items plus the loan loss provision of bank i in year t scaled by total assets as of the beginning of year t.
$CO_{i,t}$	Total loan charge-offs of bank i in year t scaled by total assets as of the beginning of year t.
$CRISIS_{i,t}$	Crisis dummy variable equal to one if the year is 2007 or 2008 and set to zero otherwise.
$DEPOSITGROWTH_{i,t}$	Percentage growth in total deposits of bank i from the beginning to the end of year t.
$DLOANLOSS_{i,t}$	Discretionary loan loss provision of bank i in year t scaled by assets as of the beginning of year t.
$EARNVOLATILITY_{i,t}$	Standard deviation of three years of income before taxes and extraordinary items ending in the current period.

$EM_{i,t}$	Total signed earnings management for bank i in year t scaled by assets as of the beginning of year t.
$FORECAST_{i,t}$	Forecast dummy variable equal to one if the bank issued any quarterly or annual earnings forecasts during the fiscal period and set to zero otherwise.
$GAPRATIO_{i,t}$	Absolute net rate sensitive assets of bank i at the end of year t scaled by total assets as of the beginning of year t. Net rate sensitive assets are calculated as the difference between assets and liabilities that are due to mature or be repriced within one year.
$GROSSLOAN_{i,t}$	Total gross loans of bank i as of the end of year t.
$IDEDOWN_{i,t-1}$	Raw percentage ownership of bank i at the end of year t-1 for all institutional investors classified as both "dedicated" by Bushee (2001) and "independent" by Brickley et al. (1998).
$LEV_{i,t}$	Total equity in bank i at the end of year t scaled by total assets as of the end of year t.
$LLP_{i,t}$	Loan loss provisions of bank i in year t scaled by total assets as of the beginning of year t.
$LLR_{i,t}$	Loan loss reserve of bank i in year t scaled by gross loans as of the beginning of year t.
$LNANALYST_{i,t-1}$	Raw natural logarithm of one plus the number of analysts issuing an earnings forecast for bank i in year t-1.
$LOAN\_AG_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are agricultural loans.
$LOAN\_COM_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are commercial and industrial loans.
$LOAN\_CON_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are other consumer loans.
$LOAN\_DEP_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are depository institution loans.
$LOAN\_FOREIGN_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are foreign government loans.
$LOAN\_RE_{i,t}$	Percentage of total gross loans of bank i at the end of year t that are real estate loans.
$LOANGROWTH_{i,t}$	Percentage growth in total gross loans of bank i from the beginning to the end of year t.

$LOANLOSS_{i,t}$	Loan loss provision of bank i in year t scaled by average gross loans as of the beginning and end of year t.
$LOANS_{i,t}$	Total gross loans of bank i at the end of year t scaled by total assets as of the beginning of year t.
$LOSS_{i,t}$	Current period loss dummy variable equal to one if the firm reported losses before taxes and extraordinary items in the current period and set to zero otherwise.
$MOMENTUM12_{i,t}$	Total gross buy and hold stock return of bank i during the nine month period beginning at the start of year t and ending three months prior to the end of year t.
$MOMENTUM3_{i,t}$	Total gross buy and hold stock return of bank i during the last three months of year t.
$NIDEDOWN_{i,t-1}$	Raw percentage ownership of bank i at the end of year t-1 for all institutional investors classified as both "dedicated" by Bushee (2001) and "non-independent" by Brickley et al. (1998).
$NPL_{i,t}$	Total non-performing loans of bank i at the end of year t scaled by total assets as of the beginning of year t. Non-performing loans are loans that are in nonaccrual status (e.g., 90 or more days past due and not sufficiently collateralized, payment in full is not expected, or maintained on a cash basis because of deterioration in financial condition of borrower) or have been restructured.
$OWN_{i,t-1}$	Raw percentage ownership of bank i at the end of year t-1 for all institutional investors.
$QIXOWN_{i,t-1}$	Raw percentage ownership of bank i at the end of year t-1 for all institutional investors classified as "quasi-indexers" by Bushee (2001).
$RLNANALYST_{i,t-1}$	Residual natural logarithm of one plus the number of analysts issuing an earnings forecast for bank i in year t-1.
$RLNANALYST\_ALLSTAR_{i,t-1}$	Residual natural logarithm of one plus the number of all-star analysts issuing an earnings forecast for bank i in year t-1 as identified by the Institutional Investor magazine.
$RLNANALYST\_INDEP_{i,t-1}$	Residual natural logarithm of one plus the number of independent analysts issuing an

	earnings forecast for bank i in year t-1 measured as the total analyst following less the number of analysts issuing an earnings forecast for bank i that are employed by a firm that has underwritten a debt or equity issuance for bank i listed in SDC Platinum within the past three years.
$RLNANALYST\_NONALLSTAR_{i,t-1}$	Residual natural logarithm of one plus the number of non-all-star analysts issuing an earnings forecast for bank i in year t-1 measured as the total analyst following less the number of analysts identified as all-stars by the Institutional Investor magazine.
$RLNANALYST\_NONINDEP_{i,t-1}$	Residual natural logarithm of one plus the number of non-independent analysts issuing an earnings forecast for bank i in year t-1 measured as the number of analysts issuing an earnings forecast for bank i that are employed by a firm that has underwritten a debt or equity issuance for bank i listed in SDC Platinum within the past three years.
$RIDEDOWN_{i,t-1}$	Residual percentage ownership of bank i at the end of year t-1 for all "monitoring" institutional investors defined as those classified as both "dedicated" by Bushee (2001) and "independent" by Brickley et al. (1998).
$RNIDEDOWN_{i,t-1}$	Residual percentage ownership of bank i at the end of year t-1 for all institutional investors classified as both "dedicated" by Bushee (2001) and "non-independent" by Brickley et al. (1998).
$ROA_{i,t}$	Return on assets calculated as pre-tax net income before extraordinary items of bank i in year t scaled by total assets as of the beginning of year t.
$ROWN_{i,t-1}$	Residual percentage ownership of bank i at the end of year t-1 for all institutional investors.
$RQIXOWN_{i,t-1}$	Residual percentage ownership of bank i at the end of year t-1 for all institutional investors classified as "quasi-indexers" by Bushee (2001).
$RSGL_{i,t}$	Security gains on held-to-maturity and available-for-sale securities of bank i in year t scaled by assets as of the beginning of year t.

$RTRAOWN_{i,t-1}$	Residual percentage ownership of bank i at the end of year t-1 for all institutional investors classified as "transient" by Bushee (2001).
$SIZE_{i,t}$	Natural logarithm of total assets in millions of bank i at the end of year t.
$SMALLPOS_{i,t}$	Benchmark beating dummy variable set to one if the change in pre-tax income for bank i from year t-1 to year t scaled by assets as of the beginning of the year is in the interval between 0 and 0.0008, inclusive, and set to zero otherwise.
$SP500_{i,t}$	S&P 500 dummy variable equal to one if bank i is included in the S&P 500 index at the end of year t and set to zero otherwise.
$STOCKPRICE_{i,t}$	Common equity stock price of bank i at of the end of year t.
$TRAOWN_{i,t-1}$	Raw percentage ownership of bank i at the end of year t-1 for all institutional investors classified as "transient" by Bushee (2001).
$TURNOVER_{i,t}$	Total monthly volume of bank i common equity divided by total common shares outstanding measured three months prior to the end of year t.
$UNGL_{i,t}$	Cumulative unrealized net gain on available-for-sale securities currently reported in other comprehensive income at the end of year t scaled by assets as of the beginning of year t.
$VOLATILITY_{i,t}$	Variance of monthly stock returns of bank i from the beginning of year t-1 to the end of year t.
$YIELD_{i,t}$	Total declared cash dividends of bank i during year t scaled by the market value of common equity at the beginning of year t.
$ZSCORE_{i,t}$	Ex-ante bank risk calculated as the natural logarithm of the sum of the return on assets and capital asset ratio of bank i at the end of year t scaled by the standard deviation of the bank's return on assets. The capital asset ratio is calculated as the total Tier 1 equity capital of bank i at the end of year t scaled by total assets as of the beginning of year t.

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