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Bank Boards: What has Changed since the Financial Crisis?

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Abstract: Several government-mandated committees investigating the financial crisis highlighted four key deficiencies in the composition of bank boards before the crisis: (i) group think among bank board members; (ii) absence of prior banking experience of board members; (iii) inability of board members, especially of the chairperson, to devote time to understanding the bank's business model, and (iv) inadequate emphasis on risk management. Our empirical analysis compares proxies for these deficiencies between 97 U.S. banks and 1,297 nonbanks before and after the crisis covering the years 2007-2015. We also introduce control variables that would have affected these proxies, regardless of the crisis. Based on such an analysis, we do not find (i) a significant difference in the proportion of directors that has turned over from bank boards since 2007 relative to boards of 1,297 firms in other industries; (ii) that banks are staffed by more successful leaders relative to before the crisis; (iii) evidence of greater gender or racial diversity in bank boards or of a greater split between the chairperson and CEO's position or of an increase in the number of directors appointed outside of the current CEO's tenure in the post crisis period, relative to nonbanks; (iv) that the number of outside board seats of bank directors, a measure of time commitment, has fallen after the crisis, and (v) that a bank's chairperson is less likely to sit on at least one outside board, relative to before the crisis. Virtually every bank now has a Chief Risk Officer (CRO) but the CRO is unlikely to feature among the top five most compensated employees of the average bank. The number of banks that have an independent risk committee and a committee devoted to reputation management has increased since the crisis. In sum, bank boards seem to have responded modestly to the financial crisis.

Keywords: banks, boards of directors, financial crisis, risk officer, director experience, chairperson, group think, chairperson-CEO split, board diversity, outside director, CEO compensation, pay performance sensitivity, Tier 1 capital.

JEL classification: G14; M40; M41

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1.0 Introduction

In this paper, we investigate how board oversight of U.S. banks has improved since the 2008 financial crisis. The Financial Crisis Inquiry Commission (FCIC) (2011) identified dramatic failures of corporate governance and risk management at many systemically important U.S. financial institutions as one of the key causes of the 2008 financial crisis.¹ If the crisis is viewed as the byproduct of failed incentives for managers, owners, creditors, and regulators, corporate governance could potential identify and address misaligned incentives to prevent undesirable firm behavior in the future.

However, the prospects for significant improvement in the governance structure of banks remain limited. Banks are pulled by conflicting demands to be value-maximizing business entities and simultaneously to serve the public's interest. Demonstrating directors' negligence in a court of law is difficult. The traditional monitors of management and boards such as equity block holders and the takeover market are heavily regulated in the banking context. Creditors have diminished incentives to monitor bank management as they can fall back on deposit insurance and potential government bailouts to protect their interests. Given the primacy of the board and conflicting forces affecting improvement in banks' governance, it seems natural to ask whether board oversight in banks has strengthened over the decade following the financial crisis.

We investigate whether four board-related drivers of excessive risk-taking in banks, as identified by the government-mandated committees, has changed since 2008: (i) *Group think*, expressed as “the pressures for conformity on boards can be strong, generating corresponding difficulty for an individual board member who wishes to challenge group thinking. Such challenge on substantive policy issues can be seen as disruptive, non-collegial and even as disloyal” (Walker 2009, 53); (ii) *Lack of banking experience*

¹ Several other international regulatory committees also conclude that governance failures contributed significantly to the financial crisis (see Organization for Economic Co-operation and Development (OECD) 2009; Walker 2009; Salz 2013; Financial Stability Board (FSB) 2013).

among directors regarding which the Financial Stability Board (FSB 2013, 1) report noted: “the crisis highlighted that many boards had directors with little financial industry experience and limited understanding of the rapidly increasing complexity of the institutions they were leading;” (iii) *Lack of time commitment* of directors regarding which the FSB (2013, 1) noted: “too often, directors were unable to dedicate sufficient time to understand the firm’s business model and were too deferential to senior management,” and (iv) *Bolstering risk management*, as recommended by Walker (2009, 19), by (a) setting up a dedicated risk committee; b) appointing a senior chief risk officer (CRO), and (c) requiring the board risk committee to include a separate risk report with the annual report.

To measure progress on reducing group think, consistent with the recommendations of Walker (2009, 45), we examine whether banks have appointed (i) new directors to the board, and (ii) board members with diverse backgrounds. Our sample includes 97 U.S. banks in the years 2007-2015. We focus on director *Turnover*, defined as the percent of the directors who have left the board since 2007. After comparing *Turnover* at boards of 97 banks with boards of 1,297 firms in other industries over the same time period, we find no evidence that banks have replaced directors at a higher rate. Except for Bank of America and Citigroup, we do not observe a significant overhaul of bank boards of systemically important banks. For instance, three years after the crisis in 2011, two-thirds of the individuals who served in 2007 remained on the board for the overall sample of banks considered. We also examine whether banks have increased cultural and gender diversity within their boards. Again, we find no evidence that bank boards are more diverse after the crisis relative to nonbanks in the sample over the same time period.

Turning to banking experience, Walker (2009, 15) recommends that bank boards should “bring [directors] with a combination of relevant financial industry experience and a track record of successful leadership.” In 2007, on average, 15.69% of the banks’ directors had prior banking experience. In 2011, that percentage had decreased slightly to 15.38%. To measure successful leadership, we use (i) the stock-return performance of the other firms where a director has served before joining the bank’s board, and (ii) the three-day announcement return associated with news of the appointment of a new director at the bank.

Based on these measures, we find no evidence that directors appointed to bank boards before the crisis are any better than those appointed after.

We proxy for a director's overall time commitment by measuring the number of outside boards that the director sits on. After the crisis, bank directors have to deal with increased risk management issues. Despite that expectation, we find no evidence that the number of outside board seats of bank directors has fallen after the crisis. Walker (2009, 15) also recommends that the chairperson of a major bank should expect to commit a substantial proportion of his or her time, probably around two-thirds, to the business of the bank, with a clear understanding from the outset that, in the event of need, the bank chairmanship role would have priority over any other business time commitment. In the pre-crisis period, we find that over 36% of the banks' chairpersons sit on at least one outside board concurrently. Again, we find no evidence that this has changed post-crisis. Moreover, 81% of bank CEOs were also the chairmen of their boards before and after the crisis, suggesting no change along that dimension.

The one area in which bank boards have changed relates to the appointment of a CRO. Virtually every bank in our sample now has a CRO. However, such CROs are less likely than other executives of the bank to be among the top five highly compensated officers. Banks also are more likely to appoint a separate risk committee now, as opposed to a joint audit and risk committee earlier. These committees meet as frequently after the crisis as before (an average of 8.1 meetings after the crisis and 8.8 before) and have a similar number of financial experts on these committees before and after the crisis.

Critics might question whether the (i) government-mandated changes in board composition are shareholder-value increasing; or (ii) our empirical proxies to operationalize such changes are valid. To mitigate these concerns, we validate our empirical proxies by investigating the stock market reactions to banks surrounding the 2011 JP Morgan "London Whale" scandal and 2018 Wells Fargo scandal. An event study of stock returns of other banks surrounding these two events reveals that banks that implemented a larger number of changes in board composition (as captured by our empirical proxies) report significantly

better returns than banks that did not. These two tests suggest that hypothesized changes to the board structure can potentially add shareholder value.

Turning to cross-sectional variation in governance changes, we find no association between Troubled Asset Relief Program (TARP) funding and governance improvements after the crisis. Instead, our evidence suggests that actions of both institutional investors and individual shareholders are correlated with governance changes. The number of shareholder proposals initiated by institutional investors is positively associated with governance improvements. Shareholder proposals initiated by individual investors, especially at times when media sentiment about a bank is negative, are positively associated with governance improvements.

Compensatory control mechanisms such as increased capital requirements, executive compensation, and internal control systems potentially could have reduced the need for a more effective board. Although we do not explore these alternate mechanisms in great depth, we find that Tier 1 capital scaled by risk-weighted assets has increased after the crisis. However, Tier 1 capital scaled merely by assets has not increased, suggesting either that (i) banks have shed riskier assets, or (ii) banks continue to take higher risk but have shifted their asset composition in favor of asset classes that are assigned lower risk weights by regulators. CEO pay-for-performance sensitivity and the number of internal control weaknesses identified by external auditors have not changed since the crisis.

Our paper is perhaps the first to offer a systematic examination of the changes in structure of boards at U.S. banking institutions over the decade following the financial crisis. A few papers have considered the state of corporate governance in banks leading up to and right after the 2008 crisis. Focusing on risk-related oversight up to 2009 (i.e. one year after the crisis), Ellul and Yerramilli (2013) document that only 52% of banks had CROs who are among the top five compensated executives at the largest 74 U.S. bank holding companies. Fahlenbrach and Stulz (2011) find that CEOs and boards appear to be unaware of the risk that their banks are taking in the period leading up to the crisis. Cheng, Hong and Scheinkman (2015) show that banks whose CEOs are compensated at abnormally higher levels before 2008 are associated with

higher risk. Yet, our evidence indicates that several observable aspects of bank boards do not appear to have changed substantially over the period 2008-2015 following a crisis of such enormous proportions.

We acknowledge that, like most archival research on boards, we can only document patterns in observable markers of board composition. We cannot rule out the possibility that (i) the unobservable quality of interaction and decision processes in the boardroom has improved since the crisis, and (ii) other unmodeled (in this paper) control mechanisms such as potential improvements in corporate culture or increased engagement with large institutional shareholders potentially compensate for lack of changes in observable board structure since the financial crisis. However, we point out that (i) influential proxy advisors such as Institutional Shareholder Services (ISS) and Glass Lewis can only observe changes in board composition as opposed to the board's actual functioning, and (ii) government regulators are likely to use observed changes in board composition as a marker of potential progress made in bank governance. Future work relying on field studies could potentially uncover improvements, if any, in the bank board's function as opposed to observable changes in board structure.

The remainder of the paper is organized as follows. Section 2 lays out the institutional background and summarizes recommendations of several governmental committees. Section 3 describes the sample and the data. Sections 4 to 8 lays out our findings, and Section 9 concludes.

2.0 Institutional Background

2.1 The Role of the Board of Directors in Banks

The failure of the banking system in the financial crisis was potentially attributable to several factors. A perceived cause was the ineffectiveness of the governance process, and in particular, the balance of skills, experience, and independence of the boards of directors responsible for overseeing bank managers. Board oversight of bank managers is especially important considering (i) the asymmetry related to huge costs borne by taxpayers for bank failures compared with the upside benefits potentially captured by bank shareholders and management, and (ii) the reluctance of both the U.K. and the U.S. governments to force

the break-up of banks by fiat, fearing unintended consequences. Absent an appetite for prescriptive regulation, improving the governance structure of individual banks is one way to minimize the likelihood that a future financial crisis will occur and affect banks as badly as the one in 2008.

European governments and central banks have commissioned several investigative committees to understand the root cause of the financial crisis and suggest recommendations (e.g. FSB 2013; Walker 2009; Salz 2013). Unlike some of their American counterparts (e.g. FCIC 2011; Mishkin 2008; Tarullo 2010; Yellen 2013), the European committee reports set out specific guidelines on how bank boards could be improved. Walker (2009), in particular, highlights several explicit recommendations. These recommendations make it somewhat easier for an empirical researcher to (i) focus a search along specific dimensions of board structure, and (ii) benchmark observable markers of board structure obtained in the data against these recommendations. However, such a research design is subject to two major caveats. First, as is common in most research on board structure, several important aspects of the interactions of boards with managers are not observable. Nonetheless our supplemental tests (section 7.1) suggest that these recommendations, when implemented, appear to increase shareholder value. Second, these recommendations were generated by a U.K. committee and may not generalize to our sample of U.S. banks. Both the U.K. and the U.S. models of corporate governance have a long tradition of influencing one another. Moreover, detailed recommendations on how bank boards should respond are not readily available for the U.S. banks.

2.2 Why Should Boards Change at All?

Despite these detailed recommendations, there are several reasons to expect very little change in boards' governance structure even after the financial crisis. First, in the presence of imperfect information and moral hazard, Mehran and Mollineaux (2012) suggest that shareholders and creditors of a bank may want a higher level of risk taking than a social planner might deem optimal. Hence, it may serve the equity holders' self-interest to continue without significant governance changes even after the crisis. One of the legitimate constraints on such behavior is public outrage and fear of regulatory intervention. Hence, banks

may make minimal changes to their board composition to the extent these constraints are relevant in their individual circumstances.

Second, Macey and O'Hara (2003) point out that unless the firm is in distress, it may even be illegal for directors to explicitly consider the interests of stakeholders other than equity investors. Moreover, demonstrating directors' negligence in a court of law is difficult (Valukas 2010). Third, after the crisis, regulators have imposed numerous restrictions such as stress tests and capital requirements to limit banks' risk exposure. These regulations may have limited shareholders' incentive to push for governance improvements.

Finally, Adams (2010), Adams and Mehran (2003), and Mehran, Morrison and Shapiro (2011) point out that alternate monitoring mechanisms are less effective than usual in disciplining banks. The need to get regulatory approval, especially with a view to prevent anticompetitive behavior or threats to the stability of the banking system, likely deters potential acquirers from taking over poorly performing banks. The incentive for bank creditors to monitor a bank's management is lower because they rely on deposit insurance and potential bailouts of large systemically important institutions to protect their investment from losses. Further, block holders, who own large equity positions and hence have incentives to monitor bank management, are tightly regulated. Under the Banking Holding Company Act, investors with an equity stake defined as "controlling" are subject to supervision, regulation, and a series of legal requirements as a bank holding company, although the Federal Reserve (Fed) did relax some requirements after the 2008 crisis.

For these reasons, it is not obvious that board structure would have changed substantially after the financial crisis. These mixed incentives motivate our empirical investigation into bank governance after the crisis. However, an empirical researcher needs to know which specific change in governance to focus on. To guide our thinking on that question, we turn to recommendations made by specific government committees that conducted a postmortem of the crisis.

2.3 Committee Recommended Changes

Specific recommendations related to bank boards made by Walker (2009) can be broadly classified into two categories based on empirical observability to outside researchers:

2.3.1 Category 1: Unobservable to outside researchers

- *Training*: Banks need to provide substantially personalized training and induction to enable the bank's non-executive directors to contribute effectively to bank governance.
- *Dedicated support*: A bank board should provide dedicated support to directors who need advice on issues relevant to the business.
- *Chairperson to ensure board effectiveness*: The chairperson is responsible for managing the board's agenda so that adequate time is available for substantive discussion on strategic issues.
- *The role of the senior independent director*: This senior director should provide a sounding board for the chairperson, evaluate the chairperson and serve as a trusted intermediary for the non-executive directors, when necessary.
- *Evaluation of the board*: The board should undertake a formal and rigorous evaluation of its performance, and that of committees of the board, with external facilitation of the process every second or third year. It is difficult for an outside observer to systematically verify whether evaluations are actually conducted with external facilitation.²
- *External input for the risk committee*: The committee should seek external input, as needed.
- *Risk committee involvement in an acquisition or disposal*: For a proposed strategic transaction involving acquisition or disposal, the board risk committee should ensure that the due diligence appraisal of the proposition is undertaken on aspects of risk and on the implications for the risk appetite

² We hand-checked the proxy statements of the eight big systemically important banks (Bank of America, Bank of New York Mellon, Citigroup Inc., Goldman Sacks, JP Morgan Chase, Morgan Stanley, State Street, and Wells Fargo), and found most of their disclosures related to self-evaluation to be devoid of specifics. Every systemically important bank we examined for the year 2007-2015 claims that it performs a self-evaluation. Only Citibank disclosed that it may engage outside consultants to assist with self-evaluations. We did not find any changes in the banks' language relating to board evaluation since 2007.

and tolerance of the bank. It is difficult for an outside observer to verify whether the risk committee is actually involved in the due diligence of an acquisition or disposal.

- *Succession planning*: The board should agree periodically on the criteria and personal characteristics required of the Chief Executive as a part of its succession planning process.

2.3.2 Category 2: Somewhat observable to outside researchers

- *Avoiding group think*: The pressure to conform to the others' views in the board room is strong, thus making it difficult for individual board members to avoid group think (Walker 2009, 42). One way to address group think is to recruit board members from diverse backgrounds. Hence, we investigate (i) whether the racial and gender diversity of bank boards is statistically distinguishable from those of nonbanks, and (ii) whether the CEO and chairperson positions are held by the same individual (see Table 8, columns 1 to 9 for evidence).
- *Challenge*: As per Walker (2009, 15), non-executive directors should be ready, able, and encouraged to challenge and test proposals on strategy put forward by management. Although the mindset related to challenge is hard to observe empirically, we rely on directors appointed under a different CEO's regime as a proxy for directors who are more likely to challenge management (Table 8, columns 10 to 12).
- *Annual director elections*: The chairperson of the board should be put up for election on an annual basis. The board should review the possibility of transitioning to an annual election of all board members. To assess this recommendation, we examine turnover of directors at banks benchmarked to that of nonbanking firms (Table 3).
- *Director Qualifications*:
 - *Financial industry awareness*: Induction and development programs should be designed to assure a sufficient level of awareness of the financial industry among non-executive directors (Walker 2009, 50). While we cannot test for the existence of induction and development programs, we can evaluate whether board members have previous general banking or specialty

- banking experience (Table 5). We also examine the “quality” of individual directors by investigating the (i) stock price reaction to the news relating to the appointment of the new director at the bank (Table 6 Panel A columns 1 to 3), and (ii) the stock return performance during the new director’s tenure at other firms where the director served (Table 6 Panel B columns 1 to 3).
- *Leadership capability of the chairperson:* The chairperson of the board should bring a combination of relevant financial industry experience and successful leadership capability to the leadership position (Walker 2009, 60). Similarly, to proxy for “successful” leadership, we evaluate (i) the stock price reaction to news related to the appointment of the chairperson at the bank (Table 6 Panel B columns 4 to 6), and (ii) the stock return performance during the chairperson’s tenure at other firms where she served (Table 6 Panel A columns 4 to 6).
 - *Time Management*
 - *Time commitment:* For several non-executive directors, a minimum time commitment of 30 to 36 days on a major bank’s board is expected by Walker (2009, 14). Although the time committed by the non-executive director to the bank’s affairs cannot be observed, we examine the number of outside boards that the non-executive directors sits on (Table 7, columns 1 to 3). We also measure the level of busyness of all directors by counting their committee memberships on the bank’s board (Table 7, columns 7 to 9). Although our proxy may not fully capture the actual time that bank directors devote to the banks, we argue that they should at least devote more time post-crisis to be able to handle the increasing data and risk management issues faced by bank boards today.
 - *Substantial time commitment of the chairperson:* The chairperson should commit a substantial portion of his or her time, perhaps two-thirds, to the business of the bank (Walker 2009, 15). To evaluate this recommendation, we measure the number of outside boards that the chairperson sits on (Table 7, columns 4-6).
 - *Risk Management*

- *Risk committee*: Walker (2009, 19) recommends that the board should establish a risk committee separately from the audit committee (Table 10, column 1). We also examine the effectiveness of the risk committee by reporting the number of meetings held by the risk committee and the percentage of financial experts on the risk committee (Table 10, columns 1, 3 and 4).
- *Reputational risk*: The board should clarify which committees have primary oversight of conduct, reputational, and operational risks (Salz 2013, 14). We verify whether the annual report or the proxy statement mentions the committee that is responsible for the oversight of conduct, reputational, and operational risks at the bank (Table 10, column 2).
- *Risk committee report*: The board risk committee's report should be included as a separate report within the annual report and accounts (Walker 2009, 20). We examined the latest annual report for each of eight Globally Systemically Important Banks (GSIBs) and found that none of them included a dedicated risk committee report. However, we did find a greater number of references to risk management throughout the annual report.
- *CRO*: In support of board-level risk governance, the board should be assisted by a CRO who should participate in the risk management and oversight process at the highest level on an enterprise-wide basis and be totally independent from individual business units (Walker 2009, 19). To assess the status of the CRO in the management hierarchy, we evaluate (i) whether the CRO is among the top five highly compensated executives at the bank, and (ii) the relative pay ratio between the CRO and the CEO (Table 11).

3.0 Data and Sample Selection

3.1 Sample Selection

Our sample spans January 2007 to December 2015. The list of directors comes from data provided by the Investor Relations Responsibility Center (IRRC) database, supplemented with information from the BoardEx database. As shown in Table 1 Panel A, we begin with a total of 1,346 unique firms in our sample,

of which 97 are banks. As shown in Panel B, in order to identify banks in those databases, we began with a list 9,533 bank holding companies provided by the Fed. Of these, 1,031 companies have an identifiable PERMCO within the Fed-provided linking table. Within this sample of 1,031 banks, we found 97 matches in the IRRC database for our sample period. We compare the changes in the boards of directors of these 97 banks with other companies in IRRC (our control group).

As shown in Panel B, within our sample of 97 banks, 57 took part in the October 2008 Troubled Asset Relief Program (TARP). Eight GSIBs also feature in our sample: Bank of America, Bank of New York Mellon, Citigroup Inc., Goldman Sacks, JP Morgan Chase, Morgan Stanley, State Street, and Wells Fargo.

4.0 Addressing Group Think: Director Turnover Since 2007

4.1 Univariate Analysis of Directors' Turnover

As indicated earlier, Walker (2009, 53) pointed to group think among the board members as a challenge. A potential remedy is to turn over select members of the board.³ To get an overview of the frequency of director replacement, we define the variable *Turnover* as the percentage of the directors who have left the board since 2007. For example, *Turnover08* is calculated as 1 minus the percentage of the 2007 board that remains on the board at the end of 2008:

$$1 - \frac{\text{\# of Directors the 2007 board remaining in 2008}}{\text{\# of Directors in 2007}}$$

Similarly, *Turnover09* is calculated as 1 minus the percentage of the 2007 board that remains on the board in 2009. Table 2 provides data on average for the variable *Turnover* from 2008 till 2015. As shown in Panel A, *Turnover08* is 9% for the 1,249 nonbanks in IRRC relative to 14% for banks. A similar trend can be observed for *Turnover09* and *Turnover12*. For instance, by 2012, 52% of the 2007 board of an average bank had been replaced, compared to 47% of a nonbank board, and the difference between these

³ The literature on block holder and ownership structure has shown that director turnover can be an effective way for outsiders to combat ineffective management (e.g. Weisbach 1988; Denis, Denis and Sarin 1997).

proportions is statistically significant. *Turnover13-Turnover15* is not statistically different between banks and nonbanks, suggesting that the slightly higher director turnover in banks stops after 2012.

On the surface, the higher level of director turnover in banks through 2012 looks encouraging. A closer examination reveals that the higher turnover is attributable solely to banks and nonbanks that failed after 2007. That is, if we were to remove all firms that are no longer in our sample after 2007, even the difference in *Turnover08-Turnover12* between banks and nonbanks becomes insignificant, as shown in Table 2 Panel B.

Panel C of Table 2 provides an overview of director turnover at each of the eight systemically important banks. As can be seen, except for Bank of America and Citigroup, we do not observe a significant overhaul of bank boards. For instance, three years after the crisis in 2011, two-thirds of the individuals who served in 2007 remained on the board.

4.2 Multivariate Analysis of Directors' Turnover

Director turnover may or may not occur for reasons that are unrelated to the existing deficiencies within the banks. To control for these confounding factors, we focus on director turnover that occurred between 2008 and 2015 and estimate the following cross-sectional regression with a total of 9,782 firm-level observations.

$$Turnover_{i,t} = f(\text{bank}, \text{controls}) \quad (1)$$

In equation (1), as defined above, $Turnover_{i,t}$ is the percentage of directors who have left the board since 2007, calculated as 1 minus the percentage of directors from 2007 who remain on the board in year t ($1 - \frac{\text{\# of Directors the 2007 board remaining in year } t}{\text{\# of Directors in 2007}}$). In the sample, *Bank* is an indicator variable to identify banks, as opposed to firms in other industries. Note that $Turnover_{i,t}$ only considers firms that survived the financial crisis.

In particular, our control variables include stock return and accounting performance, governance, and CEO and ownership characteristics, consistent with the extant literature on board composition,

managerial turnover, and firm performance, and consistent with prior work (Campbell, Gallmeyer, Johnson, Rutherford and Stanley 2011; Weisbach 1988; Denis et al. 1997; Bhagat and Bolton 2008; Linck, Netter and Yang 2008; Lehn, Patro and Zhao 2009; Dah, Frye and Hurst 2014; Yermack 2005). All variables are defined in Appendix B.

As shown in Table 3 column 1, the coefficient on *Bank* is not significantly different from zero, consistent with our univariate data and suggesting that relative to nonbank firms, bank boards are not associated with abnormal director turnover. Next, we focus on the 57 banks that participated in the 2009 Troubled Asset Relief Program (TARP) organized by the U.S. Treasury. The rationale for this analysis is that these banks experienced financial distress under the incumbent board and hence the board is more likely to benefit from director turnover. In column 2, we include *TARP* to investigate whether banks that received TARP funds are associated with abnormal director turnover. However, the coefficient on *TARP* is insignificant as well.

Finally, we turn to banks that have been classified by the FSB as GSIBs. After the financial crisis in 2007, the FSB has identified a list of banks that can potentially cause negative externalities across national borders. Hence, the ability of the board to challenge management is particularly important in such banks. However, as shown in column 3, when we include *GSIB*, the coefficient on *GSIB* is insignificant. These findings suggest that even within these systemically important banks, the board of directors has not changed significantly since the financial crisis, relative to the control sample of nonbanks. In untabulated results, we estimate the previous regressions without any control variables, but we find that our results remain similar. In sum, we find no evidence of significant director turnover in banks since the crisis relative to a control sample of nonbanks. This result is remarkable considering that one of the largest crises in an industry with systemic implications was not followed by an overhaul of the board structure.⁴

⁴ A concurrent paper by Hayes, Tian and Wang (2018) also examines CEO turnover-performance sensitivity for banks. Our paper is different from Hayes et al (2018) in at least two major ways. First, they focus on CEO turnover after the 1994 banking deregulation and their sample ends in 2005. In contrast, we focus on CEO turnover after the 2007 financial crisis. There is no overlap between their sample (1974 to 2005) and ours (2007 to 2015). Second, they focus on CEO turnover-performance sensitivity whereas we investigate director turnover since the 2007 financial crisis. It

5.0 Director Backgrounds

Although we are unable to find evidence of abnormal director turnover at banks relative to nonbanks, it is plausible that banks replace outgoing directors with better qualified members. To investigate that possibility, we consider the backgrounds of incoming directors. Table 4 presents the univariate statistics for the 12 director characteristics that we examine in this section. To preview the results, for banks, except for *Gender Diversity*, *Any Prior Banking Exp.*, and *Avg. # Committees*, none of the examined board characteristics is significantly different after the crisis relative to the period before.

5.1 Banking Experience and Successful Track Record

The FSB (2013, 1) noted: “the crisis highlighted that many boards had directors with little financial industry experience and limited understanding of the rapidly increasing complexity of the institutions they were leading.” In light of these findings, Walker (2009, 59) recommends that bank boards should “bring [directors] with a combination of relevant financial industry experience and a track record of successful leadership.”

In this subsection, we investigate whether incoming directors on bank boards are more likely to have (i) greater prior banking experience, and (ii) prior experience in “specialty and other finance” sectors relative to their predecessors. Next, we examine whether incoming directors at banks are associated with a track record of successful leadership. In particular, we use two different measures to proxy for successful track records: (i) the abnormal returns of firms which the board members served during the previous calendar year, and (ii) the bank’s stock returns over a narrow time window surrounding news that the incoming director has joined the bank’s board.

5.1.1 Relevant banking experience

should be noted that our results are broadly consistent with Hayes et al (2018). In our sample period, which is the post deregulation period in their paper, we also document that stock return is a more important determinant of director turnover relative to accounting return (return on assets) (see Table 4).

The IRRC database covers only S&P 1500 firms. To ensure that we include all relevant directors in our analysis, we also consider data on directors in the BoardEx database. We manually match each of the 20,192 directors in IRRC with the names of the directors in BoardEx. Of the total of 20,192 directors, we find 14,298 directors with identical names on BoardEx. For the remaining 5,894 directors, we require that (i) the matched director should be employed by at least one overlapping employer between BoardEx and IRRC; (ii) the matched director has the same initials in both databases; (iii) the last name of the matched director matches perfectly in both databases, and (iv) using the *Fuzzy* matching tool developed by Microsoft, we ensure that the full name of our matches has a similarity threshold of at least 0.75 out of 1. These procedures yield an additional 1,080 matches.

Table 4 Panel A presents data on *Prior Executive Banking Exp.*, defined as the percentage of the board members who have been an executive at a bank prior to joining the board of directors (i.e. those who worked as non-executive directors, independent directors, or trustee of a bank only are excluded). In 2007, on average, 15.69% of the bank board members had prior banking experience. Post-2007, the percentage of the bank board members with prior banking experience was 15.58%, a difference not significantly different from zero. In untabulated results, we confirm that for both *TARP* banks and for the *GSIBs*, the percentage of the board experienced in the banking business in the post-2007 period remains similar to the pre-crisis levels.

In row 2 of Table 4 Panel A, we relax our definition of banking experience (*Any Prior Banking Exp.*) to include all directors who have previously been on a bank board. Under this expanded definition of banking experience, we find that the contribution of board experience improves. Post-2007, the percentage of bank board members who have some sort of banking experience increases by 2%, from 40.32% to 42.21% and this increase is significant (t-statistic of 1.71 for the difference between these two proportions).

Row 3 reports data on prior “*Specialty Finance*” experience. We define *Specialty Experience* as the percentage of the board members who have served as an executive at a firm classified by BoardEx as

“Specialty & Other Finance” industries⁵ (i.e., those who worked as non-executive directors, independent directors, or trustees at these firms are excluded). In 2007, on average 4.14% of bank board members have specialty and other financial experience. After 2007, 4.36% of the bank board members are associated with specialty and other financial experience. The difference between these proportions is not significant. In an untabulated analysis, we continue to find that, for both TARP and GSIB banks, the percentage of board members with “specialty and other financial experience” remains similar in the post-2007 period. Our univariate result suggests that even prior to the crisis, almost half of the board of directors have some sort of banking experience (either general or specialty finance experience). However, of these “experienced” directors, less than 40% have actual executive experience. It is unclear whether “general banking experience” qualifies such directors to fully understand and monitor the risk exposure of their respective banks.

In Table 5, we use a multivariate approach to examine changes in the composition of the board. In particular, we estimate the following cross-sectional regression:

$$\text{Prior Executive Banking Experience} = \text{Bank} \times \text{Post} + \text{Bank} + \text{Controls} \quad (2)$$

Our main variable of interest is the interaction between *Bank* and *Post*. *Bank* is an indicator variable for banks, while *Post* is an indicator variable which equals 1 if the year of the observation is after 2007. The coefficient on the interaction term captures the incremental change in the percentage of directors with banking experience at banks after the financial crisis. As indicated by column (1), the coefficient on *Bank*×*Post* is negative but insignificant, indicating that the percentage of bank directors with banking experience has remained unchanged after the financial crisis. In columns (2) and (3), we remove non-TARP banks and non-GSIB from the regression and replace *Bank* with *TARP* and *GSIB*. However, the coefficient on the interaction term with *Post* remains insignificantly different from zero.

⁵ BoardEx classifies companies based on the ICB industry classification. Specialty & Other Finance includes investment advisors, investment banks, and stock exchanges, such as Gamco Investors, BlackRock, NYSE, Nasdaq, and Credit Suisse.

Next, in columns (4) to (6), we relax our definition of banking experience (*Any Prior Banking Exp.*) to include any board members who have previously been on a bank's board. Similar to our univariate results, the percentage of bank directors with the expanded type of banking experience increased slightly after the crisis. However, we observe no detectable change for this variable among the TARP recipients and GSIB banks.

In columns (7) to (9), we replace the dependent variable *Prior Executive Banking Exp.* with *Specialty Experience*. None of the coefficients on the interaction terms is significantly different from zero. In sum, the evidence related to improvement of prior banking experience on bank boards is mixed.

However, we note that the main variables *Bank*, *TARP*, and *GSIB* all exhibit positive and significant coefficients suggesting that all banks, regardless of their involvement with TARP funds or their GSIB status, have higher levels of finance-oriented directors relative to nonbanks. These relatively high levels of banking experience, broadly defined, before the crisis could potentially imply a lower need to recruit directors with banking experience in the post-crisis period.

5.1.2 Track record of successful leadership

To investigate whether bank boards appoint directors with established track records, we use two proxies to measure successful leadership: (i) the stock return of other firms on whose boards directors also serve, and (ii) the stock return of the bank in response to the announcement of the director's appointment to the bank's board.

Table 6 presents the multivariate regression with the variables *Outside Performance* and *Announcement Returns* as dependent variables:

$$\text{Outside Performance/Announcement Return} = \text{Bank} \times \text{Post} + \text{Bank} + \text{Controls} \quad (3)$$

In Panel A columns 1 to 3, the dependent variable is *Outside Performance*, measured as the stock return performance over the previous calendar year of the other firms on whose boards the directors have served. For example, if director A serves in firm I and firm O in 2011, we proxy for firm I's outside

performance using firm O's calendar year return in 2010. Only directors with outside board memberships are included. In column 1, the coefficient on the interaction term *Bank* \times *Post* is not significantly different from zero, indicating that the stock return performance of the firms on whose boards the newly appointed bank directors sit is no better than that before the crisis. In column 2, when we remove non-TARP banks from the regression and replace the indicator variable *Bank* with *TARP*, the coefficient on the interaction term *TARP* \times *Post* remains insignificant. Similarly, in column 3, when we remove non-GSIB banks from the regression and we replace the indicator variable *Bank* with *GSIB*, the coefficient on the interaction term *GSIB* \times *Post* remains insignificant.

Walker (2009, 60) emphasizes that the chairperson of the board should bring successful leadership capability to the leadership position. Therefore, in columns 4 to 6, we focus our attention on the qualification of the chairperson. When the chairperson is also the CEO of the firm, we include the lead director instead, as the idea behind this test is to assess a director's, not the CEO's, performance. To proxy for "successful" leadership, we evaluate the chairperson's (or lead director's) outside board performance. We measure outside performance by accumulating the stock returns for the outside firm which the chairperson also serves as a director measured over the calendar year prior to the chairperson's appointment. For example, assume that the chairperson for bank X was appointed in year 2011. In year 2011, if the chairperson for bank X also sits on the board of firm Y, we use firm Y's calendar year return in 2010 to proxy for bank X's lead director outside performance. We find no evidence that the chairperson's "outside performance" is better after the crisis than before.⁶

In Panel B columns 1 to 3, the dependent variable is *Announcement Return*, measured as the four-factor abnormal stock return on the date when the bank director's new appointment or re-appointment is publicly announced. In column 1, the coefficient on the interaction term *Bank* \times *Post* is not significantly different from zero, indicating that investors' perception of the newly appointed bank directors is no better

⁶ Our results remain similar when we include lagged three-years cumulate abnormal return instead of just one year.

than that before the crisis. In column 2, when we replace the indicator variable *Bank* with *TARP* and remove non-TARP banks from the regression, the coefficient on the interaction term $TARP \times Post$ remains insignificant. Similarly, in column 3, when we replace the indicator variable *Bank* with *GSIB* and remove non-GSIB banks from the regression, the coefficient on the interaction term $GSIB \times Post$ again remains insignificant. In columns 4 to 6, we focus our attention on the qualification of the chairperson, and when the chairperson is also the CEO of the firm, we include the lead director instead. Similar to the full sample of directors, there is no detectable difference in the announcement return between the two periods. Overall, we find no evidence to suggest that newly appointed or reappointed bank directors and chairpersons have better track records than they had before the crisis.

5.2 Time Committed to Bank Directorship

The FSB report (2013) also noted: “Too often, directors were unable to dedicate sufficient time to understand the firm’s business model and were too deferential to senior management.” Walker (2009, 12) recommends, in particular, that the overall time commitment expected from bank directors should be greater than has been normal in the past. Walker (2009, 12) also suggests that the chairperson of a major bank should be expected to commit a substantial proportion of his or her time, probably around two-thirds, to the business of the entity, with a clear understanding from the outset that, in the event of need, the bank chairmanship role would have priority over any other business time commitment.

In this subsection, we examine whether bank directors and chairperson (or the lead director if the chairperson is the CEO) have increased their time commitments to the bank board after the financial crisis. We proxy for a director’s time commitment by counting the number of outside boards on which the director and the chairperson serve.

In Table 7 Panel A, columns 1 to 3, the dependent variable *# Outside Board* is the number of outside boards on which the non-executive directors serve. Following Ferris, Jagannathan and Pritchard (2003), we include operating margin and outside directors’ ownership as additional controls for a director’s outside board membership. As in column 1, the coefficient on $Bank \times Post$ is not significantly different from zero,

indicating that the bank directors' outside time commitment has not increased after the financial crisis. In columns 2 and 3, when we replace *Bank* with *TARP* and *GSIB*, the coefficient on the interaction term remains insignificantly different from zero.

In columns 4 to 6, we focus on the chairperson. When the chairperson is also the CEO of the firm, we include the lead director instead. The dependent variable *Busy Chairperson* is an indicator variable which equals 1 if the chairperson sits on any outside board. As reflected in column 4, the coefficient on *Bank* \times *Post* is not significantly different from zero. In columns 5 and 6, as before, we remove non-TARP and non-GSIB banks from the regression and replace *Bank* with *TARP* and *GSIB*, but again we find that the coefficient on the interaction remains insignificant. Another proxy for director activity is the number of committees on which a director serves. In Table 7 Panel B, the dependent variable is *Avg # Committees*, which measures the average number of committee memberships across all the board's members. In column 1, the coefficient on *Bank* \times *Post* is positive and significant, indicating that post-crisis bank directors are sitting on more committees than before. However, in columns 2 and 3, the coefficient on *TARP* \times *Post* and *GSIB* \times *Post* is not significant. Thus far, we find no evidence to suggest that bank directors are less busy after the crisis.

Note also that the coefficients on the variables *Bank* are negative and significant in all specifications, suggesting that bank directors were already less busy compared to other directors.

In columns (4) to (6), we focus on the chair of the committee that is responsible for risk oversight. For banks that have an independent risk committee, we examine the time commitment of the risk committee chair. For all other banks and non-financial firms, we assume that the audit committee is responsible for risk oversight and examine the time commitment of the audit committee chair instead. As reflected in column 4, the coefficient on *Bank* \times *Post* is positive and significant. In columns 5 and 6, as before, we replace *Bank* with *TARP* and *GSIB*, and the coefficient on the interaction *TARP* \times *Post* is positive and significant; however, *GSIB* \times *Post* remains insignificant. So, while it appears that bank directors are not busier than in

the pre-crisis period, we find some evidence that the audit committee chairs are busier than in the pre-crisis period.

Another way to ensure that directors can devote sufficient time is to hire retired executives as directors. In columns (7) to (9), we focus on the percentage of retired executives who sit on the board. However, we find no evidence of a shift towards hiring more retired executives as directors.

5.3 Diversity

Walker (2009, 42) notes that “the stronger the executive presence in any board, whether as one dominant individual as CEO (possibly flanked by the CFO) or through participation by major business unit heads, the greater the risk that overall board decisions come to be unduly influenced by ... executive groupthink.” In this subsection, we examine three potential ways in which Walker (2009) recommends that bank boards can overcome group think: (i) gender balance, (ii) cultural diversity, and (iii) separating the role of the chairperson and the CEO.

Table 8 presents results from estimating the multivariate regression on *Cultural Diversity*, *Gender Diversity*, *Powerful CEO*, and *Affiliated Directors*:

$$Diversity\ Proxies = Bank \times Post + Bank + Controls \quad (4)$$

In Panel A, columns 1 to 3, the dependent variable is *Cultural Diversity*, calculated as the percentage of non-Caucasian board members. As seen in column 1, the coefficient on *Bank* \times *Post* is not significantly different from zero, indicating that bank boards have not become more racially diverse since the crisis. However, as seen in table 4, pre-crisis banks are already more culturally diverse than firms in other industries, with 7% of their boards being non-Caucasians as opposed to 4% in other industries. Post-crisis banks remained more diverse than firms in other industries with bank boards maintaining the same cultural diversity, although firms in other industries increased their non-Caucasian members to 5%. The same insignificant result holds for *TARP* and *GSIB* banks (columns 2 and 3). Next, we examine *Gender Diversity*, measured as the percentage of female directors on the board. As indicated by columns 4 to 6, we

find no evidence that gender diversity has increased within banks relative to other industries after the crisis. Similar to cultural diversity, as seen in table 4, pre-crisis banks have higher gender diversity than firms in other industries, with 12% of their boards being female as oppose to 11% in other industries. Post crisis banks increased the percentage of female directors at the same rate as firms in other industries.

In columns 7 to 9, the dependent variable is *Powerful CEO*, an indicator variable equal to 1 if there is no separation between the CEO and chairperson. As indicated by column 7, the coefficient on *Bank×Post* is not significantly different from zero, suggesting that bank boards are not more likely to separate the CEO and chairperson position after the crisis. Similarly, when we replace *Bank* with *TARP* and *GSIB* and removed non-TARP and non-GSIB banks from the regression, in columns 8 and 9, we observe no significant changes in CEO-chairperson duality.

In columns 10 to 12, we measure CEO power by examining *Affiliated Directors*, calculated as the percentage of directors appointed during the CEO's tenure. The rationale is that these directors are more likely to be affiliated with the CEO and are hence less likely to challenge management. As indicated by columns 10 to 12, post-crisis directors are just as likely to be affiliated with the CEO as before.

6.0 Risk Management

Unlike other businesses, the success of a bank inevitably depends on the effective arbitrage of financial risk. However, the social cost in the event of failure is likely to far exceed the downside risk for equity shareholders. Walker (2009) notes that in addition to the capital and liquidity requirements, the board needs to rigorously govern financial risk assumed by banks. In this subsection, we examine whether banks have implemented two of Walker's (2009, 19) recommendations related to risk management: (i) establishment of a risk committee (separate from the audit committee) that can effectively oversee and advise the board on the current risk exposures of the entity and on future risk strategy, and (ii) the

appointment of a CRO who participates in risk management and in the oversight process at the highest level, and enjoys total independence from individual business units.⁷

For each of the banks in our sample, we collect the following information from the bank's 10-K and proxy statements between 2007 and 2015: (i) the presence of a *Separate Risk Committee*, or whether the bank has a combined audit and risk committee or merely an audit committee; (ii) the presence of a *Reputation Management Committee* or whether the annual report or the proxy statement specifies the existence of a separate committee that is responsible for the primary oversight of conduct, reputational, and operational risks across the bank; (iii) *# of Risk Committee Meetings*, which is the number of times that the risk committee has met during the year; (iv) the name of the board member who serves on the risk committee, and (v) the name of the CRO of the bank.

Further, using information from the IRRC database, we calculate the following variables: (i) *Financial Experts on Risk Committee*, which is calculated as the percentage of financial experts (as defined in IRRC) on the risk committee; (ii) *Top 5 CRO*, which is an indicator variable if the CRO is among the top five highly compensated executives on the board, and (iii) *CRO Centrality*, which is the CRO's pay as a percentage of the CEO's salary. Table 9 presents the summary statistics for each of these variables.

6.1 Risk Committee

Table 10 presents the multivariate regression results related to the *Risk Committee* and *Independent Risk Committee*. We estimate the following pooled regression to examine whether banks have improved observable markers of their risk governance:

$$\text{Independent Risk Committee} = \text{Post} + \text{Controls} \quad (5)$$

⁷ Both these recommendations are also included in the Basel Committee on Banking Supervision corporate governance principles for banks.

We observe that (i) banks are much more likely to have *Independent Risk Committee* (column 1), and (ii) banks are much more likely to have identified a separate committee responsible for the primary oversight of conduct, reputational, and operational risks, as recommended by the Salz review (2013) (column 2).

However, the mere presence of an independent risk committee or a reputation risk management committee might not, by itself, ensure that risks are managed effectively. Therefore, similar to Ellul and Yerramilli (2013), we consider two measures that likely capture the quality of the risk oversight provided by the board: (i) the number of risk committee meetings, which measures the intensity of risk monitoring, and (ii) the percentage of financial experts on the board, which measures the ability of the risk committee to understand and manage the risk faced by banks.

In columns (3) and (4), our dependent variable is the number of risk committee meetings and the percentage of financial experts on the risk committee. The coefficient on *Post* is insignificantly different from zero for both proxies. This analysis suggests that although banks are more likely to identify an explicit risk committee, there is no evidence to suggest that the intensity or effectiveness of risk oversight by the board, as measured by these variables, has improved after the financial crisis. Note however, that for banks with a risk committee pre-crisis, the committee met over eight times a year in the pre-crisis period, and our results indicate that post-crisis, for banks with a separate risk committee (including those that added it post-crisis), the committee continues to meet at the same rate in the post-crisis period. In columns (5) to (8), when we repeat the same regressions in (1) to (4) for our subsample of TARP banks, our results remain similar. In TARP banks, the risk committee meets nine times a year. Due to a lack of variation in these measures between the pre- and post-crisis period, we were unable to repeat the same regression for the GSIBs. However, the univariate results related to GSIBs can be seen in Table 9, Panel C. These results show that risk committees in GSIBs met over 12 times pre-crisis and continue to meet at the same rate. Hence, it is unclear whether there is any room for an increase in how frequently the risk committee meets.

6.2 Chief Risk Officer

Table 11 presents the multivariate regression on *CRO*. We estimate the following pooled regression to examine whether banks are more likely to have a designated CRO after the crisis:

$$CRO = Post + Controls \quad (6)$$

In column (1), the dependent variable is *CRO*, an indicator variable which equals 1 if the bank has a CRO. The coefficient on *Post* is positive and significant, indicating that, post-crisis, banks are much more likely to have a CRO. To deepen our understanding of the stature of the CRO, consistent with Ellul and Yerramilli (2013), we investigate two measures: (i) *CRO Top 5*, a dummy variable that identifies whether the CRO is among the five highest paid executives at the BHC, and (ii) *CRO Centrality*, the ratio of the CRO's total compensation to the CEO's total compensation. The idea behind *CRO Centrality* is to use the CRO's relative compensation to infer his or her relative power or importance within the organization.

Columns (2) and (3) present the results when the dependent variables are *Top 5 CRO* and *CRO Centrality*, respectively. None of the coefficients on *Post* are significantly different from zero, suggesting that although banks are more likely to appoint a CRO, there is no evidence to indicate that the status of the CRO within the management team has been elevated after the financial crisis. In columns (5) to (6), when we repeat the regressions in (1) to (3) for our subsample of TARP banks, our results remain similar. As before, we are unable to estimate these regressions for GSIBs although the univariate results are reported in Table 9 Panel C.

7.0 Determinants of Governance Changes

Thus far, we document a few changes in bank boards, on average. However, average results mask cross-sectional variation in the data. For example, as can be seen in Table 2 Panel C, on one end of the spectrum, Bank of America and Citigroup have replaced over three-quarters of their board by 2011. At the other end, less than 10% of the board was replaced at JP Morgan, and less than a third of the board changed at Wells-Fargo and Morgan Stanley. The multivariate tests in Table 3 show that one of the main factors driving this is the banks' stock return performance.

In this subsection, we seek to explain some of the cross-sectional variation in bank boards by 2011. We selected 2011 because three years represents a reasonable passage of time for boards to change after the financial crisis. In particular, we examine three different groups of stakeholders that potentially care about improving bank governance: (i) the U.S. government; (ii) shareholders, and (iii) the media. First, given the tremendous social and economic harm caused by the 2008 crisis and the taxpayer financed bailouts, we expect the U.S. government and other governments worldwide have called for an improvement in bank governance (see OECD 2009; Walker 2009; Salz 2013; FSB 2013).⁸ Second, on average, the stock prices of banks in our sample dropped by over 32% during the crisis period. Therefore, we expect shareholders to care about governance improvements in banks. Finally, the media has been vocal about criticizing potential lack of accountability among bank executives. To evaluate the potential pressure brought by these stakeholders on bank boards, we estimate the following regression:

$$\textit{Extent of Change 2011} = \textit{Government Inf.} + \textit{Shareholder Inf.} + \textit{Media Inf.} \quad (7)$$

We calculate the *Extent of Changes 2011* as the percentage change in each of the 21 empirical proxies representing a structural change in boards since 2007 (i.e., if a bank has improved 10 out of the 21 proxies, then the extent of change is coded as 0.48). As shown in Table 12 Panel A, the average value of the variable *Extent of Change* in 2011 is 0.282. This statistic suggests that the average bank has improved board structure along six of the 21 measured dimensions by 2011. As can be seen in Table 4 Panel A and Table 9 Panel A, the *Extent of Change* in 2011 is mainly driven by: (i) better gender diversity; (ii) directors with more general banking experience; (iii) directors on more committees; (iv) appointment of CROs; (v) creation of independent risk committees, and (vi) better reputation management.⁹ Note that these univariate

⁸During the crisis period, the Dow Jones Industrial Average fell from 13,628 in June 2007 to 8,400 in December 2008. The FCIC estimates that the crisis has led to a loss of over 3.6 million jobs in 2008 and another 4.7 million in 2009. The resulting economic depression had a devastating impact on millions of American (Deaton 2012).

⁹ We code a bank as reporting an improvement in gender diversity if the percentage of female directors increased since 2007. It should be noted that we also observe similar improvement in other industries.

changes do not control for secular improvements in these measures in other industries or for firm characteristics that would have predicted changes in governance, even without an intervening crisis.

We measure the government's ability to implement changes using a variable titled *Government Inf.*, which is the amount of funding provided by the government under the TARP initiative. We measure the shareholder's incentive to push for changes with the variables labeled: (i) *Institution Inf.*, which is the number of shareholder proposals initiated by institutional investors between 1 January 2009 to 31 December 2010; and (ii) *Shareholder Inf.* which is the number of shareholder proposals initiated by non-institutional investors between 1 January 2009 to 31 December 2010. Lastly, we measure media's influence with the variable *Media Inf.*, which is an indicator variable equal to 1 if the average Ravenpack CSS media sentiment score during the crisis period (1 June 2007 to 31 December 2008) for the bank is negative.¹⁰

Overall, despite the significant amount of funding provided by the U.S. government to the banks and the critical media, we find no association between board changes and the influence of these stakeholders. Shareholders, on the other hand, do appear to influence board changes. As shown in Panel B, Column 1, we find that *Institution Inf.* is positively associated with governance improvements. Although *Shareholder Inf.* is not associated with governance improvements, when interacted with *Media Inf.* (Column 2) or *Government Inf.* (Column 3) the number of non-institutional shareholders' proposals is positively associated with board changes.

8.0 Additional Tests

8.1 Bank Stock Returns to the 2018 Wells Fargo Sanction and JP Morgan's "London Whale" incident

¹⁰ Ravenpack CSS scores range from 0 to 100; a score above 50 indicates positive news, a score equal to 50 indicates neutral news, and a score below 50 suggests negative news. Following Bushman, Williams and Wittenberg-Moerman (2017) we only include Full-Articles with a relevant score of 75 or higher.

Skeptics wonder whether the governance changes suggested by the government committees are value-increasing. Even if these changes are desirable, it is unclear whether our empirical proxies capture these suggested improvements adequately. We attempt to address these criticisms in this subsection.

On February 2, 2018, the Federal Reserve sanctioned Wells Fargo for misconduct. The Federal Reserve found that Wells Fargo's board had failed to oversee the bank effectively and hence restricted Wells' growth in loans until governance improves (Flitter, Appelbaum and Cowley 2018).¹¹ This is the first time that the Federal Reserve has imposed strict limits on any major bank's growth. The action was viewed as a precursor for more interventionist supervision by some commentators (Keller and Nasiripour 2018). We use this regulatory shock to validate our governance proxies. If our proxies capture impactful changes in governance, we expect banks that have implemented more improvements (as measured by our empirical proxies) to perform better during the event window spanning the Wells Fargo sanction.

In Table 13, we regress stock returns of banks during the Wells Fargo sanction announcement on the governance changes implemented by these banks. As before, we measure governance improvement with *Extent of Change 2017*, calculated as the percentage of the 21 empirical proxies which each bank has improved upon since 2007. We measure the stock return as the cumulated raw return starting from one trading day (Thursday, February 1, 2018) before sanction announcement and ending one trading day after (Monday, February 5, 2018). As shown in Table 13 Panel A, stock prices of the 78 unique banks in our sample fell by an average of 4.5% after the announcement of the Wells Fargo sanction.¹²

Overall, our evidence indicates that the changes measured by our governance proxies are impactful. In Panel B, column 1 the coefficient on *Extent of Change in 2017* is positive and significant, indicating that, on average, banks that changed their boards more along the measured dimensions experience smaller negative returns.¹³

¹¹ Wells Fargo announced that it will replace four of its 16 board members by the end of 2018.

¹² Wells Fargo's stock price dropped by over 9%.

¹³ One can argue that these results imply that governance changes suggested by various committees are value-destroying. Investors potentially anticipate that regulators will force banks to adopt the governance changes. Banks

Next, we examine the market reaction surrounding the risk-taking behavior of another bank, JP Morgan. In particular, we examine the market reaction surrounding the “London Whale” incident, in which a trader is reported to have lost at least \$6.2 billion for JP Morgan in 2012. The Wall Street Journal first reported the story on April 6, 2012, but the true extent of the trading loss was later reported by the New York Times on June 28, 2012. In column 2, we measure the stock return as the cumulated raw return starting from Thursday, April 5, 2012, and ending Friday, June 29, 2012. Similarly, the coefficient on *Extent of Change in 2011* is also positive and significant, indicating that on average banks that changed their boards more along the measured dimensions experience smaller negative returns.

8.2 Other Compensatory Governance Mechanisms

One could argue that although bank boards have not changed much, compensatory mechanisms such as capital buffers, executive compensation schemes, or internal control systems-have strengthened after the crisis. Although a thorough examination of these alternate mechanisms is beyond the scope of the current paper, we offer a few preliminary analyses for completeness.

8.2.1 Capital and liquidity

Regulators have imposed greater limits on capital and liquidity after the crisis. We examine whether we can detect a significant increase in the capital and liquidity characteristics of banks after the crisis. In particular, we examine the following variables: (i) *Liquidity* defined as cash and total securities deflated by total assets; (ii) *Cash* defined as cash holdings deflated by total assets; (iii) *Risk Adjusted Capital Ratio* defined as the sum of Tier 1 and Tier 2 capital divided by total risk-weighted assets; (iv) *Risk Adjusted Tier 1 Capital Ratio* defined as Tier 1 capital divided by total risk-weighted assets.

that have already adopted such changes will then experience lower negative returns around the Wells Fargo announcement. This interpretation, however, is inconsistent with evidence that both individual and institutional equity holders initiated shareholder proposals are positively correlated with governance changes suggested by regulators (see section 7). It is unclear why shareholders would voluntarily initiate value-decreasing governance changes.

In Table 14, Panel B, we report the results from estimation of the following multivariate regression on the liquidity and capital measures:

$$\text{Liquidity/Capital Measures} = \text{Post} + \text{Controls} \quad (8)$$

In addition to the control variables from previous tables, we also include three additional control variables that have been shown to affect bank capital in Ng and Roychowdhury (2014). These include loan loss reserves, charge offs, and nonperforming loans. As shown in columns (1) and (2), there is no significant increase in cash holdings or liquidity post-crisis. Columns (3) and (4) indicate that there is indeed an increase in risk-adjusted capital after the crisis.¹⁴

8.2.2 Pay-for-performance sensitivity

It is often alleged that a fundamental cause of the credit crisis was the perverse incentives built into the compensation plans of many financial firms (e.g. Blinder, 2009). Since the crisis, regulators have sought to improve pay-for-performance, for instance, by instituting “say on pay,” a mechanism designed to improve compensation by giving more voice to shareholders via the Dodd-Frank Wall Street Reform and the Consumer Protection Act.

Next, we investigate whether there is any change in pay-for-performance sensitivity since the financial crisis using the pooled regression model following Hubbard and Palia (1995):

$$\begin{aligned} \Delta \text{ExeWealth}_{i,t} = & \beta_1 \Delta \text{ShrWealth}_{i,t} \times \text{Post} \times \text{Bank}_i + \beta_2 \Delta \text{ShrWealth}_{i,t} \times \text{Bank}_i + \beta_3 \text{Post} \times \text{Bank}_i + \beta_4 \\ & \Delta \text{ShrWealth}_{i,t} + \gamma_1 \text{Bank}_i + \gamma_2 \text{Post} + \text{Controls} \end{aligned} \quad (9)$$

¹⁴ However, as mentioned in Avramova and Lesle (2012), the increased ratio is driven by a decrease in the denominator, risk-weighted assets (RWA), and not by an increase in Tier 1 capital in the numerator. In our sample, the average RWA in 2003 is 70% of total assets. That ratio fell to 59% of total assets in 2013. In untabulated results, we deflate the bank’s capital by total assets instead of RWA. It is interesting to note that the coefficient on *Post* turns significantly negative, highlighting that bank capital may actually have declined after the crisis. When we repeat the same regressions for TARP and GSIB, respectively, our results remain similar. Therefore, it remains unclear whether the liquidity levels and capital held by banks have increased after the financial crisis.

where $\Delta ExeWealth_{i,t}$ captures the average dollar change in the top five executives' wealth at firm i during year t . $\Delta ShrWealth_{i,t}$ captures the change in shareholder value of firm i during the year t .

Table 15 suggests no detectable change in pay-for-performance sensitivity post-crisis. Our variable of interest, the interaction term, $\Delta ShrWealth_{i,t} \times Post \times Bank$, is not significantly different from zero. Our result remains similar when we examine *TARP* and *GSIB* in columns (2) and (3).

8.2.3 Internal control weakness

We expect the number of internal control weaknesses in banks that are identified by external auditors to decrease post-crisis. In Table 16, however, both our univariate and multivariate tests suggest that there is no detectable change in internal control system weaknesses within banks. For example, in Panel A, before the crisis, the average number of internal control weaknesses within banks is 0.032, while post-crisis this number decreases to 0.029. However, the decrease remains statistically insignificant. Similarly, in Panel B, our main variable of interest, the interaction term, $Post \times Bank$ while negative, is not significantly different from zero. Our results remain similar when we examine *TARP*. We were unable to examine *GSIB* separately because none of the systemically important banks report an internal control weakness before and after the crisis.

9.0 Conclusions

In conclusion, we find some evidence that banks have addressed the key deficiencies in bank boards that were identified by government-mandated committees after the financial crisis. Overall, our empirical proxies indicate that there is some evidence (i) that bank directors are better able to overcome group think; (ii) that bank directors are better qualified than before the crisis, or (iii) that bank directors or chairmen have increased time commitments towards managing their banks. Our proxies suggest no evidence that the intensity or effectiveness of risk oversight by the board has improved. Evidence consistent with compensatory governance mechanisms such as greater capital levels or increased pay-for-performance at banks is mixed. A major caveat of our work is that we can only observe changes, if any, in the structure of

the board and not in its actual functions. In follow-up field work, we intend to examine whether the functioning of boards, along the dimensions measured, has improved since the financial crisis.

Appendix A: Matching procedure for BoardEx and IRRC

We begin with the list of directors in IRRC and supplement this list with directors' "experience" from BoardEx.

We manually match the directors in IRRC and BoardEx using the following procedure:

- We start by matching directors using their full names
- Out of a total of 20,192, we find 14,298 directors with names that match perfectly
- For the remaining 5,894 (20,192-14,298) directors, we use Fuzzy matching:
 - o Directors have been employed by the same company before
 - o The spell distance between the full names is within 25
 - o The last name matches perfectly
- The above procedure yields an additional 1,080 matched directors
- We end up with a total sample of 15,478 directors
- Out of these 15,478 directors, 10,569 are in our sample period

	Number of directors
Number of directors in IRRC	20,192
Number of directors matched perfectly	14,298
Number of directors matched with fizzy matching	1,080
Final sample of matched directors	15,478
Final sample of matched directors in our sample period	10,569

Appendix B: Variable Definition

Variables	Definition
<i>Turnover20XX</i>	Percentage of directors in year 20XX that remains the same in 2007 <i>Turnover20XX</i> =Number of directors 20XX/Number of directors 2007
<i>BANK</i>	Indicator variable, which is equal to 1 if this is a bank SIC between 6000 and 6199
<i>TARP</i>	Indicator variable, which is equal to 1 if the underlying bank is in the TARP TARP include all banks within the following programs: <ul style="list-style-type: none"> - Capital Purchase Program - Community Development Capital Initiative - Targeted Investment Program - Asset Guarantee Program
<i>GSIB2011</i>	Globally systemically important bank as defined by Financial Stability Board
<i>TobinQ_{i,t-1}</i>	The book value of liabilities plus the market value of equity divided by the book value of liabilities and equity
<i>ROA_{i,t-1}</i>	Net income in year-1 divided by total assets in year <i>t-1</i>
<i>Loss_{i,t-1}</i>	Indicator variable, which is equal to 1 if the firm had a loss in year <i>t-1</i>
<i>Log_TA_{i,t-1}</i>	Natural log of total assets in year <i>t-1</i>
<i>Log_TA^2_{i,t-1}</i>	The square of natural log of total assets
<i>Log_MV_{i,t-1}</i>	Natural log of market value in year <i>t-1</i>
<i>CAR_{i,t-1}</i>	Cumulated excess return in the last calendar year
<i>CAR_{i,t-2}</i>	Cumulated excess return in calendar year-2
<i>CAR_{i,t-3}</i>	Cumulated excess return in calendar year-3
<i>Ret_Std_{i,t-1}</i>	Standard deviation of return in the last calendar year
<i>Board_Size_{i,t-1}</i>	The number of directors on the board in year <i>t-1</i>
<i>Board_Tenure_{i,t-1}</i>	The average number of years that the board members have been on the board
<i>Ind_{i,t-1}</i>	Percentage of board members that are considered independent by RiskMetrics
<i>CEO_Power_{i,t-1}</i>	Indicator variable, which is equal to 1 if the CEO is also the chairperson
<i>CEO_Tenure_{i,t-1}</i>	The CEO's tenure in years

<i>Ownership_Con_{i,t-1}</i>	The average holding by the top five institution owners
<i>Institution_Own_{i,t-1}</i>	The total holdings by all 13F institutions
<i>Prior Exe Banking Exp_{i,t}</i>	Percentage of directors in that year who have worked as an executive at a bank previously
<i>All Prior Banking Exp_{i,t}</i>	Percentage of directors in that year who have worked at a bank previously
<i>Specialty_{i,t} Experience_{i,t}</i>	Percentage of directors in that year who have worked as an executive at a specialty finance firm previously
<i>Outside Performance_{i,t-1}</i>	Measures the newly appointed directors' outside board performance over the last calendar year. It is calculated as the cumulated four-factor abnormal return of the outside firm on which the director sits on.
<i>Announcement Return</i>	The four-factor abnormal stock return on the date that the new director's appointment is publicly announced
<i># Outside Board</i>	The average number of outside boards that each non-executive director sits on
<i>Busy Chairperson</i>	An indicator variable which is equal to 1 if the chairperson sits on one or more outside boards.
<i>Avg. # Committees</i>	The average number of committees that each director sits on
<i>Cultural Diversity</i>	The percentage of non-Caucasians on the board
<i>Gender Diversity</i>	Percentage of females on the board in that year
<i>Powerful CEO</i>	An indicator variable equal to 1 when the CEO is also the chairperson
<i>Affiliated Directors</i>	The percentage of current directors who are first appointed during the CEO's tenure at the firm
<i>Separate Risk Committee</i>	An indicator variable equal to 1 if the bank has a separate risk committee
<i>Reputation Management</i>	An indicator variable equal to 1 if the bank has a reputation management committee, or the annual report or the proxy statement specifies the existence of a separate committee that is responsible for the primary oversight of conduct, reputational, and operational risks across the bank
<i># Risk Committee Meetings</i>	The number of times that the risk committee has met during the year
<i>Financial Expert on Risk Committee</i>	The number of financial experts who serve on the risk committee

<i>CRO Executive</i>	An indicator variable equal to 1 if the CRO is an executive director
<i>Top 5 CRO</i>	An indicator variable equal to 1 if the CRO is among the top five highly compensated executives on the board
<i>CRO Centrality</i>	The CRO's pay as a percentage of the CEO's salary
<i>Post</i>	An indicator variable for post-crisis, which is equal to 1 if the year is after 2007.
<i>Extent of Changes 2011</i>	The percent of the 21 governance proxies which the banks have improved upon in 2011
<i>Government Inf.</i>	The amount of funding provided by the government under the TARP
<i>Shareholder Inf.</i>	The number of shareholder proposals started by institutional investors between 1 January 2009 to 31 December 2010
<i>Individual Inf.</i>	The number of shareholder proposals started by individual investors between 1 January 2009 to 31 December 2010
<i>Media Inf.</i>	An indicator variable equal to 1 if the average Ravenpack CSS media sentiment score during the crisis period (1 June 2007 to 31 December 2008) is negative Ravenpack CSS media sentiment scores range from 0 to 100; a score above 50 indicating positive news; a score equal to 50, neutral news; and a score below 50, negative news. Following Bushman et al. (2017), we only include Full-Articles with relevant score of 75 or higher
<i>B.H.R. Crisis</i>	The buy-and-hold return during the 2008 crisis period (1 June 2007 to 31 December 2008).
<i>Internal Control Weakness</i>	The number of internal control weaknesses as reported in Audit Analytic.
<i>Liquidity</i>	Cash plus total securities (sum of available for sale, held to maturity and trading securities) divided by total assets
<i>Risk Adjusted Capital Ratio</i>	Sum of tier 1 and 2 capital divided by risk-weighted assets
<i>Risk Adjusted Tier 1 Capital Ratio</i>	Tier 1 capital divided by risk-weighted assets
<i>Cash</i>	Cash divided by total assets
<i>LLR_{i,t-1}</i>	Loan loss reserve in year <i>t-1</i> over total asset in year <i>t-1</i>
<i>Charge_Off_{i,t-1}</i>	Charge off in year <i>t-1</i> over total asset in year <i>t-1</i>
<i>NPL_{i,t-1}</i>	Total nonperforming loans divided by total loans in year <i>t-1</i>

$\Delta ExeWealth_{i,t}$

This variable measures the average change in the top five executives' total wealth at the end of the year. The executives' change in total wealth includes the change in the value of the executives' stockholdings, plus change in the value of the executives' stock options, plus total pay during the year (less the options awarded during the year).

Change in value of the executives' stock options is calculated as the value of the stock options awarded during the year, plus the change in the value of all outstanding options during the year, plus the profits (price minus exercise price) realized from exercising options during the year.

$\Delta ShrWealth_{i,t}$

The change in market value during year t

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Table 1: Descriptive Statistics**Panel A: Number of Total Observations**

Total Unique Firms (Jan 2007 to Dec 2015)	1,346
<i>Banks</i>	97
<i>Nonbanks</i>	1,249

Panel B: Number of Banks

Bank Holding Companies (by RSSDID)	9,533	
With PERMCO (NYFED linking table)	1,034	
Total in IRRC (With PERMCO and IRRCID)	97	
<i>GSIB</i>	<i>TARP Bank</i>	<i>Non-TARP Bank</i>
8	57	40

Panel C: Control Variables

	N	Mean	Median	Std
<i>TobinQ</i> _{<i>i,t-1</i>}	11,128	2.44	1.51	2.72
<i>ROA</i> _{<i>i,t-1</i>}	11,128	0.04	0.05	0.10
<i>Loss</i> _{<i>i,t-1</i>}	11,128	0.18	0.00	0.39
<i>Log_TA</i> _{<i>i,t-1</i>}	11,128	8.09	7.90	1.63
<i>Log_TA</i> ² _{<i>i,t-1</i>}	11,128	68.35	65.80	28.16
<i>Log_MV</i> _{<i>i,t-1</i>}	11,128	14.66	14.59	1.93
<i>CAR</i> _{<i>i,t-1</i>}	11,128	0.02	0.01	0.10
<i>CAR</i> _{<i>i,t-2</i>}	11,128	0.01	0.00	0.10
<i>CAR</i> _{<i>i,t-3</i>}	11,128	0.01	0.00	0.09
<i>Ret_Std</i> _{<i>i,t-1</i>}	11,128	0.02	0.02	0.01
<i>Board_Size</i> _{<i>i,t-1</i>}	11,128	9.58	9.00	9.04
<i>Board_Tenure</i> _{<i>i,t-1</i>}	11,128	9.10	8.65	4.76
<i>Ind</i> _{<i>i,t-1</i>}	11,128	0.79	0.79	0.10
<i>CEO_Power</i> _{<i>i,t-1</i>}	11,128	0.06	0.00	0.25
<i>CEO_Tenure</i> _{<i>i,t-1</i>}	11,128	13.67	12.45	8.99
<i>Ownership_Con</i> _{<i>i,t-1</i>}	11,128	0.26	0.28	0.15
<i>Institution_Own</i> _{<i>i,t-1</i>}	11,128	0.71	0.79	0.36

Panel A above presents the number of unique firms in our sample. Panel B presents the number of unique banks in our sample. Panel C presents the summary statistics for the control variables in our sample.

Table 2: Directors Turnover

Panel A	Bank (N=97)	Nonbank (N=1249)	Difference	t-stats
<i>Turnover08</i>	0.14	0.09	0.05	1.34*
<i>Turnover09</i>	0.31	0.25	0.06	1.87**
<i>Turnover10</i>	0.40	0.33	0.08	2.21**
<i>Turnover11</i>	0.45	0.42	0.06	1.57*
<i>Turnover12</i>	0.52	0.47	0.05	1.52*
<i>Turnover13</i>	0.57	0.53	0.04	1.05
<i>Turnover14</i>	0.62	0.60	0.02	0.64
<i>Turnover15</i>	0.67	0.65	0.02	0.71

Panel B	N	Bank	N	Nonbank	Difference	t-stats
<i>Turnover08</i>	92	0.09	1247	0.09	0.00	0.16
<i>Turnover09</i>	90	0.26	1233	0.24	0.02	-0.35
<i>Turnover10</i>	80	0.27	1199	0.30	-0.03	0.92
<i>Turnover11</i>	78	0.32	1132	0.36	-0.04	1.15
<i>Turnover12</i>	78	0.40	1122	0.41	-0.01	0.89
<i>Turnover13</i>	77	0.46	1110	0.47	-0.01	-0.61
<i>Turnover14</i>	76	0.52	1056	0.53	-0.01	0.46
<i>Turnover15</i>	77	0.58	1035	0.58	0.01	0.27

Panel C	Turnover08	Turnover09	Turnover10	Turnover11	Turnover12	Turnover13	Turnover14	Turnover15
BOA	0.06	0.18	0.76	0.76	0.76	0.76	0.76	0.76
Citi	0.21	0.50	0.71	0.79	0.86	0.93	0.93	0.93
JP	0.00	0.09	0.09	0.09	0.27	0.27	0.36	0.36
Morgan Stanley	0.08	0.08	0.17	0.25	0.33	0.42	0.42	0.67
State Street	0.19	0.31	0.31	0.38	0.44	0.56	0.56	0.63
Wells-Fargo	0.00	0.06	0.25	0.31	0.31	0.44	0.44	0.44
Goldman	0.08	0.17	0.33	0.33	0.50	0.58	0.58	0.67
BNY	0.28	0.40	0.40	0.44	0.52	0.52	0.52	0.60
Average all	0.11	0.22	0.38	0.42	0.50	0.56	0.57	0.63
Average exclude BOA, Citi	0.11	0.19	0.26	0.30	0.40	0.47	0.48	0.56

The table above presents the summary statistics for director turnover in our sample. Panel A compares turnover between banks and nonbanks; for firms that have failed since 2007, we code their turnover as 1. Panel B replicates our results in Panel A, except that we remove all firms that are no longer in our sample post-2007. Panel C presents the director turnover for each of the GSIBs by year. *TurnoverXX* is defined as the percentage of the directors who have left the board since 2007. For example, *turnover08* is calculated as $1 - \frac{\text{\# of Directors the 2007 board remaining in 2008}}{\text{\# of Directors in 2007}}$.

Table 3: Directors Turnover since 2007

	(1)	(2)	(3)
	<i>Turnover_{i,t}</i>	<i>Turnover_{i,t}</i>	<i>Turnover_{i,t}</i>
<i>Bank_i</i>	-0.010 (-1.00)	-0.026** (-2.11)	-0.008 (-0.81)
<i>TARP_i</i>		0.006 (0.81)	
<i>GSIB_i</i>			-0.037 (-1.05)
Controls	% Age 65 to 69 _{i,t-1} ; %Age 70 and over _{i,t-1} ; CEO departure year _{i,t} ; Percentage Female _{i,t-1} ; TobinQ _{i,t-1} ; ROA _{i,t-1} ; Loss _{i,t-1} ; Log_TA _{i,t-1} ; Log_TA^2 _{i,t-1} ; Log_MV _{i,t-1} ; CAR _{i,t-1} ; CAR _{i,t-2} ; CAR _{i,t-3} ; Ret_Std _{i,t-1} ; Board_Size _{i,t-1} ; Board_Tenure _{i,t-1} ; Ind _{i,t-1} ; CEO_Power _{i,t-1} ; CEO_Tenure _{i,t-1} ; OwnershipCon _{i,t-1} ; InstitutionOwn _{i,t-1}		
Fixed Effects	Year	Year	Year
Observations	9,782	9,782	9,782
Adjusted R ²	0.556	0.556	0.556

The table above includes our full sample of banks covered by IRRC. The dependent variable is *Turnover_{i,t}* it is defined as the percent of the directors who have left the board in year *t* since 2007. It is calculated as 1 minus the percentage of the 2007 board that remains on the board at the end of year *t*. We include turnover between years 2008 to 2015. TARP are banks that participated in the Troubled Asset Relief program. GSIB are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 4: Summary Statistics for Director Composition

Panel A: Mean	Banks			Other Industries		
	Pre-Crisis	Post-Crisis	<i>t-stat</i>	Pre-Crisis	Post-Crisis	<i>t-stat</i>
<i>Prior Exe Banking Exp.</i>	0.16	0.16	0.38	0.03	0.03	0.36
<i>Any Prior Banking Exp.</i>	0.40	0.42	1.71*	0.10	0.10	1.13
<i>Specialty Experience</i>	0.04	0.04	0.03	0.03	0.03	0.38
<i>Outside Performance</i>	0.02	0.02	0.23	0.02	0.02	0.42
<i>Announcement Return</i>	0.00	0.00	0.28	0.00	0.00	0.54
<i># Outside Board</i>	0.56	0.58	1.24	0.89	0.82	3.74***
<i>Busy Chairperson</i>	0.30	0.31	0.18	0.51	0.52	0.56
<i>Avg. # Committees</i>	1.41	1.52	2.10**	1.69	1.68	-0.88
<i>% Retired Executive</i>	0.04	0.03	2.01**	0.04	0.03	5.12***
<i>Cultural Diversity</i>	0.07	0.07	0.09	0.04	0.05	0.53
<i>Gender Diversity</i>	0.12	0.14	2.50***	0.11	0.13	6.50***
<i>Powerful CEO</i>	0.81	0.81	0.52	0.69	0.69	0.57
<i>Director Tenure</i>	10.16	10.31	0.25	8.28	8.10	0.78

Panel B: Median	Banks			Other Industries		
	Pre-Crisis	Post-Crisis	<i>Z-Score</i>	Pre-Crisis	Post-Crisis	<i>Z-Score</i>
<i>Prior Exe Banking Exp.</i>	0.13	0.14	0.53	0.00	0.00	0.98
<i>Any Prior Banking Exp.</i>	0.40	0.43	2.77***	0.00	0.00	1.11
<i>Specialty Experience</i>	0.00	0.00	0.60	0.00	0.00	0.17
<i>Outside Performance</i>	-0.01	-0.01	0.11	-0.01	-0.01	0.61
<i>Announcement Return</i>	0.00	0.00	0.13	0.00	0.00	1.25
<i># Outside Board</i>	0.20	0.20	0.00	0.88	0.80	2.11**
<i>Busy Chairperson</i>	0.00	0.00	0.18	1.00	1.00	0.56
<i>Avg. # Committees</i>	1.33	1.42	1.95**	1.63	1.63	0.72
<i>% Retired Executive</i>	0.00	0.00	1.81**	0.00	0.00	3.37***
<i>Cultural Diversity</i>	0.00	0.00	0.86	0.00	0.00	0.06
<i>Gender Diversity</i>	0.11	0.14	2.14**	0.11	0.13	5.99***
<i>Powerful CEO</i>	1.00	1.00	1.02	1.00	1.00	0.57
<i>Director Tenure</i>	9.00	9.17	0.50	8.30	8.00	0.21

The table above includes the summary statistic for the 13 director characteristics in our full sample of firms from IRRC. Pre-Crisis include year 2007. Post-Crisis includes years 2008 to 2015. Panel A presents the mean. Panel B presents the median. All variables are as defined in Appendix B.

Table 5: Banking Experience

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	<i>Prior Executive Banking Exp.</i>	<i>Prior Executive Banking Exp.</i>	<i>Prior Executive Banking Exp.</i>	<i>Any Prior Banking Exp.</i>	<i>Any Prior Banking Exp.</i>	<i>Any Prior Banking Exp.</i>	<i>Specialty Experience</i>	<i>Specialty Experience</i>	<i>Specialty Experience</i>
<i>Bank</i> × <i>Post</i>	-0.002 (-1.21)			0.027** (2.21)			-0.005 (-0.68)		
<i>Bank</i>	0.107*** (14.29)			0.423*** (37.21)			0.017*** (2.90)		
<i>TARP</i> × <i>Post</i>		-0.004 (-0.41)			0.007 (0.45)			-0.016 (-1.52)	
<i>TARP</i>		0.106*** (11.14)			0.467*** (33.80)			-0.005 (-0.54)	
<i>GSIB</i> × <i>Post</i>			-0.010 (-1.02)			0.059 (1.54)			-0.035 (-1.21)
<i>GSIB</i>			0.087*** (3.21)			0.328*** (9.14)			0.043 (1.57)
<i>Post</i>	0.005** (2.02)	0.004* (1.91)	0.004* (1.89)	0.005 (1.39)	0.002 (0.67)	0.003 (0.88)	0.010*** (4.37)	0.012*** (5.25)	0.012*** (5.30)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA²_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>								
Observations	11,128	10,821	10,552	11,128	10,821	10,552	11,128	10,821	10,552
Adjusted R ²	0.177	0.119	0.084	0.564	0.518	0.320	0.037	0.031	0.031

In the table above, Columns (1), (4) and (7) include our full sample of 11,128 firm-year (including both banks and firms from other industries) observations covered by both IRRC and BoardEx between 2007 and 2015. Columns (2), (5), and (8) include our sample of TARP banks and firms from other industries only. Columns (3), (6), and (9) include our sample of GSIB and firms from other industries only. In Columns (1) to (3) the dependent variable is *Prior Executive Banking Exp.*, calculated as the percentage of the board who have been an executive at a bank prior to joining the board of directors (i.e. those who worked as non-executive directors, independent directors, and trustee of a bank only are not included). In Columns (4) to (6) the dependent variable is *Any Prior Banking Exp.*, calculated as the percentage of the board who have been a board member at any bank previously. In Columns (7) to (9) the dependent variable is *Specialty Experience*, calculated as the percentage of the board who have been an executive at a firm classified by BoardEx as “Specialty & Other Finance.” *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 6 Panel A: Successful Track Record (Outside Performance)

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Outside Performance</i>			<i>Outside Performance (Chairperson)</i>		
<i>Bank</i> × <i>Post</i>	-0.000 (-0.01)			0.002 (0.09)		
<i>Bank</i>	0.004 (0.42)			-0.004 (-0.21)		
<i>TARP</i> × <i>Post</i>		0.010 (0.73)			0.009 (0.34)	
<i>TARP</i>		-0.002 (-0.14)			-0.009 (-0.37)	
<i>GSIB</i> × <i>Post</i>			0.002 (0.06)			0.022 (0.36)
<i>GSIB</i>			0.010 (0.29)			-0.026 (-0.48)
<i>Post</i>	0.011*** (3.72)	0.011*** (3.70)	0.012*** (3.90)	0.011** (1.97)	0.011** (1.96)	0.011* (1.92)
Controls	<i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>}					
Observations	11,128	10,821	10,552	3,686	3,616	3,525
Adjusted <i>R</i> ²	0.003	0.003	0.003	0.003	0.002	0.002

In the table above, Columns (1) and (4) include our full sample of firm-year (including both banks and firms from other industries) observations covered by both IRRC and BoardEx between 2007 and 2015. Columns (2) and (5) include our sample of TARP banks and firms from other industries only. Columns (3) and (6) include our sample of GSIB and firms from other industries only. In Columns (1) to (3), the dependent variable is *Outside Performance*; it measures the newly appointed directors' outside board performance over the last calendar year. Outside performance is calculated as the cumulated four-factor abnormal stock return over the last calendar year. Only directors with outside board memberships are included. In Columns (4) to (6), we limit our sample to chairpersons with outside board experience only. *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 6 Panel B: Successful Track Record (Announcement Return)

	(1)	(2)	(3)	(4)	(5)	(6)
	<i>Announcement Return</i>			<i>Announcement Return (Chairperson)</i>		
<i>Bank</i> × <i>Post</i>	-0.001 (-0.21)			-0.002 (-0.22)		
<i>Bank</i>	0.001 (0.15)			0.002 (0.21)		
<i>TARP</i> × <i>Post</i>		-0.002 (-0.32)			-0.010 (-0.79)	
<i>TARP</i>		0.003 (0.50)			0.005 (0.44)	
<i>GSIB</i> × <i>Post</i>			-0.000 (-0.04)			-0.005 (-0.17)
<i>GSIB</i>			0.002 (0.26)			0.023 (1.01)
<i>Post</i>	-0.000 (-0.00)	-0.000 (-0.06)	-0.000 (-0.04)	-0.001 (-0.31)	-0.001 (-0.61)	-0.002 (-0.69)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>					
Observations	7,208	7,061	6816	802	781	767
Adjusted <i>R</i> ²	0.006	0.006	0.006	0.037	0.037	0.038

In the table above, Columns (1) and (4) include our full sample of firm-year (including both banks and firms from other industries) observations that are covered by both IRRC and BoardEx between 2007 and 2015, and have sufficient data for director appointment or reappointment announcement date. Columns (2) and (5) include our sample of TARP banks and firms from other industries only. Columns (3) and (6) include our sample of GSIB and firms from other industries only. In Columns (1) to (3), the dependent variable is *Announcement Return*; it is measured as the four-factor abnormal stock return on the date that the new director's appointment is publicly announced. In Columns (4) to (6), we limit our sample to chairpersons with outside board experience only. *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 7 Panel A: Time Commitment of Directors

	(1)	(2)	(3)	(4)	(5)	(6)
	# <i>Outside Board</i>	# <i>Outside Board</i>	# <i>Outside Board</i>	<i>Busy Chairperson</i>	<i>Busy Chairperson</i>	<i>Busy Chairperson</i>
main				(dydx)	(dydx)	(dydx)
<i>Bank</i> × <i>Post</i>	-0.022			0.029		
	(-1.07)			(1.13)	bhh	
<i>Bank</i>	-0.307***			-0.328***		
	(-8.78)			(-7.46)		
<i>TARP</i> × <i>Post</i>		-0.073			0.045	
		(-0.89)			(0.83)	
<i>TARP</i>		-0.367***			-0.268***	
		(-4.75)			(-5.04)	
<i>GSIB</i> × <i>Post</i>			-0.343			-0.004
			(-1.49)			(-0.06)
<i>GSIB</i>			0.335			1.560
			(1.56)			(0.06)
<i>Post</i>	-0.096***	-0.112***	-0.113***	-0.135***	-0.137***	-0.137***
	(-5.46)	(-6.17)	(-6.16)	(-9.27)	(-9.35)	(-9.31)
Controls	<i>Operating Margin</i> _{<i>i,t-1</i>} ; <i>Average Age</i> _{<i>i,t-1</i>} ; <i>Board Ownership</i> _{<i>i,t-1</i>} ; <i>Outside Director Ownership</i> _{<i>i,t-1</i>} ; <i>Percentage Outside Director</i> _{<i>i,t-1</i>} ; <i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>}					
Observations	11,128	10,821	10,552	11,128	10,821	10,552
Adjusted <i>R</i> ²	0.167	0.150	0.136	0.109	0.098	0.093

In the table above, Columns (1) and (4) include our full sample of firm-year (including both banks and firms from other industries) observations covered by both IRRC and BoardEx between 2007 and 2015. Columns (2) and (5) include our sample of TARP banks and firms from other industries only. Columns (3) and (6) include our sample of GSIB and firms from other industries only. Columns (1) to (3) present the summary statistics of our O.L.S. regression on # *Outside Board*, which measures the average number of outside boards that each non-executive director sits on. Columns (4) to (6) present the summary statistics for our probit regressions on *Busy Chairperson*, an indicator variable which is equal to 1 if the chairperson sits on one or more outside boards. *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 7 Panel B: Time Commitment of Directors

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	# of Committees			# Outside Board (Risk Committee Chair)			% Retired Executives		
<i>Bank</i> × <i>Post</i>	0.117** (2.39)			0.320** (2.92)			-0.002 (-0.26)		
<i>Bank</i>	-0.168*** (-3.62)			-0.938*** (-8.84)			0.003 (0.61)		
<i>TARP</i> × <i>Post</i>		0.085 (1.29)			0.336** (2.38)			0.000 (0.00)	
<i>TARP</i>		-0.163*** (-2.61)			-0.956*** (-7.03)			0.005 (0.67)	
<i>GSIB</i> × <i>Post</i>			0.100 (0.54)			0.098 (0.22)			0.026 (1.15)
<i>GSIB</i>			0.027 (0.15)			-0.331 (-0.79)			-0.016 (-0.79)
<i>Post</i>	-0.014 (-0.92)	-0.007 (-0.47)	-0.001 (-0.09)	-0.104*** (-2.95)	-0.107*** (-3.02)	-0.107*** (-2.98)	-0.007*** (-4.20)	-0.007*** (-4.24)	-0.007*** (-4.20)
Controls	<i>Operating Margin</i> _{<i>i,t-1</i>} ; <i>Average Age</i> _{<i>i,t-1</i>} ; <i>Board Ownership</i> _{<i>i,t-1</i>} ; <i>Outside Director Ownership</i> _{<i>i,t-1</i>} ; <i>Percentage Outside Director</i> _{<i>i,t-1</i>} ; <i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>} ; <i>Cultural Diversity</i> _{<i>i,t-1</i>} ; <i>Gender Diversity</i> _{<i>i,t-1</i>}			<i>Operating Margin</i> _{<i>i,t-1</i>} ; <i>Average Age</i> _{<i>i,t-1</i>} ; <i>Board Ownership</i> _{<i>i,t-1</i>} ; <i>Outside Director Ownership</i> _{<i>i,t-1</i>} ; <i>Percentage Outside Director</i> _{<i>i,t-1</i>} ; <i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>}			<i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>}		
Observations	11,128	10,821	10,552	11,128	10,821	10,552	11,128	10,821	10,552
Adjusted <i>R</i> ²	0.094	0.094	0.093	0.074	0.068	0.061	0.117	0.118	0.118

In the table above, Columns (1) and (4) include our full sample of firm-year (including both banks and firms from other industries) observations covered by both IRRC and BoardEx between 2007 and 2015. Columns (2) and (5) include our sample of TARP banks and firms from other industries only. Columns (3) and (6) include our sample of GSIB and firms from other industries only. Columns (1) to (3) present the summary statistics of our O.L.S. regression on *Avg. # Committee*, which is the average number of committees that each director sits on. Columns (4) to (6) present the summary statistics for our regressions on *# Outside Board* that the Risk Oversight Committee Chair sits on. Columns (7) to (9) present the summary statistics for our regressions on the percentage of retired executives who sit on the board. *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * *p* < 0.1, ** *p* < 0.05, *** *p* < 0.01.

Table 8: Diversity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	<i>Cultural Diversity</i>			<i>Gender Diversity</i>			<i>Powerful CEO</i>			<i>Affiliated Directors</i>		
<i>Bank</i> × <i>Post</i>	-0.004			0.006			-0.060			-0.009		
	(-0.42)			(0.60)			(-1.10)			(-0.30)		
<i>Bank</i>	0.015			-0.016			0.082			0.175***		
	(1.58)			(-1.58)			(1.56)			(6.40)		
<i>TARP</i> × <i>Post</i>		-0.009			-0.006			-0.033			-0.022	
		(-0.70)			(-0.40)			(-0.49)			(-0.57)	
<i>TARP</i>		0.044***			0.005			0.077			0.167***	
		(3.53)			(0.36)			(1.21)			(4.59)	
<i>GSIB</i> × <i>Post</i>			-0.045			-0.044			0.090			0.137
			(-1.32)			(-1.13)			(0.69)			(1.33)
<i>GSIB</i>			0.047			0.035			-0.124			-0.177*
			(1.46)			(0.93)			(-0.98)			(-1.78)
<i>Post</i>	-0.001	-0.000	-0.001	0.018***	0.019***	0.019***	0.009	0.005	0.004	0.001	0.001	-0.001
	(-0.36)	(-0.05)	(-0.26)	(5.71)	(6.10)	(6.20)	(0.54)	(0.34)	(0.26)	(0.17)	(0.08)	(-0.10)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>											
Observations	11,128	10,821	10,552	11,128	10,821	10,552	11,128	10,821	10,552	11,128	10,821	10,552
Adjusted R ²	0.025	0.029	0.026	0.122	0.119	0.129	0.0139	0.0138	0.0136	0.132	0.127	0.104

In the table above, Columns (1), (4), (7), and (10) include our full sample of firm-year (including both banks and firms from other industries) observations covered by both IRRC and BoardEx between 2007 and 2015. Columns (2), (5), (8), and (11) include our sample of TARP banks and firms from other industries only. Columns (3), (6), (9), and (12) include our sample of GSIB and firms from other industries only. In Columns (1) to (3) the dependent variable is *Culture Diversity*, calculated as the percentage of non-Caucasians on the board. In Columns (4) to (6) the dependent variable is *Gender Diversity*, calculated as the percentage of female directors on the board. Columns (7) to (9) present our probit regression on *Powerful CEO*, which is an indicator variable equal to 1 when the CEO is also the chairperson. In Columns (10) to (12), the dependent variable is *Affiliated Director*, calculated as the percentage of directors appointed during the CEO's tenure at the firm. *TARP* are banks that participated in the Troubled Asset Relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 9: Risk Management

Panel A: All Banks						
	Mean			Median		
	Pre-Crisis	Post-Crisis	T-Stat	Pre-Crisis	Post-Crisis	Z
Separate Risk Committee	0.17	0.41	4.93***	0.00	0.00	4.86***
Reputation Management	0.08	0.39	6.81***	0.00	0.00	6.63***
# Risk Committee Meetings	8.80	8.10	0.62	8.00	8.00	0.63
Financial Expert on Risk Committee	0.05	0.03	0.93	0.00	0.00	0.93
CRO	0.66	0.90	6.33***	1.00	1.00	9.17***
Top 5 CRO	0.44	0.41	0.47	0.00	0.00	0.47
CRO Centrality	0.41	0.37	0.62	0.31	0.30	0.53

Panel B: TARP						
	Mean			Median		
	Pre-Crisis	Post-Crisis	T-Stat	Pre-Crisis	Post-Crisis	Z
Separate Risk Committee	0.23	0.51	4.15***	0.00	1.00	4.06***
Reputation Management	0.07	0.35	4.56***	0.07	0.35	4.41***
# Risk Committee Meetings	9.07	8.36	0.40	6.50	6.00	0.38
Financial Expert on Risk Committee	0.07	0.04	1.32	0.00	0.00	1.23
CRO	0.70	0.93	10.14***	1.00	1.00	6.97***
Top 5 CRO	0.47	0.40	1.00	0.00	0.00	0.57
CRO Centrality	0.38	0.37	0.40	0.31	0.30	0.19

Panel C: GSIB						
	Mean			Median		
	Pre-Crisis	Post-Crisis	T-Stat	Pre-Crisis	Post-Crisis	Z
Separate Risk Committee	0.13	0.36	1.29	0.00	0.00	1.28
Reputation Management	0.29	0.51	1.04	0.00	0.50	1.04
# Risk Committee Meetings	12.13	12.40	-0.65	12.00	12.00	0.23
Financial Expert on Risk Committee	0.05	0.05	0.01	0.00	0.00	0.01
CRO	1.00	1.00	0.00	1.00	1.00	0.00
Top 5 CRO	0.25	0.24	0.35	0.00	0.00	0.38
CRO Centrality	0.36	0.34	0.54	0.40	0.42	0.56

The table above includes the summary statistics for the eight risk management characteristics in our full sample of banks. Pre-Crisis includes year 2007. Post-Crisis includes years 2008 to 2015. Panel A presents the mean and median for all banks. Panel B presents the mean and median for TARP banks. Panel C presents the mean and median for GSIB. All variables are as defined in Appendix B.

Table 10: Risk Committee

	All Banks				TARP			
	(1) <i>Separate Risk Committee</i> (dydx)	(2) <i>Reputation Management</i> (dydx)	(3) <i>Number of Risk Committee Meetings</i>	(4) <i>Financial Expert on Risk Committee</i> (dydx)	(5) <i>Separate Risk Committee</i> (dydx)	(6) <i>Reputation Management</i> (dydx)	(7) <i>Number of Risk Committee Meetings</i>	(8) <i>Financial Expert on Risk Committee</i> (dydx)
<i>Post</i>	0.170*** (3.43)	0.340*** (8.90)	0.036 (0.66)	-0.003 (-0.10)	0.161** (2.56)	0.327*** (4.31)	-0.009 (-0.01)	-0.038 (-1.60)
<i>Controls</i>	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>							
<i>Observations</i>	745	745	286	286	438	438	210	210
<i>Adjusted R²</i>	0.224	0.196	0.143	0.033	0.261	0.228	0.071	-0.019

The table above includes 97 unique banks covered by IRRC between 2007 and 2015. Columns (1) and (2) include our full sample of 745 bank-year observations. In Column (1) the dependent variable, *Independent Risk Committee*, is equal to 1 if the bank has an independent risk committee. In Column (2) the dependent variable, *Reputation Management*, is an indicator variable equal to 1 if the bank mentions the committee that is responsible for primary oversight of conduct, reputational, and operational risks across the bank in their 10-k or proxy statement. Columns (3) and (4) include bank-year observations with independent risk committee only. In Column (3), the dependent variable, *# Risk Committee Meeting*, is the number of meetings that the risk committees had during the year. In Column (4), the dependent variable, *Financial Expert on Risk Committee*, is the percentage of financial experts (as defined in IRRC) on the risk committee. Columns (5) to (8) repeat the analyses for columns (1) to (4) for TARP only. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 11: Chief Risk Officers

	All Banks			TARP		
	(1) <i>CRO</i> (dydx)	(2) <i>Top5 CRO</i> (dydx)	(3) <i>CRO Centrality</i>	(4) <i>CRO</i> (dydx)	(5) <i>Top5 CRO</i> (dydx)	(6) <i>CRO Centrality</i>
<i>Post</i>	0.207*** (6.93)	-0.006 (-0.10)	0.016 (0.86)	0.171*** (5.41)	-0.031 (-0.40)	0.008 (0.27)
<i>Controls</i>	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>					
<i>Observations</i>	745	616	616	438	397	397
<i>Adjusted R²</i>	0.278	0.082	0.121	0.351	0.159	0.212

The table above includes 97 unique banks covered by IRRC between 2007 and 2015. Column (1) includes our full sample of 745 bank-year observations. The dependent variable *CRO* is an indicator variable which equals 1 if the bank has a CRO. In Columns (2) to (3) only bank-year observations with CRO are included. In Column (2) the dependent variable, *Top5*, is an indicator variable equal to 1 if the CRO is among the top five paid executives. In Column (3) the dependent variable, *CRO Centrality*, is the CRO's compensation paid relative to the CEO's compensation paid. Columns (4) to (6) repeat the analyses for columns (1) to (3) for TARP only. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 12: Determinant of Governance Changes

Panel A: Summary Statistic

	n	Mean	Q1	Median	Q3	Std
<i>Extent of Changes 2011</i>	78	0.282	0.182	0.261	0.444	0.139
<i>Government Inf.</i>	78	3.388	0.000	0.193	2.000	9.919
<i>Institution Inf.</i>	78	1.215	0.000	0.000	1.000	2.894
<i>Individual Inf.</i>	78	0.937	0.000	0.000	0.000	2.924
<i>Media Inf.</i>	78	-0.016	-0.033	-0.015	0.002	0.029
<i>B.H.R. Crisis</i>	78	-0.322	-0.606	-0.345	-0.074	0.331

Panel B: The Extent of Influence that Shareholder, Government and Media have over Bank Governance Changes

	(1) <i>Extent of Changes 2011</i>	(2) <i>Extent of Changes 2011</i>	(3) <i>Extent of Changes 2011</i>
<i>Government Inf.</i>	-0.000 (-0.66)	-0.000 (-0.75)	-0.000 (-0.96)
<i>Institution Inf.</i>	0.060** (2.08)	0.061** (2.13)	0.052* (1.77)
<i>Shareholder Inf.</i>	-0.017 (-0.38)	-0.065 (-1.37)	-0.054 (-1.26)
<i>Media Inf.</i>	0.066 (1.27)	0.073 (1.02)	0.066 (1.06)
<i>Media Inf. × Shareholder Inf.</i>		0.046* (1.92)	
<i>Government Inf. × Shareholder Inf.</i>			0.029* (1.86)
Controls	<i>B.H.R. Crisis_i; TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>		
Observations	78	78	78
Adjusted R ²	0.130	0.138	0.131

The panel above includes 78 unique banks covered by IRRC in both 2007 and 2011. The dependent variable is the *Extent of Change in 2011*, defined as the percent of the 21 governance proxies which the banks have improved in 2011. The main variables of interest are: *Government Inf.* is the amount of funding provided by the government under TARP; *Institution Inf.* is the number of shareholder proposals started by institutional investors between 1 January 2009 to 31 December 2010, and *Shareholder Inf.* is the number of shareholder proposals started by non-institutional investors between 1 January 2009 to 31 December 2010. *Media Inf.* is an indicator variable equal to 1 if the average Ravenpack CSS media sentiment score during the crisis period (1 June 2007 to 31 December 2008) is negative.¹⁵ All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

¹⁵ Ravenpack CSS scores range from 0 to 100: a score above 50 indicating positive news; a score equal to 50, neutral news, and a score below 50, negative news. Following Bushman et al. (2017) we only include Full-Articles with a relevant score of 75 or higher.

Table 13: Empirical Proxies and Shareholder Value

Panel A: Descriptive Statistics			
	Mean	Median	Std.
Wells Fargo 2018 Raw Return (1 February, 2018 to 5 February, 2018)	-0.045	-0.042	0.020
London Whale 2012 Raw Return (April 5, 2012 to June 28, 2012)	-0.01	-0.026	0.191

Panel B: Market Reaction to the 2012 London Whale and 2018 Wells Fargo Sanction		
	(1) Raw Return Between 1 February, 2018 and 5 February, 2018 (Wells Fargo 2018 Sanction)	(2) Raw Return Between April 5, 2012 and June 28, 2012 (JP Morgan 2012 London Whale)
<i>Extent of Changes in 2017</i>	0.024** (2.01)	
<i>Extent of Changes in 2011</i>		0.038* (1.93)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>	
Observations	78	78
Adjusted R ²	0.431	0.583

The panel above includes 78 unique banks covered by IRRC in both 2007 and 2011. In Column 1, the dependent variable is the return of banks (in addition to Wells Fargo) surrounding the Wells Fargo sanction announcement, calculated as the raw return starting from one trading day before (Thursday, 1 February 2018) the Wells Fargo Sanction and ending one trading day after (Monday, 05 February 2018) the announcement. In Column 2, the dependent variable is the return of banks (in addition to JP Morgan) surrounding the 2012 JP Morgan trading losses. We calculate the return starting from one trading day before (Thursday, 05 April 2012) the Wall Street Journal first reported on the trading losses, and ending one trading day after (Friday, 29 June 2012) the New York Times reported on the magnitude of the trading losses. The main variable of interest is *Extent of Change in 201X*, defined as the percent of the 21 governance proxies which the banks have improved on in year 201X relative to 2007. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 14: Liquidity
Panel A: Summary Statistic

	<i>Liquidity</i>	<i>Cash</i>	<i>Risk-Adjusted Capital Ratio</i>	<i>Risk-Adjusted Tier 1 Capital Ratio</i>
2001	0.27	0.05	0.13	0.11
2002	0.28	0.05	0.14	0.11
2003	0.29	0.04	0.14	0.12
2004	0.27	0.04	0.14	0.12
2005	0.26	0.04	0.14	0.12
2006	0.24	0.04	0.13	0.11
2007	0.22	0.04	0.13	0.11
2008	0.24	0.05	0.14	0.12
2009	0.27	0.06	0.15	0.13
2010	0.28	0.06	0.16	0.14
2011	0.29	0.07	0.17	0.15
2012	0.27	0.06	0.16	0.15
2013	0.27	0.06	0.16	0.14

Panel B: All Banks

	(1) <i>Liquidity</i>	(2) <i>Cash</i>	(3) <i>Risk Adjusted Capital Ratio</i>	(4) <i>Risk Adjusted Tier 1 Capital Ratio</i>
<i>Post</i>	0.011 (0.80)	-0.001 (-0.21)	0.022*** (3.54)	0.030*** (4.53)
<i>Controls</i>	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA²_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}; LLR_{i,t-1}; Charge_Off_{i,t-1}; NPL_{i,t-1}</i>			
<i>Observations</i>	1,131	1,131	1,131	1,131
<i>Adjusted R²</i>	0.158	0.115	0.122	0.155

The panel above includes 1,131 bank-year observations covered by IRRC between 2001 and 2013. In Column (1), the dependent variable is *Liquidity*, which is calculated as the sum of cash and total securities deflated by total assets. In Column (2), the dependent variable is *Cash*, which is calculated as cash deflated by total assets. In Column (3), the dependent variable is *Risk-Adjusted Capital Ratio*, which is calculated as the sum of tier 1 and 2 capitals divided by total risk-weighted assets. In Column (4), the dependent variable is *Risk Adjusted Tier 1 Capital Ratio*, which is calculated as tier 1 capital divided by total risk-weighted assets. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Panel C: TARP

	(1) <i>Liquidity</i>	(2) <i>Cash</i>	(3) <i>Risk Adjusted Capital Ratio</i>	(4) <i>Risk Adjusted Tier 1 Capital Ratio</i>
<i>Post</i>	0.003 (0.24) (-0.82)	0.005 (1.31) (-1.04)	0.019*** (6.02) (2.35)	0.027*** (8.15) (1.73)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}; LLR_{i,t-1}; Charge_Off_{i,t-1}; NPL_{i,t-1}</i>			
Observations	670	670	670	670
Adjusted R ²	0.147	0.164	0.234	0.323

The panel above includes 670 TARP bank-year observations covered by IRRC between 2001 and 2013. In Column (1), the dependent variable is *Liquidity*, which is calculated as the sum of cash and total securities deflated by total assets. In Column (2), the dependent variable is *Cash*, which is calculated as cash deflated by total assets. In Column (3), the dependent variable is *Risk-Adjusted Capital Ratio*, which is calculated as the sum of tier 1 and 2 capitals divided by total risk-weighted assets. In Column (4), the dependent variable is *Risk Adjusted Tier 1 Capital Ratio*, which is calculated as tier 1 capital divided by total risk-weighted assets. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Panel D: GSIB

	(1) <i>Liquidity</i>	(2) <i>Cash</i>	(3) <i>Risk Adjusted Capital Ratio</i>	(4) <i>Risk Adjusted Tier 1 Capital Ratio</i>
<i>Post</i>	-0.050 (-0.93)	-0.015 (-0.56)	0.001 (0.17)	0.012* (2.26)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA^2_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}; LLR_{i,t-1}; Charge_Off_{i,t-1}; NPL_{i,t-1}</i>			
Observations	104	104	104	104
Adjusted R ²	0.762	0.457	0.178	0.250

The panel above includes 104 GSIB bank-year observations covered by IRRC between 2001 and 2013. In Column (1), the dependent variable is *Liquidity*, which is calculated as the sum of cash and total securities deflated by total assets. In Column (2), the dependent variable is *Cash*, which is calculated as cash deflated by total assets. In Column (3), the dependent variable is *Risk-Adjusted Capital Ratio*, which is calculated as the sum of tier 1 and 2 capitals divided by total risk-weighted assets. In Column (4), the dependent variable is *Risk Adjusted Tier 1 Capital Ratio*, which is calculated as tier 1 capital divided by total risk-weighted assets. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.

Table 15: Pay-for-performance

	(1)	(2)	(3)
		$\Delta Exe Wealth_{i,t}$	
$\Delta Shr Wealth_{i,t} \times Post \times Bank$	-0.166 (-0.83)		
$\Delta Shr Wealth_{i,t} \times Bank$	-0.298 (-0.34)		
$Post \times Bank$	-1.482 (-0.19)		
$Bank$	-3.385 (-0.46)		
$Post \times \Delta Shr Wealth_{i,t} \times TARP$		-0.162 (-0.61)	
$Chg_Mkv_{i,t} \times TARP$		-0.351 (-0.36)	
$Post \times TARP$		-2.403 (-0.23)	
$TARP$		-2.097 (-0.21)	
$Post \times \Delta Shr Wealth_{i,t} \times GSIB$			-0.188 (-0.61)
$\Delta Shr Wealth_{i,t} \times GSIB$			-0.104 (-0.09)
$Post \times GSIB$			-1.850 (-0.39)
$GSIB$			22.384* (1.82)
$Post \times Chg_Mkv_{i,t}$	0.972*** (2.72)	0.966*** (2.74)	0.930*** (2.68)
$\Delta Shr Wealth_{i,t}$	1.333*** (3.84)	1.338*** (3.93)	1.361*** (4.05)
$Post$	1.351 (0.63)	1.425 (0.68)	1.496 (0.73)
Controls	<i>TobinQ_{i,t-1}; ROA_{i,t-1}; Loss_{i,t-1}; Log_TA_{i,t-1}; Log_TA²_{i,t-1}; Log_MV_{i,t-1}; CAR_{i,t-1}; CAR_{i,t-2}; CAR_{i,t-3}; Ret_Std_{i,t-1}; Board_Size_{i,t-1}; Board_Tenure_{i,t-1}; Ind_{i,t-1}; CEO_Power_{i,t-1}; CEO_Tenure_{i,t-1}; OwnershipCon_{i,t-1}; InstitutionOwn_{i,t-1}</i>		
Observations	11,128	11,128	11,128
Adjusted R ²	0.074	0.074	0.073

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

The table above includes our full sample of 11,128 firm-year observation covered by both IRRC and BoardEx between 2007 and 2015. The dependent variable is $\Delta Exe Wealth_{i,t}$, which measures the change in total wealth of the top five executives in firm i . The executive's change in total wealth includes the change in the value of the executive's stockholdings, plus change in the value of the executive's stock options, plus total pay during the year. *TARP* includes banks that participated in the troubled asset relief program. *GSIB* are banks that are considered systemically important banks. All other variables are as defined in Appendix B, *t* statistics in parentheses, * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

Table 16: Internal Control Weaknesses**Panel A: Number of internal control weaknesses**

	Mean			Median		Z
	Pre-Crisis	Post-Crisis	T-Stat	Pre-Crisis	Post-Crisis	
All Banks	0.032	0.029	-0.300	0.00	0.00	-0.212
Nonbanks	0.056	0.048	-0.580	0.00	0.00	-2.04***
TARP Banks	0.034	0.027	-0.690	0.00	0.00	-0.612

Panel B: Internal Control Weaknesses

	(1) Internal Control Weakness	(2) Internal Control Weakness	(3) Internal Control Weakness
<i>Bank</i> × <i>Post</i>	-0.018 (-0.35)	-0.019 (-0.37)	
<i>Bank</i>	-0.007 (-0.13)	0.016 (0.31)	
<i>TARP</i> × <i>Post</i>			-0.061 (-0.83)
<i>TARP</i>			0.075 (1.05)
<i>Post</i>	-0.008 (-0.57)	-0.007 (-0.50)	-0.006 (-0.48)
Controls	None	<i>TobinQ</i> _{<i>i,t-1</i>} ; <i>ROA</i> _{<i>i,t-1</i>} ; <i>Loss</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> _{<i>i,t-1</i>} ; <i>Log_TA</i> ² _{<i>i,t-1</i>} ; <i>Log_MV</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-1</i>} ; <i>CAR</i> _{<i>i,t-2</i>} ; <i>CAR</i> _{<i>i,t-3</i>} ; <i>Ret_Std</i> _{<i>i,t-1</i>} ; <i>Board_Size</i> _{<i>i,t-1</i>} ; <i>Board_Tenure</i> _{<i>i,t-1</i>} ; <i>Ind</i> _{<i>i,t-1</i>} ; <i>CEO_Power</i> _{<i>i,t-1</i>} ; <i>CEO_Tenure</i> _{<i>i,t-1</i>} ; <i>OwnershipCon</i> _{<i>i,t-1</i>} ; <i>InstitutionOwn</i> _{<i>i,t-1</i>}	
Observations	11,128	11,128	11,128
Adjusted <i>R</i> ²	0.000	0.009	0.009

The panel above includes our full sample of 11,128 firm-year observations covered by both IRRC and BoardEx between 2007 and 2015. The dependent variable is *Internal Control Weakness*, which is the number of internal control weaknesses as reported in Audit Analytic. *TARP* are banks that participated in the Troubled Asset Relief program. All other variables are as defined in Appendix B, t statistics in parentheses, * p < 0.1, ** p < 0.05, *** p < 0.01.