# Risky Lending: Does Bank Corporate Governance Matter?

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Abstract

We study the effect of bank governance on risk-taking in commercial lending. We find that banks with more effective boards are less likely to lend to risky borrowers. However, the reduction in risk-taking is restricted to periods of distress in the banking industry and the relation is stronger at banks with board-level credit committees. The role of bank boards in risk-taking is complicated by the debate on whether bank boards should consider the interests of depositors and tax-payers in addition to those of shareholders. Our results suggest that bank boards respond to this dichotomy by actively regulating risk-taking, depending on conditions in the banking industry.

## 1. Introduction

Risky lending by financial institutions is widely blamed as one of the primary causes of the recent financial crisis. The poor vetting of investments and inadequate risk management have, in turn, been attributed to ineffective bank boards.[1] The underlying assumption of these arguments is that a better-governed bank is more likely to conduct a rigorous review of its investments and thereby maintain sound risk profiles. Yet, in spite of the significance of these issues, scant evidence exists about the relation between the governance structure of financial institutions and the riskiness of borrowers to whom they extend credit. Our goal is to bridge this gap by analyzing whether and in what situations the quality of a bank's board impacts the riskiness of its lending practices.

Unlike shareholders who are residual claimants with convex payoffs, managers have a relatively fixed and mostly undiversified claim on corporate cash flows. They also enjoy private benefits of control that are contingent on the firm's survival. Thus, self-interested managers tend to prefer less risky investments to riskier ones even if the riskier projects are more profitable. The board of directors is the main institution charged with monitoring decisions made by top management and U.S. law holds that directors owe a duty of care and loyalty to shareholders. Since shareholders rationally prefer more risk than management would voluntarily choose, this suggests that an effective board seeking to maximize shareholder wealth will encourage greater risk-taking. The empirical literature on risk-taking by industrial firms generally supports this position (see, e.g., Faleye, Mehrotra, and Morck (2006) and John, Litov, and Yeung (2008)).

[1] See, e.g., "Gone by the board? Why bank directors did not spot credit risks" by Francesco Guerrera and Peter Thal Larsen, *Financial Times*, June 25, 2008 and "Anticipating Corporate Crises" by Joanne S. Lublin and Cari Tuna, *Wall Street Journal*, September 22, 2008.

Nevertheless, an effective bank board need not encourage greater risk-taking. Macey and O'Hara (2003) argue that the fiduciary duties of bank directors extend beyond shareholders to depositors and regulators because banks are mostly funded with deposits from atomistic and unsophisticated depositors and are protected by deposit insurance guaranteed by the public. In addition, Flannery (1998) and Levine (2004) argue that excessive risk-taking by banks can create significant negative externalities and systemic risk due to the unique position of banks in financial intermediation and the payment system. Thus, an effective bank board may encourage less risk than desired by shareholders, leading to a negative association between board effectiveness and risky lending practices.

We use the long-term credit ratings of bank borrowers at the time of loan origination to measure risk-taking in lending. Although different from traditional measures of bank riskiness (e.g., standard deviation of stock returns and the variance of market model residuals), this measure permits a basic understanding of the riskiness of bank lending by focusing on individual loans. It also allows us to provide some insight into whether better bank governance could have mitigated the kind of risky lending widely blamed for the recent financial crisis.

Our measure of board effectiveness is a composite index of four board characteristics widely employed in the corporate governance literature when evaluating board effectiveness. These are board size (Yermack (1996)), fraction of independent directors (Weisbach (1988)), CEO duality (Fama and Jensen (1983), Jensen (1993)), and board classification (Bebchuk and Cohen (2005); Faleye (2007)). Based on results from this literature, we presume that the quality of board oversight is better when the board is smaller, dominated by independent directors, CEO and chair positions are separated, and directors are elected to annual rather than staggered terms. Our board effectiveness index ranges in value from 0 to 4, depending on whether the fraction of

independent directors is higher than the sample median, board size is smaller than the sample median, the CEO is not board chair, and director elections are not staggered. Thus, a higher score on this index is presumed to represent better board effectiveness.

Our sample consists of 16,788 borrower-year observations for 6,099 unique borrowers between 1994 and 2008. We find that the probability of lending to risky borrowers decreases significantly with our measure of board effectiveness. Specifically, an inter-quartile increase in board index is associated with an increase of 4.8 percentage points in the probability of lending to an investment grade borrower. We find broadly similar results when we relate the individual components of board index to the probability of lending to an investment grade borrower. The results are also robust to alternative measures of borrower riskiness such as borrower size and profitability as well as controls for various bank and loan related variables.

Nevertheless, we recognize that endogeneity is a concern with these results. That is, the results can be biased by unobservable factors that potentially affect a bank's choice of lending risk and also drive its corporate governance structure. In order to mitigate the effects of confounding endogenous factors, we use the differential change in board effectiveness after Sarbanes-Oxley (SOX) for banks with less effective pre-legislation boards versus banks with more effective pre-legislation boards (see, e.g., Chhaochharia and Grinstein (2007b)) as an instrument for bank board effectiveness. Consistent with Chhaochharia and Grinstein (2007b), we find that boards that were less effective at the beginning of our sample period experienced a higher post-SOX increase in board effectiveness than boards that were more effective at the beginning of our sample period. More importantly, the exogenous increase in board effectiveness following SOX is associated with a significant increase in the probability of lending to investment grade borrowers.

Next, we investigate the conditions under which board effectiveness impacts risk-taking in lending. We find that the negative relation between board effectiveness and risky lending is driven by credit decisions made during times of greater distress in the banking industry; during normal times when the banking industry is not in distress, there is no relation between bank board effectiveness and borrower credit risk. These results hold when we measure banking industry distress using industry loan charge-off to assets ratio and when we exploit the exogenous distress in the U.S. banking industry arising from the Russian default of August 1998. The latter test also allows us to rule out the possibility that broader economic conditions affect the relation between bank board effectiveness and risk-taking because the Russian default had little to do with the health of the U.S. economy.

Overall, our results suggest that bank board effectiveness reduces risky lending and that this relation is restricted to times of distress in the banking industry. Yet it is reasonable to question whether bank boards are actively involved in credit decisions or our results are merely spurious. First, the loans in our sample are large investments, averaging $468 million with a median of $132 million. Thus, it is very likely that bank boards are actively involved in decisions involving such large investments. We examine this further by focusing on the presence of a board-level credit risk committee, which we presume to reflect the existence of a formal mechanism for a bank's board to monitor the riskiness of the bank's investments. We find that banks with higher board effectiveness index are more likely to have a credit risk committee. We also find that the negative relation between bank board effectiveness and risky lending in times of financial distress is stronger for banks that have a credit risk committee.

Our results illustrate the critical role that bank boards can play in managing lending risk but also raise some important questions. First, why would a bank care about the riskiness of its

borrowers if it can price riskier loans to earn appropriate returns? Stiglitz and Weiss (1981) show that increasing interest rates (or collateral requirements) can increase the riskiness of a bank's loan portfolio, either by discouraging safer borrowers or by inducing borrowers to invest in riskier projects. At some interest rate, which may be below the market clearing rate, this effect decreases the bank's profits from lending even at a higher interest rate. In particular, the increase in the riskiness of borrowers willing to pay higher interest rates more than offsets any additional profits made due to the higher rates. Under these circumstances, a value-maximizing bank will prefer to retreat from lending to riskier borrowers rather than simply charge higher rates or demand more collateral. Our result that banks with more effective boards and a credit risk committee reduce lending risk during poor times while increasing it during good times are consistent with this explanation.

Another viewpoint is that banks can simply take on riskier loans and syndicate the risk away. For example, Benmelech, Dlugosz, and Ivashina (2012) note that corporate loans are typically syndicated. However, recent studies such as Sufi (2007) and Ivashina (2009) show that lead banks in loan syndicates use the retained share as a mechanism for aligning their incentives with those of syndicate participants and committing to future monitoring. This implies that the Stiglitz-Weiss effect continues to exist for the lead bank, since it still has a substantial portion of the loan on its books. Furthermore, Benmelech, Dlugosz, and Ivashina (2012) find that, conditional on borrowers' credit quality, securitized loans do not perform worse than unsecuritized loans. This suggests that banks do not securitize loans to riskier borrowers away and can end up retaining substantial portions of corporate loans on their balance sheets.

The question of whether our results indicate a depositor orientation of bank boards (at least during times of industry distress) or simply shareholder oriented value-maximization is

harder to answer. It turns out that, at least in the context of loan initiations, banks simultaneously protect depositors and enhance shareholder value by reducing the riskiness of new loans during times of distress. Whether this is due to banks actively being depositor-oriented or whether depositors and shareholders have the same interest is difficult to distinguish in this context.

This paper makes several important contributions. Most obviously, we extend the literature on the effect of governance structure on bank risk-taking. Saunders, Strock, and Travlos (1990) show that bank risk-taking increases with the equity ownership of officers and directors. Iannotta, Nocera, and Sironi (2007) find that government-owned banks are less risk averse than private-sector banks. They also show that mutual banks take less risk than banks with alternative ownership structures. More recently, Pathan (2009) finds a positive relation between board strength and bank risk-taking while Minton, Taillard, and Williamson (2013) report similar effects for financial expertise among bank directors. A common feature of these papers is their use of statistical measures of bank risk such as the standard deviation of equity returns, the variance of market model residuals, or market model betas. However, public policy discussions of bank risk, especially following the recent crisis, focus almost exclusively on risk-taking in lending practices. We contribute directly to these issues by showing that the strength of board oversight has significant ramifications for the assumption and management of bank risk in credit initiations. In addition, our approach allows us to shed light on the specific mechanisms through which corporate governance affects risk mitigation and management by banks.

Furthermore, we provide new evidence on the effect of corporate governance on corporate investment activities. Prior governance research typically focuses on the effect of governance characteristics on operating and stock price performance because operating and stock performance data are readily available (see Adams, Hermalin, and Weisbach (2010) for a recent

review). In contrast, detailed corporate investment data are hard to obtain and even harder to standardize due to considerable differences across industries. Our analysis of bank lending provides important insights into the role of corporate governance in project-level investing activities because bank loans are the equivalent of corporate investments for commercial banks.

The remainder of the paper proceeds as follow. We discuss the relevant literature and our research questions in the next section. Section 3 describes our sample selection procedures and presents descriptive statistics for the sample. We report empirical results in Section 4. Section 5 contains a brief summary and concluding remarks.

## 2. Prior literature and research questions

Banks are recognized as special economic entities because of their roles in financial intermediation and the payment system. These roles also position them to create significant negative externalities that potentially affect social welfare and overall economic efficiency (e.g., Flannery (1998) and Levine (2004)). As a result, virtually all jurisdictions impose considerable regulation on banks to minimize these systemic risk exposures. In addition, bank boards are expected to play vital roles in ensuring the health and wellness of the institutions they oversee. Macey and O'Hara (2003) argue that while bank boards have the same fiduciary duties to shareholders as do the boards of non-bank firms, they also have a wider set of responsibilities that include a heightened duty to protect the safety and soundness of the enterprise because banks are mostly funded by non-shareholder investors (i.e., depositors) and have access to public deposit insurance schemes. Thus, bank directors may be expected to protect the interests of other stakeholders such as depositors and the public at large.

The empirical literature in this area emphasizes this theme by analyzing the association between bank risk-taking and corporate governance. Saunders, Strock, and Travlos (1990) and Demsetz, Saidenberg, and Strahan (1997) focus on the implications of the divergence of interests between shareholders and managers for bank risk-taking. Arguing that shareholders prefer greater risk because of the nature of their residual claims, they show that higher insider ownership is associated with greater bank risk-taking. Similarly, Laeven and Levine (2009) show that banks with large shareholders who are able to influence corporate policies tend to take greater risks. Houston and James (1995) compare CEO compensation structure in the banking and other industries and conclude that executive compensation policies do not promote risk-taking in banking. More recently, Pathan (2009) examines the relation between board attributes and bank risk-taking. He finds that bank risk decreases with board size, board independence, CEO power, and CEO equity ownership.

A common approach in these studies is their use of aggregate measures of bank risk-taking such as the standard deviation of equity returns, variance of market model residuals, Z-scores, and the standard deviation of operating income ratios. While these measures allow insights into the overall riskiness of banks, they are highly condensed measures of corporate choices that do not capture specific risky investments undertaken by banks. The literature on risk-taking in non-banking industries implicitly recognizes these limitations by employing additional measures that focus on the investment of corporate assets, such as research and development (R&D) expenditures and patenting activities. Unfortunately, these measures are not practical for banks since banks typically do not engage in R&D and/or corporate patenting.

We address these limitations by focusing on the riskiness of bank lending practices as our measure of bank risk-taking. In addition to facilitating an examination of the specific channels

through which board oversight might affect risk mitigation and management by banks, this also allows a direct contribution to current policy debates on the role of bank boards in containing or otherwise exacerbating the recent financial crisis, which is widely believed to have its origins in bank lending to borrowers of questionable quality. Specifically, by analyzing the effect of bank governance structure on the riskiness of lending practices, we are able to provide evidence on whether corporate governance reforms are likely to achieve the objective of minimizing risky bank lending. Furthermore, with the exception of Pathan (2009) and Minton, Taillard, and Williamson (2013), board characteristics have been largely ignored when analyzing the association between bank governance and risk. We also fill this gap in the literature. Finally, unlike the prior literature, we explore the question of when bank boards mitigate risk-taking in lending practices. Our finding that bank boards mitigate risks mainly during times of banking industry distress has important implications for how corporate governance mechanisms of banks can impact the change in lending practices at the onset of crisis in this industry.

## 3. Sample and variables

### *3.1. Sample construction*

We start with the link file between the Center for Research in Security Prices (CRSP) permanent company number (PERMCO) and bank RSSD ID available from the Federal Reserve Bank of New York. We merge this file with CRSP and Compustat to gather financial data for banks. We then match lead lenders in the Dealscan database by state and lender name to this file. We hand-clean this set to ensure that there are no mismatches. In addition, we obtain subsidiary information from the National Information Center (NIC) web site by searching for banking

subsidiaries using each bank's RSSD ID. We then hand-match subsidiaries with the list of lenders from Dealscan based again on the name and state of the subsidiary.

For the set of matched banks resulting from the above procedure, we obtain data on the boards of directors from the Riskmetrics directors' database and executive compensation data from Execucomp. We hand-collect data from proxy filings if the bank is not covered in Riskmetrics and/or Execucomp or its data are incomplete in those databases. In addition, we hand-collect board data for 1994 and 1995 since Riskmetrics' coverage begins in 1996. We choose 1994 as the starting year because it is the first year for which corporate filings are available on the Securities and Exchange Commission's (SEC) web site. Finally, we obtain data on loans where banks in our sample act as lead lenders from the Dealscan database. We exclude borrowers of institutional loans because prior literature (e.g., Nandy, Shao, and Sisli-Ciamarra (2010)) shows that these loans can be substantially different from typical loans, particularly since non-bank firms are involved in lending such loans. We also exclude financial borrowers. Our final sample consists of 340 bank-years for 80 unique banks over 1994–2008. The data comprises 16,788 borrower-years representing 6,099 unique borrowers.

Loan facilities are the basic unit of observation in the Dealscan database. Each facility is part of a loan deal, and a facility can be part of a multi-facility deal. Therefore, we aggregate facility data to the borrower-bank-year level so that there is only one observation per borrower per bank per year. Specifically, variables such as loan amount are added up to the borrower-bank-year level, and all other variables are the weighted averages of their values, where the weights are based on facility amount. Thus, for example, if a borrower obtains a $100 million in syndicated loans and $50 million in non-syndicated loans from a bank, then the weighted average syndication value is 0.67.

We correct standard errors for borrower-level clustering in our main tests because our dataset is at the borrower-bank-year level. In other tests, we show that our results are robust to corrections for bank level clustering, borrower-year level clustering, as well as borrower-bank level clustering. Our main results also remain unchanged when we aggregate the data to bank-year level. We discuss these tests in detail in later sections.

### *3.2. Dependent variables*

Our main measure of bank risk-taking in lending decisions is a binary variable that equals 1 if the borrower's long-term Standard and Poor's (S&P) credit rating at the time of loan origination is investment grade (i.e., BBB or higher), 0 otherwise. Thus, a value of zero for this variable reflects the bank's decision to assume significant lending risk by extending credit to non-investment grade borrowers. Later, we show that our results are robust to using alternative measures such as whether the borrower has a credit rating, borrower size, and profitability.

### *3.3. Explanatory and control variables*

Our goal is to understand how the effectiveness of a bank's board in monitoring management affects risk-taking in lending decisions. Although there is no consensus on what constitutes an effective board, prior studies generally suggest that the quality of board oversight is higher when the board is smaller (Yermack (1996)), dominated by independent directors (Weisbach (1988)), CEO and board chair positions are separated (Fama and Jensen (1983), Jensen (1993)), and directors are elected to annual rather than staggered terms (Bebchuk and Cohen (2005); Faleye (2007)). We thus characterize boards with these attributes as better overseers of top management and condense these measures into one board index. This index equals 0, 1, 2, 3, or 4 depending on how many of the following conditions are satisfied: fraction of independent directors is higher than the sample median, board size (measured as the number

of directors) is smaller than the sample median, CEO is not board chair, and director elections are not staggered. Thus, we expect board effectiveness to increase with scores on the index.

Our regressions control for several other dimensions of corporate governance that potentially affect board effectiveness. These are independent director stock ownership (Beasley (1996)), outside CEOs on the board (Faleye (2010); Fahlenbrach, Low, and Stulz (2010)), CEO equity ownership (Morck, Shleifer, and Vishny (1988)), CEO equity-based compensation (Datta, Iskandar-Datta, and Raman (2001)), and the presence of a golden parachute in the CEO's compensation contract (Bebchuk, Cohen, and Ferrell (2009)). We also control for several bank and loan characteristics as appropriate. These include bank size, measured as the natural logarithm of total assets, market to book ratio of assets, equity to assets (capitalization) ratio, one year standard deviation of monthly stock returns, and borrower's industry fixed effects based on one digit Standard Industrial Classification (SIC) code.[2]

Table 1 presents descriptive statistics for these variables. Panel A reports summary statistics for banks while Panel B reports statistics for borrowers. In Panel A, mean and median bank assets are $111 billion and $36.4 billion, respectively. Consistent with prior studies of bank boards (e.g. Pathan (2009), Adams and Mehran (2003)), boards in our sample are larger than board sizes typically reported for non-financial firms: The average board has 15.3 members, with a median of 15 directors. This is comparable to Adams and Mehran (2003) who find that, at the median, bank boards have 18 directors. Approximately 72.2% of directors are independent at the median bank, which is comparable to Adams and Mehran (2003), who find a median board independence of 71.4% for banks in their sample. The CEO serves as board chair in 74.7% of

[2] Our results also hold with 2-digit SIC controls, but we lose more observations in our probit regressions (with investment grade dummy as the dependent variable) with more dummy variables.

our sample and 54.4% have classified boards. Mean and median values for the board index are 1.7 and 2.0, respectively.

Mean and median CEO equity ownership are 0.61% and 0.50%, respectively, compared to 0.85% and 0.15% for independent directors as a group. Again, our numbers are consistent with those in Adams and Mehran (2003), who find that, at the median, CEOs in banks own 0.4 percent of the bank's stock. On average, 39.8% of the CEO's compensation is equity-based and 77.9% of CEOs have a golden parachute provision in their compensation contracts. The statistics on bank assets, standard deviation of stock returns, and market to book ratio reported in this panel are also similar to those reported in Adams and Mehran (2003).

Panel B of Table 1 summarizes borrower characteristics. On average, 31.4% of the borrowers in our sample are investment grade rated (compared to both non-investment grade and non-rated firms) and 46.8% of the borrowers are rated. Borrowers have median assets of $1.9 billion, which is consistent with Dealscan covering medium and large sized borrowers.

## 4. Empirical analysis and results

Table 2 presents results of probit regressions relating borrower riskiness to the lending bank's corporate governance characteristics. The dependent variable in Columns (1) and (2) equals 1 if the borrower's S&P long-term rating is BBB or better, 0 if the borrower is rated but worse than BBB. Each regression includes the control variables discussed in the previous section as well as year and borrower industry fixed effects. Standard errors are corrected for clustering at the borrower level. Column (1) shows that board index is significantly positively associated with the probability of lending to an investment grade borrower. Thus, banks with more effective boards are more likely to lend to less risky borrowers. The relation is also economically

significant. In particular, coefficients in the first column imply that a change from the first to the third quartile of board index is associated with an increase of 4.8 percentage points in the probability of lending to an investment grade borrower. Since the unconditional probability of extending such loans is 67.0% in our sample (of rated firms), this reflects a 7.1% increase in the probability of originating less risky loans.

Column (2) reports results of a regression where we replace board index with its constituent variables. The sign of each variable is as expected and all but one (the fraction of independent directors) are significant at conventional levels. Specifically, banks with smaller boards are more likely to lend to investment grade borrowers: An inter-quartile decrease in board size is associated with a 3.2% increase in the probability of making such loans. Similarly, banks whose CEOs do not serve as board chairs are 7.8% more likely to originate investment grade loans while the probability is 7.6% higher for those with non-classified boards. Given the similarities between results in Columns (1) and (2), we report results for the consolidated board index variable in the rest of our tests for ease of exposition.

The remaining columns of Table 2 evaluate the robustness of our results to alternative measures of borrower riskiness. In Column (3), we use an indicator variable that equals 1 if the borrower is rated by S&P, 0 otherwise. This is based on the intuition that rated borrowers (regardless of their ratings) are inherently less risky than non-rated ones because certain quality thresholds are needed to secure a rating. As the column shows, board index is positive and significant in this regression. Thus, banks with more effective boards are more likely to lend to rated as opposed to unrated borrowers. Economically, a change from the first to the third quartile of board index is associated with an increase of 1.4 percentage points in the probability of

lending to a rated borrower. This represents a 3.0% increase in the probability of lending to a rated borrower since rated borrowers are 46.8% of the sample.

Columns (4)–(6) of Table 2 use borrower size (natural log of assets and natural log of revenue) and profitability (return on assets, ROA) as alternative measures of borrower riskiness. These measures are only available for publicly traded firms and so analyses using them are restricted to such firms. As the table shows, board effectiveness is positively associated with borrower assets, revenues, and profitability. Thus, banks with more effective boards are more likely to originate loans to larger (in terms of assets and revenue) and more profitable borrowers. Specifically, an inter-quartile increase in board index is associated with increases of 7.7%, 7.0%, and 2.1% in borrower assets, revenues, and ROA, respectively.

Overall, results in this section suggest that banks with more effective board monitoring tend to reduce risk-taking in their loan initiations to commercial and industrial borrowers. In general, characteristics that are considered in prior literature as reflective of better board governance are negatively related to the level of lending risk. Thus, our results suggest that effective governance reduces the level of risk-taking in lending by banks. Nevertheless, we recognize that the analysis so far does not imply causality. We address this in the next section.

### *4.1. Exploring causality*

The primary concern with results in the preceding section is that they may be biased if unobservable variables that affect board characteristics are also correlated with risk-taking in lending. In order to establish a causal link between the effectiveness of bank boards and risky lending, we conduct an instrumental variables (IV) analysis where the first stage dependent variable is the board index and the second stage is the investment grade rated borrower dummy.

Finding instruments that satisfy exclusion restrictions when analyzing the effect of potentially endogenous governance variables has been a challenging task for researchers. We use the changes in board characteristics for all firms in the U.S. after 2003, when the Sarbanes-Oxley Act and governance listing requirements for NYSE and NASDAQ were implemented following various high-profile accounting scandals. Our approach is predicated on Chhaochharia and Grinstein (2007b) who find that firms whose boards were further away from compliance with board structure requirements for listing by the NYSE and NASDAQ (which were approved by the SEC in November 2003) gained the greatest value when the rules were announced.

While board independence is the only component of our board index that is affected by the exchange listing rules, the general structure of boards also changed substantially in the wake of the 2001-2002 accounting scandals. Since these scandals, investor, academic, and media attention has also been on other board characteristics including board size, CEO–chair duality, and staggered elections. As a result, firms have been under increasing pressure to improve their governance structures. Consistent with this, Chhaochharia and Grinstein (2007a) find that U.S. firms reduced their board sizes between 1997 and 2003. They also find a trend, albeit weaker, for firms separating CEO and chair positions over time. The consulting firm Spencer Stuart reports similar trends. It finds that average board size for S&P 500 firms declined from 11.8 in 1999 to 10.8 in 2004 while the fraction of independent directors increased from 78% to 80%. In addition, the proportion of S&P 500 firms with dual CEO-chairs declined from 80% in 1999 to 74% in 2004 and the fraction with classified boards declined from 62% to 45% during the same period.[3]

We use the evidence from Chhaochharia and Grinstein (2007a) and Chhaochharia and Grinstein (2007b) as well as the trends observed above to create our instrument. We interact

[3] These figures are from the 2009 Spencer Stuart Board Index, available on the Internet at http://content.spencerstuart.com/sswebsite/pdf/lib/SSBI2009.pdf

board index at the beginning of the sample period (i.e., 1994)[4] with a post-SOX dummy that equals 1 for all years after 2003, 0 for other years. The intuition is that banks with lower initial board index will have a greater regulation-induced improvement in board characteristics in the post-2003 period than banks with higher initial board index (since they already have stronger board characteristics). We control our IV analysis for both the initial value of the board index, so that our results are not driven by serial persistence in board characteristics, and year dummies, so that our results are not driven by secular changes in governance over time. Thus, after all the controls are properly set (note that instruments have to be exogenous *conditional* on all control variables), the instrument reflects that greater differential effect of an exogenous improvement in board effectiveness over time for previously less effective boards relative to previously more effective boards. We restrict our sample period to start from 1999 so that we can have at least 4 years between the initial board index measure and our analysis period.[5]

The results of two-stage least squares (2SLS) analysis are reported in Table 3. Column (1) reports the first stage where board index is the dependent variable. As described above, the instrument is board index at 1994 interacted with a post-SOX dummy. The instrument has a negative coefficient estimate, consistent with the idea that banks with higher initial board index (i.e., at 1994) have lower increases after 2003. Another way to interpret this coefficient is that banks with worse board characteristics (reflected by a lower initial board index) have the highest increases in board index after 2003. This differential impact over time for banks with lower board index versus those with higher board index is consistent with the results in Chhaochharia and Grinstein (2007b). Note that the instrument is strong—the first stage *F*-statistic is 194.44 and it is statistically significant at the 1% level.

[4] For some banks, we could not find all the variables as of 1994, and in those cases we used the variables as of 1995.
[5] Our first-stage results become even stronger when we incorporate all years after 1995.

Column (2) of Table 3 reports the second stage of the 2SLS analysis. Consistent with earlier results, we find that banks with higher board index lend to less risky borrowers. Our prior results are therefore unlikely to be driven by unobservable variables that affect board characteristics of banks and their risk-taking behavior. Rather, they suggest that better bank governance leads to lower risk-taking in lending to commercial and industrial borrowers.

### *4.2. Additional robustness checks*

Table 4 reports results of various robustness checks for our investment grade probit regressions. One concern is that our results are driven by the recent financial crisis of 2008. We address this by estimating an additional regression where we exclude 2007 and 2008 from the sample. Column (1) of Table 4 reports results of this regression and indicates that our results hold with this subsample.

Another concern is that our investment grade rating results are driven by the exclusion of non-rated firms. Thus, we conduct our investment grade probit analysis for the whole sample that includes both rated and unrated firms. The dependent variable equals 1 for investment grade borrowers and 0 for non-investment grade and unrated borrowers. As Column (2) of Table 4 shows, results are very similar to those obtained in regressions that exclude unrated borrowers.

As described earlier, standard errors in our main regressions are corrected for borrower level clustering. Since our data are at the bank-borrower-year level, we also evaluate the sensitivity of our results to corrections for clustering along other dimensions. Thus, we repeat our investment grade probit analysis while clustering standard errors at the borrower-year level, bank

level only, and borrower-bank level in Columns (3), (4), and (5) of Table 4.[6] We find that our results remain similar across all these specifications.

An alternative explanation for our results is that they are driven by other factors such as loan loss reserves set aside by the bank, or lending style of banks in terms of syndicates, covenant use, and even loan amount. Thus, we estimate additional regressions where we control for each of the following variables: natural log of loan loss reserves to assets ratio of the bank, weighted fraction of syndicated loans per borrower, weighted average of the number of syndicate partners, weighted average number of net worth covenants used in a particular borrower-year, weighted average number of financial covenants used in a particular borrower-year, and natural log of the total loan to a particular borrower-year. As mentioned before, in order to aggregate up loan facility data to the borrower-year level, the variables above are weighted by the loan facility amount. The last column of Table 4 shows that our results are unaffected by including these control variables, which suggests that our results are not driven by bank or loan characteristics.

### *4.3. Banking industry distress and lending risk.*

Our results thus far indicate that effective bank boards reduce risk-taking in lending decisions. Yet it seems counterintuitive that a value-maximizing board would reduce the riskiness of corporate investments since shareholders face a convex payoff function. This suggests that bank boards likely play a more nuanced role than our preceding results suggest. Specifically, since bank directors may owe a fiduciary duty of care and loyalty to an extended class of stakeholders with differing payoffs, it seems plausible that an effective board may act differently depending on the potential for stakeholders to suffer losses. In general, the likelihood

[6] We thank Mitchell Peterson for making his double-clustering Stata routine available online. See Petersen (2009) for more details.

of losses is higher when the banking industry is distressed; therefore, we examine the role of bank boards in risk-taking behavior during good and bad times for the banking industry. Our hypothesis is that effective bank boards are more likely to restrict risk-taking in times of higher distress in the banking sector. This may happen if such boards consider protecting their depositors and taxpayers as part of their mandate, with such a role being more important when depositors' capital is at significant risk. We focus on banking industry distress rather than distress at the individual bank level for two reasons. First, bank level distress can be idiosyncratic and related to governance in an endogenous manner. Second, analyzing how bank boards react in good and bad times for the sector is more relevant for the broader question of the role of bank governance during times of financial crises, which is a particularly timely issue.

Our primary proxy for banking industry distress is a binary variable that equals 1 for years when total loan charge-off to assets ratio for all U.S. banks is higher than the sample median, 0 for other years. We obtain data on bank loan charge-offs from Call Reports. As an alternative measure, we also use a dummy variable that equals 1 if the number of bank failures (obtained from the FDIC web site) in a given year is greater than the sample median, 0 otherwise. We show the distribution of these variables over time in Figure 1. As the figure suggests, the two variables are fairly highly correlated, with a correlation coefficient of 0.61.

Table 5 reports results of our investment grade probit analysis during high and low banking distress periods. We replace the board index variable with two interaction variables: one where board index is interacted with the dummy for years with high banking distress and the other where the board index is interacted with the dummy for years with low banking distress. Column (1) of Table 5 reports results using loan charge-offs as the measure of banking industry distress. We find evidence that board index is positively related with lending to investment grade

borrowers during times of high financial distress in the banking industry. In contrast, there is no relation between bank board structure and risk-taking during normal times when the banking industry is not distressed. The last row shows that the difference in the coefficient estimates of the two interaction terms is statistically significant at the 1% level.

There may be a concern about interpreting the interaction effects of probit coefficients in a literal manner (see, e.g., Ai and Norton (2003)). We address such concerns by calculating marginal probabilities and their standard errors, while explicitly accounting for the interaction terms in the probit model. This analysis also allows us to test probabilities across coefficients.[7] Our analysis indicates that, consistent with the coefficient estimates, a third quartile bank on board index is 8.1 percentage points more likely than a first quartile bank to lend to an investment grade borrower when the banking industry is in distress. The differential is statistically significant at the 1% level. On the other hand, the corresponding probability change when the banking industry is not in distress is statistically and economically insignificant (probability change of 0.5 percentage points with a z-test p-value of 0.67). Finally, the difference between the change in probability of lending to an investment grade borrower in high distress years and that for low distress years is also statistically significant at the 1% level. We also conduct a linear probability model analysis (unreported, but available from authors upon request), which finds qualitatively similar results as the probit model.

Column (2) of Table 5 reports probit regression results using bank failures as a proxy for banking industry distress. Results are similar to those in Column (1). Economically, during years of higher-than-median bank failures, an inter-quartile increase in board index is associated with a

[7] In other words, the interaction term is not pre-created, but rather defined as an interaction term in the Stata probit command. This allows the program to interpret the coefficient on the interaction term correctly. We then use the margins command in Stata to interpret the marginal probabilities across the values of board index and the banking distress dummy variable that we are interested in. In this manner, we are able to explicitly account for the interaction term in our model.

statistically significant increase of 7.5 percentage points in the probability of lending to investment grade borrowers. In contrast, board index has no statistically significant impact on borrower risk during years of lower-than-median bank failures.[8]

In Table 6, we conduct various robustness checks analogous to those reported in Table 4. Columns (1) through (5) of the table shows results for alternative measures of borrower risk and documents similar results to the regression using investment grade versus non-investment grade rating as the measure of borrower risk. In Column (6), we exclude the latest financial crisis and find that our results hold in this sub-sample, suggesting that our results are not driven by the great recession of 2008. In untabulated tests, we correct standard errors for clustering in different ways and find that our results are robust to these alternative specifications. Our results also remain unchanged when we include various additional bank and loan controls.

Overall, these results suggest that bank board effectiveness affects risk-taking when the banking industry is distressed and shareholders as well as depositors face the risk of losses. In contrast, there is no evidence that bank boards affect risk-taking when depositors are not exposed to higher risks. Nevertheless, we recognize that these results establish association rather than causation. Thus, we conduct additional analysis to strengthen a causal interpretation of our findings. In the first set of tests, we employ the regulation-induced variation in board quality following SOX as an instrument for board effectiveness. In the second, we employ the Russian default of 1998 as a proxy for U.S. banking industry distress to address the concern that some unobservable factors related to banking industry distress can affect the risk-taking behavior of banks and perhaps their governance. Since the Russian default is exogenous to U.S. economic

[8] Given the similarity of these results to those in Column (1), the rest of the paper reports results of tests using loan charge-offs to assets ratio as our measure of banking industry distress to conserve space.

conditions, this also allows us to attenuate the concern that our results are driven by broader economic conditions that affect the relation between bank board effectiveness and risk-taking.

*4.3.1 Industry distress and board effectiveness: IV analysis*

Here, we follow the same framework as we did earlier in section 4.1. Specifically, we instrument our two endogenous variables (i.e., the interaction of board index and industry distress dummy and the interaction of board index and no-distress dummy) by interacting our instrument from the earlier analysis (i.e., board index at 1994*Post-SOX) with the high- and low-charge off indicator variables.

We report two first stages (one for each endogenous variable) in Columns (1) and (2) of Table 7. In both first-stage models, the instruments are strong predictors of the first stage dependent variables—the first-stage F-statistics reported in the penultimate row are large and highly significant. Further, the second stage results mirror those in the probit analyses in the previous section. That is, banks with higher board indexes are more likely to lend to investment grade borrowers but only in high banking industry distress years. The coefficient on the Board index*Distress variable is statistically significant whereas that on Board index*No-distress is not and the difference between the two coefficients is significant at the 1% level. Thus, our main result is robust to controlling for potential endogeneity between bank board effectiveness and bank risk-taking behavior.

*4.3.2. Industry distress and board effectiveness: Using Russian default of fall 1998*

The Russian default began with an announcement on August 17, 1998 of the Russian government's intention to default on its debt obligations (see, e.g., Kho, Lee, and Stulz (2000)). Subsequently, related events such as the announcement of the suspension of ruble trading on August 28, 1998, and massive capital flight from Brazil on September 3, 1998 resulted in a

severe financial crisis in the U.S. during mid-August and early September 1998. Many U.S. banks had substantial exposure to these two countries, which exposed them to significant losses and liquidity constraints during this short period and resulted in a significant loss of equity capital.[9] Since the decisions of the Russian government to default on its debt obligations and to suspend its currency's convertibility were exogenous to the U.S. economy, this event was a plausibly exogenous shock to the U.S. banking sector that put it under considerable distress.

We reshape our data to the borrower-bank-month level and analyze how bank board effectiveness affected borrower risk just before versus just after the Russian crisis. We conduct this analysis by restricting our sample period to within 3 months before to 3 months after the default (i.e., from May 1998 to October 1998). We also perform this analysis for 4 months before and after the Russian default, as well as with the sample of borrowers between 1996 and 2000. In each case, we define the banking industry distress period as the post-Russian default period, that is, August 1998 and beyond.

There are multiple advantages to looking at a small time frame around the Russian default date. First, such a restriction makes it less likely that other factors related to the economy affect our results. Second, for a short period around the default date, board index is pre-determined and cannot change, thus providing a cleaner test of the relation between board effectiveness and bank risk-taking during distress periods.

Table 8 reports the results of this analysis. Board index interacted with the post-Russian default dummy variable represents the effect of board index on risk-taking by banks after the Russian default. Similarly, board index interacted with the pre-Russian default dummy variable

[9] Gatev, Schuermann, and Strahan (2006) show that bank stocks performed very poorly during this period, losing over 10% of market capitalization in a short window. Accounting-based measures also indicate that the banking sector's financial health was under tremendous pressure in late August and early September 1998. Chava and Purnanandam (2011) use the Russian Crisis as an exogenous shock to the U.S. banking system to study the effect of banking crisis on bank-dependent borrowers

represents the effect of board index on risk-taking by banks before the Russian default. Column (1) of Table 8 reports the probit regression results for the sample restricted to 6 months centered on the Russian default. Our results are consistent with previous tests, and indicate that board index is positively related to lending to investment grade borrowers during the post-Russian default period while the relation is not statistically significant in the pre-default period. We also find similar results in the 4 month cut-off period and the 1996-2000 sample (Columns (2) and (3) of Table 10). Moreover, the coefficient estimates on the interaction terms are statistically different (difference reported in the last row).

We evaluate the robustness of these results by conducting placebo tests used in difference-in-differences type analyses that employ exogenous events as natural experiments (see, e.g., Roberts and Whited (2011)). In particular, we repeat our analysis using a falsified Russian default month by (falsely) redefining default to four months prior to the actual default date and keeping the sample within 3 months before and 3 months after the falsified date. We present results of this test in Column (4) of Table 8. As the table shows, the interaction term for board index and the (falsified) post-Russian default period is not significant. Recall that this interaction term is significant at the 5% level or better when we employ the actual default date. In addition, the interaction terms for board index and pre-/post- falsified default date are not significantly different from each other, which again contrasts with our earlier results using the actual default date. Overall, these results suggest that our findings are not driven by secular changes in the relation between board index and bank risk-taking.

### *4.4. Bank-year level tests*

Our tests thus far have all been conducted at the borrower-year level. The primary benefit of this approach is that it allows us to use the information contained in loans to each borrower.

However, since each bank originates loans to multiple borrowers in each year, this raises the concern that our results could be biased by the replication of the same bank-level data for multiple borrowers in each year. We address this concern in this section by performing our analyses at the bank-year level, thus ensuring that each bank has only one observation per year. We aggregate borrower-level variables to the bank level by averaging over borrowers for each bank for each year. For example, we define bank-level investment grade rated borrower as the fraction of each bank's borrowers in a given year that are investment grade rated. We then conduct OLS and fractional logit analyses with the fraction of investment grade rated borrowers as the dependent variable. These regressions also contain year fixed effects with standard errors clustered by bank. Further, since the observations are aggregated across different number of borrowers, we weight each observation by the number of borrowers for a bank-year.

We report results in Table 9. Columns (1) and (3) show that board index is positively related with the fraction of investment grade borrowers in OLS and fractional logit regressions, respectively. Thus, our basic results on the impact of board effectiveness on lending risk-taking continues to hold in this sample. Similarly, Columns (2) and (4) show that our results on the disparate impact of board effectiveness on lending risk-taking during normal and distressed times remain unchanged as well. Overall, these results suggest that our findings are not dependent on the use of borrower-level data.

### *4.5. Board effectiveness, monitoring intensity, and lending risk*

Are our results indeed reflective of more stringent board monitoring during distress periods? We provide additional evidence by analyzing how measures of board monitoring intensity affect the relation between board effectiveness and borrower risk. We measure the

intensity of board monitoring over credit decisions using an indicator variable that equals 1 if the bank has a board-level credit committee as disclosed in its proxy filings, 0 otherwise. We presume that the presence of such a committee indicates that the board is more directly involved in credit decisions.

First, we regress our board index measure on the credit committee indicator variable. Note that we continue to use bank-year data, as in the previous section, and control for year fixed effects as well as cluster standard errors at the bank level. We report results of this probit model in Column (1) of Table 10. We find that more effective boards are more likely to have a credit committee, consistent with the idea that such boards are more likely to take a hands-on role in monitoring credit risk.

In Columns (2) and (3), we report results of OLS regressions for banks with and without a credit risk committee, respectively. Since the dependent variable is the fraction of investment grade borrowers, we weight observations by the number of borrowers in each bank-year. We also correct standard errors for bank-level clustering. The two independent variables of interest are the interaction terms between board index and the indicator variables for distressed and non-distressed years. As Table 10 shows, banks with more effective boards originate less risky loans during years when the banking industry is distressed, regardless of whether the board has a credit risk committee. However, the effect is stronger among banks with a credit risk committee. For such banks, an increase of one point in board effectiveness is associated with an increase of 10.1 percentage points in the fraction of loans to investment grade borrowers. The corresponding effect for banks without a credit risk committee is an increase of only 3.1 percentage points. The difference in impact is statistically significant at the 10% level.

More interestingly, Table 10 shows that the presence of a board-level credit risk committee significantly moderates the relation between board effectiveness and lending risk-taking during normal times in the banking industry. Among banks with no credit risk committees, board effectiveness has no impact on the fraction of loans originated to investment grade borrowers during years when the banking industry is not distressed. In contrast, the fraction of investment grade loans declines with board effectiveness among banks that have a credit risk committee. The coefficients imply that an increase of one point in board effectiveness is associated with a decrease of 7.6 percentage points in the fraction of loans to investment grade borrowers. Thus, more effective boards with credit risk committees increase lending to non-investment grade borrowers during periods when such lending is less likely to impair the safety and soundness of the bank. Results in columns (4) and (5) where we use fractional logit models are similar.

These results suggest that effective bank boards with credit risk committees do not simply focus on minimizing risk, but rather optimize risk based on external market conditions. During periods of banking industry distress, these banks focus their lending on less risky borrowers, which allows them to reduce their exposure to failure risk. In contrast, when the industry is healthy and thus the risk of failure is lower, they optimize their loan portfolios by increasing loans to relatively riskier borrowers. In all, our results suggest that bank boards matter for risk-taking, especially when the board engages in more intense monitoring.

## 5. Conclusion

A prominent question that arose out of the recent financial crisis is the role of corporate governance and board oversight in banks' lending practices. Although many commentators

blamed the crisis on speculative lending facilitated by lax board oversight, there are no large scale empirical studies linking bank governance and risky lending practices. The primary goal of this paper is to fill this void.

We find that banks with more effective boards are less likely to lend to risky commercial borrowers and that this reduction in risk-taking only happens during times of distress in the banking industry. Thus, it appears unlikely that bank boards have a static policy when monitoring risk-taking. Instead, bank boards become actively involved in reducing risk-taking when such risk can have a substantial adverse impact on the bank's financial health. This result may reflect bank boards taking steps to mitigate losses to depositors and taxpayers when the risk of loss to these stakeholders is the greatest.

The role of bank boards and corporate governance in bank risk-taking is complicated by the debate on whether bank boards should consider the effect of risk-taking on depositors and tax-payers. Traditional corporate governance view, however, consider shareholders to be paramount. Our evidence suggests that bank boards respond to this dichotomy by actively minimizing risk-taking, but only during times of distress in the banking industry. These results highlight the significant role that effective bank boards can play in mitigating lending risk and potentially stabilizing the financial system. They also suggest that the structure of bank boards is an important policy variable that goes beyond the traditional goal of minimizing agency problems between shareholders and managers.

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## Appendix: Variable Definitions

| Variable Name | Description |
|---|---|
| Board index | This variable takes the values 0, 1, 2, 3, or 4 based on the following logic. We add one point to the index for each of the following conditions: if the board independence or board size is higher than the sample median, we add one to the index; or if the CEO not is chair; or board is not classified (staggered). Thus, a greater value of the index represents greater board effectiveness. |
| Fraction of indep. directors | Fraction of directors that are considered independent. group (winsorized at the 1st and 99th percent level). |
| Board size | Number of directors on the board |
| CEO is chair | A dummy variable that is 1 if the CEO is also the chairperson of the board, 0 otherwise. |
| Staggered board | A dummy variable that if board members are elected to staggered terms, 0 otherwise. |
| Fraction of outside CEOs | Fraction of all directors that are current CEOs of other firms. |
| Indep. dir. ownership | Percentage of shares owned by independent directors as a group (winsorized at the 1st and 99th percent level). |
| Golden parachute | A dummy variable equal to one if the CEO has a Golden parachute severance term, 0 otherwise. |
| CEO equity comp | Fraction of CEO total compensation awarded as equity (stock and option) |
| CEO ownership | Percentage of shares owned by the CEO (winsorized at the 1st and the 99th percent level). |
| Bank assets | Total bank assets in billions of dollars. |
| Bank SD returns | Standard deviation of monthly stock returns in the prior year. |
| Bank MB ratio | Market value of assets divided by book value of assets. |
| Bank equity to assets | Book value of equity for the bank divided by the total book value of assets. |
| Investment grade | Dummy variable that is 1 if a borrower has S&P long-term credit rating of BBB or higher in a given year, 0 otherwise. |
| Rated | Dummy variable that is 1 if a borrower has an S&P long-term credit rating in a given year, 0 otherwise. |
| Assets | Book value of the borrower in billions of dollars. |
| ROA | Operating income divided by book value of total assets of the borrower. |
| Prior relationship | Dummy variable that is 1 if the borrower has a prior loan from the bank in the past five years. |

**Table 1: Summary Statistics**

This table reports the summary statistics for the banks and borrowers in the sample. The sample includes all loans from publicly traded banks made between 1994 and 2008. The data is obtained from a combination of data from the Federal Reserve Bank of New York, Compustat, CRSP, Riskmetrics IRRC, Dealscan, SEC filings, and National Information Center (NIC). Panel A reports bank characteristics and Panel B reports Borrower Characteristics. The variables are defined in the appendix.

Panel A: Bank characteristics

| Variable | 25th pct | Mean | Median | 75th pct | Std. dev. | Count |
|---|---|---|---|---|---|---|
| Board effectiveness index | 1 | 1.7 | 2 | 2 | 0.819 | 340 |
| Fraction of independent directors | 0.625 | 0.714 | 0.722 | 0.815 | 0.121 | 340 |
| Board size | 12 | 15.229 | 15 | 18 | 4.146 | 340 |
| CEO is chair | 0 | 0.747 | 1 | 1 | 0.435 | 340 |
| Staggered board | 0 | 0.544 | 1 | 1 | 0.499 | 340 |
| Fraction of outside CEOs | 0.167 | 0.278 | 0.273 | 0.389 | 0.159 | 340 |
| Indep. dir. ownership (%) | 0 | 0.846 | 0.145 | 1.5 | 1.152 | 340 |
| Golden parachute | 1 | 0.779 | 1 | 1 | 0.415 | 340 |
| CEO equity comp | 0.24 | 0.398 | 0.403 | 0.573 | 0.245 | 340 |
| CEO ownership (%) | 0.261 | 0.605 | 0.498 | 1.025 | 0.419 | 340 |
| Bank assets ($ Bill.) | 14.010 | 110.912 | 36.364 | 92.240 | 230.396 | 340 |
| Bank SD returns | 0.047 | 0.068 | 0.061 | 0.082 | 0.029 | 340 |
| Bank MB ratio | 1.048 | 1.096 | 1.084 | 1.125 | 0.069 | 340 |
| Bank equity to assets | 0.074 | 0.082 | 0.08 | 0.09 | 0.013 | 340 |

Panel B: Borrower characteristics

| Variable | $25^{th}$ pct | Mean | Median | $75^{th}$ pct | Std. dev. | Count |
|---|---|---|---|---|---|---|
| Investment grade | 0 | 0.314 | 0 | 1 | 0.464 | 16788 |
| Rated | 0 | 0.468 | 0 | 1 | 0.499 | 16788 |
| Assets ($ Bill.) | 0.532 | 6.423 | 1.876 | 6.233 | 13.529 | 8618 |
| ROA | 0.100 | 0.146 | 0.137 | 0.183 | 0.077 | 8559 |
| Prior relationship | 0 | 0.614 | 1 | 1 | 0.487 | 16788 |

**Table 2: Board Effectiveness and Risky Lending: Basic Results**

The regressions in columns (1) and (2) are probit models whose dependent variable equals 1 for borrowers rated BBB or better, 0 for rated borrowers whose ratings are worse than BBB. Column (3) is a probit model whose dependent variable equals 1 for rated borrowers regardless of rating, 0 for unrated borrowers. Columns (4) and (5) are OLS models whose dependent variables are the natural log of borrower assets and sales, respectively. Column (6) is an OLS model whose dependent variable is the borrower's ROA. Borrower assets, sales, and ROA are as of the year preceding loan origination. The main independent variable is *Board index*, which is an increasing index of board effectiveness and takes integer values between 0 and 4. All variables are described in detail in the Appendix. Each model includes year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Probit: Inv grade | Probit: Inv grade | Probit: Rated | OLS: Log borrower assets | OLS: Log borrower sales | OLS: Borrower ROA |
| Board index | 0.145*** | | 0.039** | 0.074** | 0.068** | 0.003** |
| | [0.027] | | [0.018] | [0.030] | [0.030] | [0.001] |
| Fraction of indep. directors | | 0.140 | | | | |
| | | [0.217] | | | | |
| Board size | | -0.022*** | | | | |
| | | [0.008] | | | | |
| CEO is chair | | -0.166*** | | | | |
| | | [0.056] | | | | |
| Staggered board | | -0.156*** | | | | |
| | | [0.058] | | | | |
| Fraction of outside CEOs | 0.675*** | 0.683*** | 0.242** | 0.583*** | 0.607*** | 0.009 |
| | [0.161] | [0.169] | [0.108] | [0.181] | [0.182] | [0.009] |
| Indep. dir. ownership | 0.031 | 0.079*** | -0.038** | -0.026 | -0.003 | -0.001 |
| | [0.022] | [0.027] | [0.016] | [0.030] | [0.030] | [0.001] |
| Golden parachute | -0.150*** | -0.176*** | -0.228*** | -0.226*** | -0.222*** | -0.005 |
| | [0.054] | [0.055] | [0.037] | [0.062] | [0.063] | [0.003] |
| CEO equity comp | 0.194*** | 0.254*** | 0.139*** | 0.126* | 0.194*** | 0.002 |
| | [0.062] | [0.064] | [0.043] | [0.072] | [0.071] | [0.003] |
| CEO ownership | -0.446 | -0.275 | 0.412* | 0.552 | 0.653* | -0.005 |
| | [0.330] | [0.365] | [0.211] | [0.352] | [0.360] | [0.018] |
| CEO ownership sq | 0.197 | 0.060 | -0.533*** | -0.889*** | -0.991*** | -0.012 |
| | [0.307] | [0.328] | [0.175] | [0.279] | [0.292] | [0.016] |
| Log bank assets | 0.028 | 0.036 | 0.095*** | 0.367*** | 0.335*** | -0.003* |
| | [0.032] | [0.037] | [0.021] | [0.034] | [0.033] | [0.002] |
| Bank SD returns | 3.657*** | 3.894*** | 9.164*** | 10.950*** | 9.962*** | 0.012 |
| | [1.207] | [1.189] | [0.832] | [1.328] | [1.376] | [0.062] |
| Bank MB ratio | 1.993*** | 1.509*** | 2.517*** | 5.382*** | 4.801*** | 0.024 |
| | [0.344] | [0.381] | [0.250] | [0.430] | [0.440] | [0.020] |
| Bank equity to assets | 7.092*** | 7.739*** | -1.285 | -1.725 | -2.796 | -0.001 |
| | [2.081] | [2.253] | [1.324] | [2.531] | [2.564] | [0.120] |
| Prior relationship | 0.274*** | 0.283*** | 0.546*** | 0.644*** | 0.647*** | -0.000 |
| | [0.040] | [0.041] | [0.027] | [0.046] | [0.046] | [0.002] |
| Observations | 7,862 | 7,862 | 16,788 | 8,618 | 8,598 | 8,559 |
| Pseudo-$R^2$ / Adj-$R^2$ | 0.103 | 0.102 | 0.085 | 0.217 | 0.193 | 0.048 |

**Table 3: Board Effectiveness and Risky Lending - IV Analysis**

This table presents results of a 2SLS regression. The dependent variable in the first stage, reported in Column (1), is *Board index* (an increasing index of board effectiveness that takes integer values between 0 and 4). The dependent variable in the second stage, reported in Column (2), is *Investment grade* (a dummy variable that equals 1 if the borrower has a long-term rating of BBB and higher from S&P, 0 otherwise). The loans used in this analysis are initiated between 1999 and 2008. *Board index at 1994* is the *Board index* of the bank in 1994 if available, and if not, the *Board index* of the bank in 1995; and *Post-SOX dummy* is a dummy variable for all years after 2003, 0 otherwise. All other variables are described in detail in the Appendix. Each model is estimated with year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) |
|---|---|---|
| | First stage | Second stage |
| | Board index | Investment grade |
| Board index | | 0.282*** |
| | | [0.066] |
| Board index at 1994 | 0.590*** | -0.171*** |
| | [0.036] | [0.036] |
| Fraction of outside CEOs | 1.252*** | -0.263* |
| | [0.174] | [0.157] |
| Indep. dir. ownership | 0.318*** | -0.055** |
| | [0.025] | [0.026] |
| Golden parachute | 0.081 | -0.087** |
| | [0.059] | [0.043] |
| CEO equity comp | 0.840*** | -0.233*** |
| | [0.076] | [0.083] |
| CEO ownership | -0.301 | -0.337 |
| | [0.393] | [0.244] |
| CEO ownership sq | 0.641* | 0.135 |
| | [0.372] | [0.191] |
| Log bank assets | -0.140*** | 0.046* |
| | [0.037] | [0.027] |
| Bank SD returns | 3.024*** | 2.104*** |
| | [0.908] | [0.639] |
| Bank MB ratio | -1.705*** | 1.372*** |
| | [0.184] | [0.226] |
| Bank equity to assets | -28.527*** | 4.342** |
| | [2.846] | [1.860] |
| Prior relationship | -0.014 | 0.130*** |
| | [0.012] | [0.019] |
| Board index at 1994*Post-SOX | -0.311*** | |
| | [0.022] | |
| Observations | 3,916 | 3,916 |
| Adj-$R^2$ | 0.670 | 0.084 |
| First stage F-statistic | 193.441*** | |

**Table 4: Board Effectiveness and Risky Lending – Additional Robustness Checks**

This table presents results of probit regressions where the dependent variable equals 1 if the borrower is rated as BBB or higher at loan initiation, 0 if rated lower. The main independent variable is *Board index*, which is an increasing index of board effectiveness that takes integer values between 0 and 4. Column (1) reports the results for the subset of loans originated prior to 2007; Column (2) reports the results that includes unrated firms with the dependent variable being 0 for such firms; Columns (3), (4), and (5) report results where standard errors are clustered by borrower and year, bank, and borrower and bank levels, respectively; Column (6) reports results with additional bank and loan control variables. These additional variables are *Loan loss reserves*, which is the log of a bank's loan loss reserves to total assets ratio; *Syndicate participants*, which is the weighted average of the number of syndicate participants of all facilities borrowed by a borrower from a bank in a given year; *Syndicated loan*, which is the weighted average of a syndicated loan dummy across all facilities borrowed by a borrower from a bank in a given year; *Net worth covenants*, which is the weighted average of the number of net worth covenants across all facilities borrowed by a borrower from a bank in a given year; *Financial covenants*, which is the weighted average of the number of financial covenants across all facilities borrowed by a borrower from a bank in a given year; and *Loan amount*, which is the log of the total value of all facilities. Weighted average variables are calculated using facility amount as weights. All other variables are described in detail in the Appendix. Each model is estimated with year and borrower industry fixed effects. Robust standard errors clustered as noted are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Table 4 continued

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Pre-2007 loans | Investment grade loans vs. all else | Clustered by borrower and year | Clustered by bank | Clustered by borrower and bank | Additional controls |
| Board index | 0.138*** | 0.114*** | 0.145*** | 0.145** | 0.145** | 0.147*** |
| | [0.028] | [0.019] | [0.054] | [0.059] | [0.059] | [0.032] |
| Fraction of outside CEOs | 0.694*** | 0.565*** | 0.675** | 0.675** | 0.675*** | 0.786*** |
| | [0.164] | [0.116] | [0.272] | [0.270] | [0.261] | [0.186] |
| Indep. dir. ownership | 0.031 | -0.008 | 0.031 | 0.031 | 0.031 | -0.020 |
| | [0.022] | [0.017] | [0.023] | [0.063] | [0.062] | [0.027] |
| Golden parachute | -0.156*** | -0.233*** | -0.150** | -0.150 | -0.150* | -0.070 |
| | [0.054] | [0.038] | [0.069] | [0.092] | [0.087] | [0.079] |
| CEO equity comp | 0.168*** | 0.219*** | 0.194*** | 0.194* | 0.194* | 0.161** |
| | [0.063] | [0.045] | [0.062] | [0.108] | [0.103] | [0.071] |
| CEO ownership | -0.422 | -0.064 | -0.446 | -0.446 | -0.446 | -1.714*** |
| | [0.334] | [0.223] | [0.714] | [0.729] | [0.718] | [0.486] |
| CEO ownership sq | 0.199 | -0.143 | 0.197 | 0.197 | 0.197 | 1.297*** |
| | [0.310] | [0.184] | [0.575] | [0.565] | [0.558] | [0.439] |
| Log bank assets | 0.037 | 0.100*** | 0.028 | 0.028 | 0.028 | -0.126*** |
| | [0.033] | [0.022] | [0.050] | [0.061] | [0.060] | [0.045] |
| Bank SD returns | 3.500*** | 8.167*** | 3.657** | 3.657 | 3.657 | 0.703 |
| | [1.214] | [0.856] | [1.782] | [2.419] | [2.370] | [1.433] |
| Bank MB ratio | 2.011*** | 3.068*** | 1.993*** | 1.993*** | 1.993*** | 1.105*** |
| | [0.347] | [0.265] | [0.387] | [0.598] | [0.568] | [0.374] |
| Bank equity to assets | 6.787*** | 4.019*** | 7.092*** | 7.092*** | 7.092*** | 7.105*** |
| | [2.116] | [1.513] | [2.231] | [2.307] | [2.211] | [2.655] |
| Prior relationship | 0.275*** | 0.533*** | 0.274*** | 0.274*** | 0.274*** | 0.118** |
| | [0.041] | [0.028] | [0.065] | [0.086] | [0.087] | [0.046] |
| Loan loss reserves | | | | | | -0.059*** |
| | | | | | | [0.023] |
| Syndicate participants | | | | | | 0.121 |
| | | | | | | [0.106] |
| Syndicated loan | | | | | | -0.160 |
| | | | | | | [0.190] |
| Net worth covenants | | | | | | -0.106 |
| | | | | | | [0.079] |
| Financial covenants | | | | | | -0.438*** |
| | | | | | | [0.025] |
| Loan amount | | | | | | 0.478*** |
| | | | | | | [0.031] |
| Observations | 7,713 | 16,759 | 7,862 | 7,862 | 7,862 | 7,254 |
| Pseudo-$R^2$ | 0.101 | 0.119 | 0.103 | 0.103 | 0.103 | 0.292 |

**Table 5: Banking Industry Distress and Risky Lending**

This table presents results of probit regressions where the dependent variable equals 1 if the borrower is rated as BBB or higher at loan initiation, 0 if rated lower. The main independent variables are *Board index*Distress* and *Board index*No-distress*. *Board index* is an increasing index of board effectiveness and takes integer values between 0 and 4. In Column (1), *Distress* equals 1 if the ratio of net loans and leases charge-off to total assets for all banks during the year is greater than the median of all sample years, 0 otherwise. In Column (2), *Distress* equals 1 if the number of bank failures in a year is greater than the median for all sample years, 0 otherwise. *No-distress* in both columns is one minus *Distress*. All other variables are described in detail in the Appendix. All models are estimated with year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) |
|---|---|---|
| | Distress = High loan charge-offs | Distress = High bank failures |
| Board index*Distress | 0.251*** | 0.231*** |
| | [0.033] | [0.034] |
| Board index*No-distress | 0.015 | 0.054 |
| | [0.036] | [0.035] |
| Fraction of outside CEOs | 0.650*** | 0.601*** |
| | [0.163] | [0.165] |
| Indep. dir. ownership | 0.022 | 0.033 |
| | [0.022] | [0.022] |
| Golden parachute | -0.169*** | -0.169*** |
| | [0.054] | [0.054] |
| CEO equity comp | 0.177*** | 0.150** |
| | [0.062] | [0.063] |
| CEO ownership | -0.697** | -0.544 |
| | [0.337] | [0.333] |
| CEO ownership sq | 0.411 | 0.268 |
| | [0.315] | [0.308] |
| Log bank assets | 0.021 | 0.029 |
| | [0.032] | [0.032] |
| Bank SD returns | 2.893** | 3.929*** |
| | [1.222] | [1.223] |
| Bank MB ratio | 2.211*** | 2.161*** |
| | [0.349] | [0.346] |
| Bank equity to assets | 6.207*** | 7.455*** |
| | [2.102] | [2.113] |
| Prior relationship | 0.292*** | 0.283*** |
| | [0.041] | [0.041] |
| Observations | 7,862 | 7,862 |
| Pseudo-$R^2$ | 0.106 | 0.105 |
| Board index*Distress – Board index*No-distress | 0.236*** | 0.177*** |

**Table 6: Banking Industry Distress and Risky Lending – Robustness Checks**

Dependent variables are reported in the first row. The main independent variables are *Board index*Distress* and *Board index*No-distress*. *Board index* is an increasing index of board effectiveness that takes integer values between 0 and 4. *Distress* equals 1 if the ratio of net loans and leases charge-off to total assets for all banks during the year is greater than the median of all sample years, 0 otherwise. *No-distress* equals one minus *Distress*. All other variables are described in detail in the Appendix. All models are estimated with year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Probit: Rated borrower | Investment grade loans vs. all else | OLS: borrower assets | OLS: borrower sales | OLS: borrower ROA | Pre-2007 loans |
| Board index*Distress | 0.146*** | 0.243*** | 0.172*** | 0.161*** | 0.005*** | 0.245*** |
| | [0.022] | [0.023] | [0.039] | [0.039] | [0.002] | [0.033] |
| Board index*No-distress | -0.108*** | -0.065*** | -0.052 | -0.050 | 0.001 | 0.008 |
| | [0.023] | [0.025] | [0.036] | [0.037] | [0.002] | [0.036] |
| Fraction of outside CEOs | 0.209* | 0.519*** | 0.552*** | 0.580*** | 0.008 | 0.664*** |
| | [0.109] | [0.116] | [0.181] | [0.182] | [0.009] | [0.165] |
| Indep. dir. ownership | -0.044*** | -0.016 | -0.035 | -0.012 | -0.001 | 0.022 |
| | [0.016] | [0.017] | [0.030] | [0.030] | [0.001] | [0.022] |
| Golden parachute | -0.254*** | -0.269*** | -0.252*** | -0.246*** | -0.005* | -0.174*** |
| | [0.037] | [0.038] | [0.062] | [0.063] | [0.003] | [0.054] |
| CEO equity comp | 0.122*** | 0.192*** | 0.099 | 0.168** | 0.001 | 0.155** |
| | [0.043] | [0.045] | [0.073] | [0.071] | [0.004] | [0.063] |
| CEO ownership | 0.265 | -0.288 | 0.383 | 0.494 | -0.008 | -0.690** |
| | [0.212] | [0.222] | [0.356] | [0.363] | [0.018] | [0.341] |
| CEO ownership sq | -0.407** | 0.046 | -0.752*** | -0.862*** | -0.010 | 0.423 |
| | [0.176] | [0.183] | [0.284] | [0.296] | [0.016] | [0.319] |
| Log bank assets | 0.091*** | 0.092*** | 0.362*** | 0.330*** | -0.003* | 0.027 |
| | [0.021] | [0.022] | [0.034] | [0.033] | [0.002] | [0.033] |
| Bank SD returns | 8.431*** | 7.171*** | 10.008*** | 9.072*** | -0.005 | 2.749** |
| | [0.841] | [0.868] | [1.353] | [1.403] | [0.063] | [1.228] |
| Bank MB ratio | 2.706*** | 3.283*** | 5.550*** | 4.958*** | 0.027 | 2.230*** |
| | [0.252] | [0.266] | [0.433] | [0.444] | [0.020] | [0.351] |
| Bank equity to assets | -2.255* | 2.771* | -2.686 | -3.691 | -0.018 | 5.924*** |
| | [1.333] | [1.523] | [2.525] | [2.562] | [0.121] | [2.136] |
| Prior relationship | 0.566*** | 0.558*** | 0.657*** | 0.659*** | -0.000 | 0.293*** |
| | | [0.029] | [0.046] | [0.046] | [0.002] | [0.041] |
| Observations | 16,788 | 16,759 | 8,618 | 8,598 | 8,559 | 7,713 |
| Pseudo-$R^2$ / Adj-$R^2$ | 0.088 | 0.124 | | | | 0.104 |
| Board index*Distress – Board index*No-distress | 0.254*** | 0.309*** | 0.224*** | 0.211*** | 0.004*** | 0.237*** |

**Table 7: Banking Industry Distress and Risky Lending - IV analysis**

This table presents results of a 2SLS regression. The dependent variables in the first stages, reported in Columns (1) and (2), are *Board index*Distress* and *Board index*No-distress*, respectively. *Board index* is an increasing index of board effectiveness that takes integer values between 0 and 4. *Distress* equals 1 if the ratio of net loans and leases charge-off to total assets for all banks during the year is greater than the median of all sample years, 0 otherwise. *No-distress* equals one minus *Distress*. The dependent variable in the second stage, reported in Column (3), is *Investment grade*, which equals 1 if the borrower is rated as BBB or higher at loan initiation, 0 if rated lower. The loans used in this analysis are initiated between 1999 and 2008. *Board index at 1994* is the *Board index* of the bank in 1994 if available, and if not, *Board index* of the bank in 1995; *Post-SOX* equals 1 for all years after 2003, 0 otherwise. All other variables are described in detail in the Appendix. All models are estimated with year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) |
|---|---|---|---|
| | First stage | First stage | Second stage |
| | Board index* Distress | Board index* No-distress | Inv. grade |
| Board index*Distress | | | 0.319*** |
| | | | [0.079] |
| Board index*No-distress | | | -0.031 |
| | | | [0.079] |
| Board index at 1994 | 0.193*** | 0.508*** | -0.044 |
| | [0.023] | [0.031] | [0.039] |
| Fraction of outside CEOs | 0.848*** | 1.138** | -0.103 |
| | [0.124] | [0.127] | [0.136] |
| Indep. dir. ownership | 0.265*** | 0.154*** | -0.039* |
| | [0.021] | [0.023] | [0.023] |
| Golden parachute | 0.352*** | -0.460*** | -0.201*** |
| | [0.036] | [0.050] | [0.069] |
| CEO equity comp | 0.555*** | -0.023 | -0.191** |
| | [0.053] | [0.061] | [0.074] |
| CEO ownership | 0.655* | -0.811*** | -0.648** |
| | [0.390] | [0.306] | [0.299] |
| CEO ownership sq | -0.136 | 0.681** | 0.375 |
| | [0.351] | [0.284] | [0.236] |
| Log bank assets | 0.098*** | -0.224*** | -0.031 |
| | [0.036] | [0.030] | [0.040] |
| Bank SD returns | 7.310*** | -5.363*** | 0.399 |
| | [0.715] | [0.950] | [0.944] |
| Bank MB ratio | -0.582*** | -0.989*** | 1.053*** |
| | [0.142] | [0.158] | [0.193] |
| Bank equity to assets | -8.785*** | -24.271*** | -1.930 |
| | [2.370] | [2.812] | [2.371] |
| Prior relationship | -0.024*** | 0.009 | 0.134*** |
| | [0.009] | [0.011] | [0.019] |
| Board index at 1994*Post-SOX*Distress | -0.587*** | -0.951*** | |
| | [0.062] | [0.066] | |
| Board index at 1994*Post-SOX*No-distress | -0.278*** | -0.030 | |
| | [0.017] | [0.025] | |
| Observations | 3,916 | 3,916 | 3,916 |
| Adj-$R^2$ | 0.944 | 0.906 | 0.086 |
| First stage F-statistic | 139.707*** | 152.323*** | |
| Board index*Distress – Board index*No-distress | | | 0.350*** |

**Table 8: Banking Industry Distress and Risky Lending - Exogenous change in bank distress due to Russian default in the Fall of 1998**

This table presents results of probit regressions where the dependent variable equals 1 if the borrower is rated as BBB or higher at loan initiation, 0 if rated lower. The main independent variables are *Board index*Post Russian default* and *Board index*Pre Russian default*. *Board index* is an increasing index of board effectiveness that takes integer values between 0 and 4. In Column (1), *Post Russian default* equals 1 if the month of loan initiation is from August 1998 to October 1998, 0 otherwise; and *Pre Russian default* equals 1 if the month of loan initiation is from May 1998 to July 1998, 0 otherwise. In Column (2), *Post Russian default* equals 1 if the month of loan initiation is from August 1998 to November 1998, 0 otherwise; and *Pre Russian default* equals 1 if the month of loan initiation is from April 1998 to July 1998, 0 otherwise. In Column (3), *Post Russian default* equals 1 if the month of loan initiation is from August 1998 to December 2000, 0 otherwise; and *Pre Russian default* equals 1 if the month of loan initiation is from January 1996 to July 1998, 0 otherwise. Column (4) reports results of a placebo test where the post- and pre-Russian default periods are defined relative to a falsified Russian default month that is 4 months before the true default month. All other variables are described in detail in the Appendix. All models are estimated with year and borrower industry fixed effects. Robust standard errors, clustered at the borrower level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

Table 8 continued

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | Base analysis | | | Placebo test |
| | 3 months around August 1998 | 4 months around August 1998 | 1996-2000 sample | Event date falsified to four months prior to August 1998 |
| Board index* Post Russian default | 0.749** | 0.797*** | 0.261*** | |
| | [0.317] | [0.250] | [0.063] | |
| Board index* Pre Russian default | 0.181 | 0.335 | 0.065 | |
| | [0.282] | [0.237] | [0.072] | |
| Board index* Post false Russian default | | | | 0.527 |
| | | | | [0.455] |
| Board index* Pre false Russian default | | | | 0.514 |
| | | | | [0.474] |
| Fraction of outside CEOs | 0.128 | 0.387 | -0.126 | 1.298 |
| | [1.672] | [1.456] | [0.305] | [2.081] |
| Indep. dir. ownership | 0.057 | -0.048 | 0.050 | -0.316 |
| | [0.227] | [0.158] | [0.032] | [0.391] |
| Golden parachute | -0.626 | -1.134 | -0.193** | -2.356 |
| | [1.527] | [1.305] | [0.087] | [2.235] |
| CEO equity comp | 0.813 | 0.961 | 0.239*** | 0.695 |
| | [0.980] | [0.879] | [0.084] | [1.517] |
| CEO ownership | -1.459 | 1.157 | -2.470*** | 6.115 |
| | [9.941] | [5.539] | [0.622] | [8.312] |
| CEO ownership sq | 1.467 | -1.398 | 1.372*** | -5.444 |
| | [11.215] | [3.367] | [0.511] | [4.995] |
| Log bank assets | 0.503 | 0.486 | -0.065 | 0.284 |
| | [0.635] | [0.511] | [0.073] | [0.640] |
| Bank SD returns | -43.773* | -15.411 | -6.108** | 21.128 |
| | [26.390] | [24.316] | [2.951] | [45.506] |
| Bank MB ratio | 4.704 | 7.175 | 2.517*** | 10.240 |
| | [6.728] | [5.714] | [0.547] | [7.412] |
| Bank equity to assets | -40.214 | -41.434 | 8.258*** | -48.176 |
| | [62.087] | [52.499] | [3.084] | [58.625] |
| Prior relationship | -0.238 | 0.019 | 0.104 | -0.158 |
| | [0.218] | [0.185] | [0.079] | [0.201] |
| Observations | 212 | 299 | 2,885 | 251 |
| Pseudo-$R^2$ | 0.173 | 0.140 | 0.122 | 0.115 |
| Board index*Post Russian Default – Board index*Pre Russian Default | 0.568* | 0.462* | 0.196** | 0.013 |

**Table 9: Bank Level Tests**

Columns (1) and (2) report OLS regressions where the dependent variable is the fraction of borrowers rated as BBB or higher at loan initiation. Columns (3) and (4) report fractional logit regressions with the same dependent variable. The main independent variables are *Board index*, *Board index*Distress*, and *Board index*No-distress*. *Board index* is an increasing index of board effectiveness that takes integer values between 0 and 4. *Distress* equals 1 if the ratio of net loans and leases charge-off to total assets for all banks during the year is greater than the median for all sample years. *No- distress* equals one minus *Distress*. All regressions are weighted by the number of borrowers per bank in each year. All other variables are described in detail in the Appendix. All models include year fixed effects. Robust standard errors, clustered at the bank level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| | %Inv grade | %Inv grade | %Inv grade | %Inv grade |
| | OLS | OLS | Fractional logit | Fractional logit |
| Board index | 0.044* | | 0.199* | |
| | [0.024] | | [0.110] | |
| Board index*Distress | | 0.089*** | | 0.443*** |
| | | [0.014] | | [0.066] |
| Board index*No-distress | | -0.014 | | -0.060 |
| | | [0.027] | | [0.110] |
| Fraction of outside CEOs | 0.243** | 0.228** | 1.130** | 1.085*** |
| | [0.101] | [0.090] | [0.462] | [0.403] |
| Indep. dir. ownership | -0.002 | -0.006 | -0.018 | -0.035 |
| | [0.025] | [0.025] | [0.105] | [0.103] |
| Golden parachute | -0.023 | -0.034 | -0.107 | -0.149 |
| | [0.033] | [0.036] | [0.145] | [0.153] |
| CEO equity comp | 0.059 | 0.054* | 0.292 | 0.271** |
| | [0.042] | [0.031] | [0.185] | [0.133] |
| CEO ownership | -0.366 | -0.433 | -1.575 | -1.848* |
| | [0.296] | [0.266] | [1.233] | [1.085] |
| CEO ownership sq | 0.207 | 0.270 | 0.894 | 1.156 |
| | [0.237] | [0.227] | [0.982] | [0.922] |
| Log bank assets | 0.022 | 0.022 | 0.098 | 0.099 |
| | [0.023] | [0.021] | [0.096] | [0.086] |
| Bank SD returns | 1.456 | 1.165 | 7.480 | 6.391 |
| | [1.089] | [0.941] | [5.169] | [4.524] |
| Bank MB ratio | 0.887*** | 0.976*** | 4.142*** | 4.654*** |
| | [0.261] | [0.229] | [1.168] | [1.005] |
| Bank equity to assets | 2.466** | 2.079** | 10.383*** | 8.595** |
| | [0.952] | [0.979] | [3.837] | [3.858] |
| Prior relationship | 0.101 | 0.135 | 0.468 | 0.630* |
| | [0.093] | [0.081] | [0.426] | [0.356] |
| Observations | 228 | 228 | 228 | 228 |
| Adj-$R^2$ | 0.449 | 0.490 | | |
| $Chi^2$ | | | >1000*** | >1000*** |
| Board index*Distress – Board index*No-distress | | 0.103*** | | 0.504*** |

**Table 10: Board Effectiveness, Credit Risk Committees, and Risky Lending**

The regression in column (1) is a logit model predicting the existence of a board-level credit risk committee. The regressions in columns (2) and (3) are weighted OLS models in which the dependent variable is the fraction of loans originated to investment grade rated borrowers, the weights being the number of borrowers per bank per year. The regressions in columns (4) and (5) are weighted fractional logit models with the same dependent variable. *Distress* equals 1 if the ratio of net loans and leases charge-off to total assets for all banks during the year is greater than the median for all sample years, 0 otherwise. *No-distress* equals one minus *Distress*. Other variables are defined in the Appendix. All models include year fixed effects. Robust standard errors, clustered at the bank level, are reported in brackets. *, **, and *** denote statistical significance at 10%, 5%, and 1% levels, respectively.

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| | Probit: Credit risk committee | OLS: %Inv. grade loans | | Fractional logit: %Inv. grade loans | |
| | | Credit risk committee? | | Credit risk committee? | |
| | | Yes | No | Yes | No |
| Board index | 0.298* | | | | |
| | [0.157] | | | | |
| Board index*Distress | | 0.101*** | 0.031* | 0.527*** | 0.129 |
| | | [0.031] | [0.018] | [0.140] | [0.086] |
| Board index*No-distress | | -0.076*** | -0.026 | -0.338*** | -0.162 |
| | | [0.028] | [0.021] | [0.130] | [0.106] |
| Fraction of outside CEOs | 0.518 | 0.139 | 0.002 | 0.809 | -0.036 |
| | [1.059] | [0.124] | [0.115] | [0.501] | [0.509] |
| Fraction of indep. dir. ownership | 0.368*** | 0.007 | -0.014 | 0.042 | -0.067 |
| | [0.124] | [0.035] | [0.018] | [0.161] | [0.082] |
| Golden parachute | 0.025 | -0.022 | -0.014 | -0.071 | -0.040 |
| | [0.370] | [0.066] | [0.029] | [0.288] | [0.124] |
| CEO equity comp | -0.042 | 0.064 | 0.052* | 0.325* | 0.283* |
| | [0.510] | [0.041] | [0.029] | [0.197] | [0.166] |
| CEO ownership | -2.027 | -0.747** | 0.179 | -3.248** | 0.852 |
| | [1.633] | [0.307] | [0.166] | [1.474] | [0.740] |
| CEO ownership sq | 1.513 | 0.460 | -0.168 | 1.968 | -0.756 |
| | [1.158] | [0.316] | [0.167] | [1.406] | [0.724] |
| Log bank assets | 0.523*** | -0.012 | 0.034 | -0.046 | 0.164 |
| | [0.130] | [0.035] | [0.026] | [0.162] | [0.125] |
| Bank SD returns | -3.670 | 2.188 | -0.543 | 13.349 | -2.425 |
| | [5.409] | [1.862] | [0.649] | [8.855] | [3.217] |
| Bank MB ratio | -3.166 | 0.995* | 0.699*** | 5.242 | 3.396*** |
| | [2.359] | [0.587] | [0.136] | [3.299] | [0.623] |
| Bank equity to assets | 6.516 | -0.830 | 3.232*** | -4.455 | 12.768*** |
| | [8.478] | [1.965] | [0.618] | [9.405] | [2.757] |
| Prior relationship | 0.548 | 0.066 | 0.306*** | 0.348 | 1.362*** |
| | [0.436] | [0.115] | [0.060] | [0.512] | [0.261] |
| Observations | 339 | 228 | 228 | 228 | 228 |
| Pseudo / adjusted $R^2$ | 0.272 | 0.497 | 0.569 | | |
| $Chi^2$ | | | | >1000*** | >1000*** |

**Figure 1: Distribution of Banking Distress Variables over Time.**