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Political capital and moral hazard ☆

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ABSTRACT

This paper examines how political connections affect risk exposure of financial institutions. Using a geography-based measure, I find that politically connected firms have higher leverage and their stocks have higher volatility and beta. Furthermore, prior to the 2008 financial crisis, politically-connected financial firms had higher leverage and were more likely to increase their leverage during the housing bubble in response to local growth in median housing prices. During the crisis, higher leverage was associated with worse performance but being in a state with a US Senator on the Banking Committee was correlated with weakly improved stock returns and reduced bankruptcy probability, highlighting the value of political connections for financial firms.

1. Introduction

Do political connections affect risk-taking behavior? Did they play a role in risk taking by financial institutions that preceded the 2008 financial crisis? Throughout that crisis, moral hazard was one of the main concerns confronting policy makers in deciding whether to rescue financial institutions such as Bear Stearns, Lehman Brothers, and AIG. The idea of moral hazard was originally studied in the context of health insurance (see, e.g., Arrow, 1963; Zeckhauser, 1970) but has recently been used to describe the risk-taking behavior of financial institutions that believe they would be bailed out by the government. In fact, the history of bailouts in the United States, going back to Continental Illinois in 1984 and continuing with the savings and loan (S&L) and the Long-Term Capital Management rescues of the 1980s and 1990s, suggests that US financial institutions had reasonable expectations of such bailouts during the years leading up to the 2008 financial crisis.

Government bailouts are discretionary and, like all government decisions, they can be influenced by political considerations and political connections. So, a moral hazard-based theory would predict that firms with better political connections should take on more risk.[1] I test this hypothesis by regressing measures of risk exposure on political connections. Because most measures of political connections are endogenous, I mainly use a geographic-based measure of political connections; whether a firm is headquartered in a state with a senator on the influential United States Senate Committee on Banking, Housing, and

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[1] Famous examples of this discretion were the decisions to bail out Bear Stearns but not bail out Lehman Brothers.

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Urban Affairs (Senate Banking Committee). Similar measures were used in previous research on political decisions (e.g., Duchin and Sosyura, 2012; Cohen, Coval, and Malloy, 2011), and they are more likely to be exogenous because financial firms rarely move across state lines and the financial sector is more evenly dispersed across the United States than most industries.[2] I find that the presence of a committee senator is associated with approximately a 10% increase in leverage and a 5% to 8% increase in stock volatility. The results persist with the addition of firm fixed effects, suggesting that financial firms respond to changes over time in Senate Banking Committee membership. I also sort firms into portfolios based on having a committee senator connection and find that portfolios of politically connected firms are significantly more sensitive to the market factor (have a higher market beta) than portfolios of unconnected firms.

Political connections are likely to be most useful during a market-wide event that has the potential to affect the entire economy and thus leads to government intervention. Therefore, risk exposure around the 2008 financial crisis is a particularly useful setting in which to study the role of political connections and risk-taking behavior. I show that connected and nonconnected firms had largely similar leverage ratios in 2002, prior to the start of the US housing bubble, but this changed dramatically by the first quarter of 2008. By that time, firms in a state with a committee senator had leverage ratios that were approximately 18% higher than firms without such political connections, after controlling for firm and CEO characteristics. For this sample period, I also have the data to investigate the effects of two other frequently used measures of political connections that are choice variables of the firm: lobbying spending and politically connected directors on firm boards. I find that while these two measures are positively correlated with precrisis leverage, the results are not statistically significant.

Next, I examine closer the relation between political connections, leverage, and real estate price appreciation during the US housing bubble. I test the hypothesis that risk exposure at politically connected firms was more sensitive to local housing price growth than at unconnected firms due to ex ante expectations of government support. I regress leverage changes during the housing bubble on lagged local (metropolitan area where firm is headquartered) housing price changes, and I find a positive and significant effect for firms with a committee senator connection, and an insignificant effect for firms without one. A statistically significant interaction term confirms the difference in sensitivities between connected and unconnected firms. This new evidence demonstrates how decisions during the housing bubble were shaped by whether or not financial firms believed their exposure to risk would be shielded by their political connections.

Finally, I investigate the consequences of decisions made during the housing bubble on performance during the financial crisis, by looking at bankruptcy probabilities and 2008 stock returns. Unsurprisingly, firms with higher precrisis leverage were more likely to go bankrupt and had lower stock returns. This result illustrates the negative effects of moral hazard. Interestingly, after controlling for leverage and other firm characteristics, firms with a committee senator connection in October 2008 [when the Troubled Asset Relief Program (TARP) was passed and began to be distributed] were, if anything, slightly less likely to go bankrupt and had insignificantly higher stock returns. On the surface, this finding might seem counterintuitive. But, because TARP ended up being structured as a lump-sum capital infusion and not a post-default bailout of debtholders, the result is entirely consistent with the conclusion of Duchin and Sosyura (2012) that political connections played a role in whether or not a firm received TARP assistance (and how much).

The foundation for this paper is the seminal work on rent seeking by Krueger (1974), which describes how economic agents can secure an advantage over their competitors through government means. Value to firms from rent seeking can come in the form of favorable trade restrictions, tax benefits, government contracts, fewer regulations (see Stigler, 1971), or bailouts. More recent work by Fisman (2001) and Faccio (2006) has focused attention on the importance of political connections in the process of extracting rents from the government. In this paper, I focus on a different side of political connections—the incentives that they create for firms to take on extra risk.

Furthermore, political connections seem to pay off when companies are in distress. Duchin and Sosyura (2012) find that connections to powerful government officials in Congress and to the Federal Reserve system correspond to a higher likelihood of receiving TARP capital. In a broad sample of firms from around the world, Faccio, Masulis, and McConnell (2006) show that a higher probability of receiving a government bailout is an important benefit of political connections. Economic theory would suggest that corporate managers with rational expectations should adapt corporate policies to the probability of government bailouts. Consistent with this paper's results for US financial institutions, Dam and Koetter (2012) find that risk taking by German banks responds to changes in bailout expectations from political connections.

Understanding what caused the 2008 financial crisis is critical for preventing a similar episode in the future, and economists have examined several possible explanations. Beltratti and Stulz (2012) investigate the role of lax governance and regulation in the crisis and find that banks with better governance (more shareholder-friendly boards) performed worse during the crisis, while banks in countries with stricter banking regulations had better performance. Cheng, Hong, and Scheinkman (2014) find a correlation between size-adjusted executive compensation and market-based measures of risk such as stock volatility and beta. In contrast, Fahlenbrach and Stulz (2011) find no evidence that CEO compensation aligned with the interests of shareholders led to less risk taking and better performance during the crisis.

However, not much attention has been paid to the role of moral hazard from government intervention as one of

[2] One exception is New York City, which is a financial industry hub. However, robustness checks that drop New York State from the sample do not change my results.

the contributing factors to the financial crisis. Igan, Mishra, and Tressel (2011) look at micro-level lending data and find that financial institutions with lobbying activity engaged in riskier lending practices prior to the financial crisis. In this paper, I use another measure of political connections that is less likely to be susceptible to reverse causality effects, and I extend the results to a 37-year time frame going back to 1973 using committee representation as a measure of political connections. Earlier research on political connections has focused on the value of benefits to businesses (through political favors, etc.) or the harm to social welfare arising from government interference in the free market. My paper focuses attention on the negative effects of political connections. In addition, I establish a connection between variation in political connections through powerful representatives in Washington, DC, and firm behavior. Cohen, Coval, and Malloy (2011) also use congressional committee membership as an instrument for geographic variation in federal expenditures. My findings also build on earlier research that has primarily looked at the effect of political connections that are choice variables of the firm (see Agrawal and Knoeber, 2001; Goldman, Rocholl, and So, 2009; Chen, Parsley, and Yang, 2009).

This paper also has important implications for the regulation of the US financial system. As long as financial institutions expect to be bailed out by the government in adverse circumstances, they have incentives to take risks that increase the probability of such circumstances. However, this paper suggests that limits on political connections (through campaign finance laws or lobbying restrictions) would also not solve the moral hazard problem because members of Congress would always have powerful incentives to save firms that provide jobs and services to their constituents (e.g., Mian, Sufi, and Trebbi, 2010). Another proposed solution is increased government regulation of the financial sector. Such regulations could be thwarted as financial innovation evolves to outwit regulators and could also lead to adverse consequences such as a brain drain from the US financial sector (see Kostovetsky, 2008). However, resetting the bailout expectations of corporate managers is likely to remove the incentives that could lead to the next financial crisis.

The rest of the paper is organized as follows. Section 2 introduces the data and methodology. Section 3 presents the results for the entire panel from 1973 through 2009. Section 4 looks at empirical finding for the housing bubble and 2008 financial crisis. Section 5 discusses robustness checks. Section 6 examines the history of financial sector government bailouts in the United States. Section 7 concludes.

2. Data and methodology

Several different data sources are merged for this study. Historical membership of the Senate Banking Committee is drawn from annual volumes of the *Official Congressional Directory*. Lobbying data are obtained from OpenSecrets.org, the website of the Center for Responsive Politics. The Boardex data set is used to calculate the proportion of politically connected directors at financial institutions, as well as for CEO-level controls such as age, gender, and experience. Compustat is the source for assets, debt, and other balance sheet and income statement figures. Finally, stock-level data such as stock returns and market capitalization are obtained from the Center for Research in Security Prices (CRSP). The population for this study consists of all financial firms [with standard industrial classification (SIC) codes 6000–6999] trading on the New York Stock Exchange, American Stock Exchange, or Nasdaq from 1973 through 2009. In keeping with other studies, I exclude American Depository Receipts (ADRs), Real Estate Investment Trusts (REITs), foreign-based firms, closed-end funds, etc. from this analysis by including only stocks in CRSP with share codes of 10 or 11.

2.1. Senate Committee memberships

At the beginning of each Congress, senators and representatives are given committee assignments based on their seniority, preferences, and prior committee assignments. The *Congressional Directory* lists the names (and home states) of each senator on each Senate committee. The Senate Committee on Banking, Housing, and Urban Affairs, which has jurisdiction over banks and other financial institutions, is the relevant committee for this study. For each financial institution and month, I define the dummy variable *Committee Senator* as equaling one if the financial institution is headquartered in a state with a senator on the Banking Committee in that month and zero otherwise. For the second part of the paper that examines the 2008 financial crisis, *Committee Senator (during crisis)* is set to the value of *Committee Senator* in October 2008. *Committee Senator (precrisis)* is the value of *Committee Senator* from 2005 through 2006.

There are several reasons that focusing on connections to United States senators makes sense. First, senators have extra leverage over government officials that oversee the banking industry because of their advise and consent power to confirm these officials. Second, most financial institutions operate within state boundaries (and often have the name of the state in their names; e.g., United Bank of Iowa) so it is natural to look at senators who represent individual states.[3] Finally, congressional boundaries change every ten years during redistricting, and firms often move their headquarters to different buildings in the same city (but in a different congressional district). So, the relationship between a firm and a district's representative is much weaker than the relationship between a firm and a state's two US senators.

2.2. Lobbying spending and politically connected directors

Corporations and other organizations that lobby the federal government are required to provide a good-faith estimate (rounded to the nearest $10,000) of their quarterly spending on lobbying activities to the Senate Office of

[3] Deregulation in the 1980s did allow financial institutions to merge across state boundaries, leading to the rise of regional and national banking. However, most of the institutions in our sample operate within the state of their headquarters.

Public Records. Lobbying firms must do the same for their receipts from each client. These data (which are available after 1998) have been aggregated by the Center for Responsive Politics and are available to the public on its website, www.OpenSecrets.org. I merge this data set with CRSP and Compustat using parent company names. *Lobbying Fees* is defined as the natural logarithm of annual lobbying expenditures (divided by $10,000).[4] This variable is set to zero for firms that have not spent any money on lobbying.

Boardex provides biographical data on the corporate managers and directors of US publicly traded firms starting in 1998 (database coverage grows in 2001 and 2003). Similar to the definition used by Goldman, Rocholl, and So (2009), politically connected directors include former members of the Senate and House of Representatives, former White House officials and aides, former heads of federal executive departments and cabinet-level agencies, former state governors, and former US ambassadors to other nations.[5] I check to make sure that the tenure on the firm's board followed the tenure in the political arena before coding a director as politically connected. For each firm and month, *Political Director* is the proportion of firm's directors in that month who are politically connected. As directors leave a firm's board and are replaced by other directors, this proportion varies over time. Boardex also provides CEO names and biographical data, including gender, age, and years of experience as the firm's CEO. These variables are used as controls to ensure that differences in risk taking are not being driven by CEOs with different personal characteristics.

2.3. Firm risk and 2008 financial crisis performance

A natural measure of firm risk exposure is financial leverage, defined in this paper as the ratio of a firm's book value of debt to its book value of assets. While financial firms are subject to regulatory capital requirements, Gropp and Heider (2010) show that substantial variation exists in the use of leverage by banks, suggesting that capital requirements are of only second-order importance in determining bank capital structure. One disadvantage of firm leverage is that it could omit other forms of firm exposure to risk. Therefore, I calculate daily stock volatility (standard deviation of daily returns across a calendar year) as an additional risk measure.

I am especially interested in exposure of financial firms to tail events because they are typically the occasions in which the government would intervene to prevent a financial industry collapse and, thus, firm political connections could be most beneficial. With this in mind, I examine how financial firms performed during and after the 2008 financial crisis. I calculate stock returns from CRSP during the calendar year 2008 to measure firm exposure to the financial crisis. For firms that were delisted in 2008, I follow their returns up to and including the delisting date. In addition, I collect data from press reports and the Federal Deposit Insurance Corporation (FDIC) website on whether firms that were publicly traded in December 2007 went bankrupt or were declared insolvent by the FDIC in the subsequent three years (2008–2010) during the financial crisis and the recession that followed.

2.4. Controls and other variables

In multivariable regression analysis, I control for a number of other firm-level variables that could also explain risk taking by financial institutions. The most important of these variables is company size (natural logarithm of firm assets). Large companies are more likely to be bailed out under the too big to fail doctrine that aims to prevent contagion by rescuing firms whose failure could endanger the entire financial system. Large companies are also more likely to be politically connected.

In addition to firm size, I collect data (from CRSP and Compustat) and control for a number of other firm characteristics: return on assets (ROA), cash holdings (scaled by assets), dividends (scaled by assets), and the book-to-market ratio (book shareholder equity divided by market capitalization of equity). These variables are winsorized at 1% and 99% to minimize the effect of outliers. I use insider holdings data from Thomson Financial to find the proportion of shares held by insiders (top firm executives). I classify the financial sector into six subindustries based on two-digit SIC codes from CRSP [banks (6000–6099), credit institutions (6100–6199), financial trading firms (6200–6299), insurance companies (6300–6499), real estate firms (6500–6599), and holding companies (6700–6799)] and include industry dummies.

For each firm, I calculate *Housing Price Growth*, which is defined as the quarterly growth in median housing prices in the firm's metropolitan statistical area (MSA). I obtain quarterly median housing price data for each MSA from the National Association of Realtors. Using the zip codes of firm headquarters from Compustat, I divide financial firms into MSAs, as defined by the US Census Bureau. Rural financial firms are coded with their closest metro area.

I also include a *Subprime* dummy variable as a control in all multi-variable crisis-period regressions. The data on subprime lending come from the US Department of Housing and Urban Development (HUD)'s website (http://www.huduser.org/portal/datasets/manu.html). This dataset spans the time period from 1997 through 2005, but the list changes little from year to year. I use the Securities Data Company (SDC) Platinum database on mergers and acquisitions (M&A) as well as Google searches to find parent companies of the subprime lenders and to find changes in ownership after 2005 due to M&A. Many of the subprime lenders either went bankrupt or were bought by other larger companies in 2006 and 2007, and the *Subprime* variable incorporates these events.

I find a total of 34 public firms from 2003 to 2008 that are either subprime lenders or have subprime lender

[4] It is the natural log of one plus lobbying (in tens of thousands). The natural log is necessary because the data are highly skewed.

[5] I include executive department employees with "secretary" in the title such as secretary, assistant secretary, deputy secretary, and undersecretary. I also include Office of Management and Budget directors and Environmental Protection Agency administrators because they are cabinet-level officers.

Table 1
Summary statistics.
The table presents summary statistics on measures of firm risk, political connections, and firm controls. The table displays time series averages of cross-sectional summary statistics for the panel data set from 1973 through 2009. Summary statistics are the mean, standard deviation, 10th percentile, median, 90th percentile, and fraction of observations with value greater than zero. The sample consists of financial companies (Standard Industrial Classification [SIC] codes 6000–6999) with share codes of 10 and 11 in the Center for Research in Security Prices (CRSP) stocks database. *Leverage* is defined as debt divided by assets, and *Volatility* is the standard deviation of daily stock returns over a calendar year (with minimum of 50 observations available). *Committee Senator* is a dummy variable that equals one if the firm is headquartered in a state that is represented on the Senate Banking Committee in that year and zero otherwise. *Log Assets* is the natural logarithm of the firm's book assets. *Book-to-Market* is the ratio of book shareholder equity to the market capitalization of equity. *ROA* is income before extraordinary items divided by book assets. *Dividends/Assets* is annual dividends scaled by book assets, and *Cash/Assets* is cash holdings scaled by assets. The last four variables are winsorized at the 1% and 99% levels.

Variable	Mean (1)	Standard deviation (2)	10th Percentile (3)	Median (4)	90th Percentile (5)	Fraction > 0 (6)
Leverage (*Debt/Assets*)	0.21	0.26	0.02	0.14	0.51	0.93
Volatility (S.D. of daily returns)	0.030	0.024	0.013	0.024	0.051	1.00
Committee Senator (dummy)	0.52	0.49	0.00	0.51	1.00	0.52
Log Assets	6.6	2.2	3.8	6.8	9.2	1.00
Book-to-Market	1.08	0.82	0.39	0.93	1.91	1.00
ROA	0.011	0.064	−0.010	0.010	0.055	0.87
Dividends/Assets	0.006	0.011	0.000	0.003	0.014	0.76
Cash/Assets	0.11	0.13	0.01	0.08	0.26	1.00

subsidiaries. I cross-reference my list with the Center for Public Integrity's Subprime-25 list, which was released in 2009 and includes the top 25 firms responsible for subprime loans, and find that all public firms on that list are correctly coded by me as subprime.

Panel A of Table 1 shows time series averages of cross-sectional summary statistics for the panel of financial firms from 1973 through 2009. The average firm has 21% of its assets in the form of debt, with over 50% in the 90th percentile firm. Volatility for the average firm is 3%, ranging from 1.3% to 5.1% for extreme quintiles. About half of financial firms have political connections by being headquartered in a state with a senator on the Senate Banking Committee. Summary statistics for other firm controls are also reported and are similar to those found in prior studies.

3. Senate Banking Committee representation and firm risk—empirical results

My analysis of how political connections affect risk taking at financial institutions begins with a broad examination of all publicly traded financial firms from 1973 through 2009. Each state is represented in the United States Senate by two senators, but not all senators have the same power to assist the banks headquartered in their home states. A significant amount of such power comes from a seat on the Senate Banking Committee. The committee's areas of jurisdiction include banking, insurance, financial markets, securities, international trade and finance, and economic policy.[6] Members of the committee write legislation in these areas and oversee (and vote to confirm the heads of) executive departments and other government agencies regulating the financial industry including the Treasury Department, the Federal Reserve, and the Securities and Exchange Commission (SEC). These oversight powers provide committee members with a great deal of leverage to influence government decisions that affect the financial industry, including bailout decisions.

Financial institutions that are located in a state with a senator on the Banking Committee potentially have a powerful ally that can improve their chances of survival if their exposure to risk leads to negative outcomes. I start by examining whether the presence of such an ally encourages them to engage in more risk-taking behavior. The main advantage of this approach is that having a connection to the Banking Committee is (mostly) not a choice variable of the firm. In addition, because committee membership changes over time, I can use firm fixed effects to test whether a firm changes its risk-taking behavior in response to changes in its political connections.

First, it is critical to check whether no connection exists between the financial institutions in a state and the state's representation on the Senate Banking Committee. A (high-risk) financial firm could move from a state without a committee senator to another state with a committee senator to enjoy that senator's protection. This seems unlikely given the cost of moving firm operations (especially bank branches) from state to state even as senators decide to retire or lose bids for reelection. Still, I examine whether banks move their headquarters across state lines using the National Information Center website, which has a history of FDIC-registered banks, including the current and former addresses of their headquarters.[7] In a sample of five hundred banks, I find that only eight banks changed home states during their periods of operation.

Another concern is that new senators base their choice of committee assignments on the type of financial firms in their home states. This would create a correlation between committee senators and risk-taking behavior not arising

[6] Information about jurisdiction was obtained from the committee's website, http://banking.senate.gov.

[7] I consulted http://www.ffiec.gov/nicpubweb/nicweb/nichome.aspx. It includes banks no longer in operation so it does not suffer from survivorship bias.

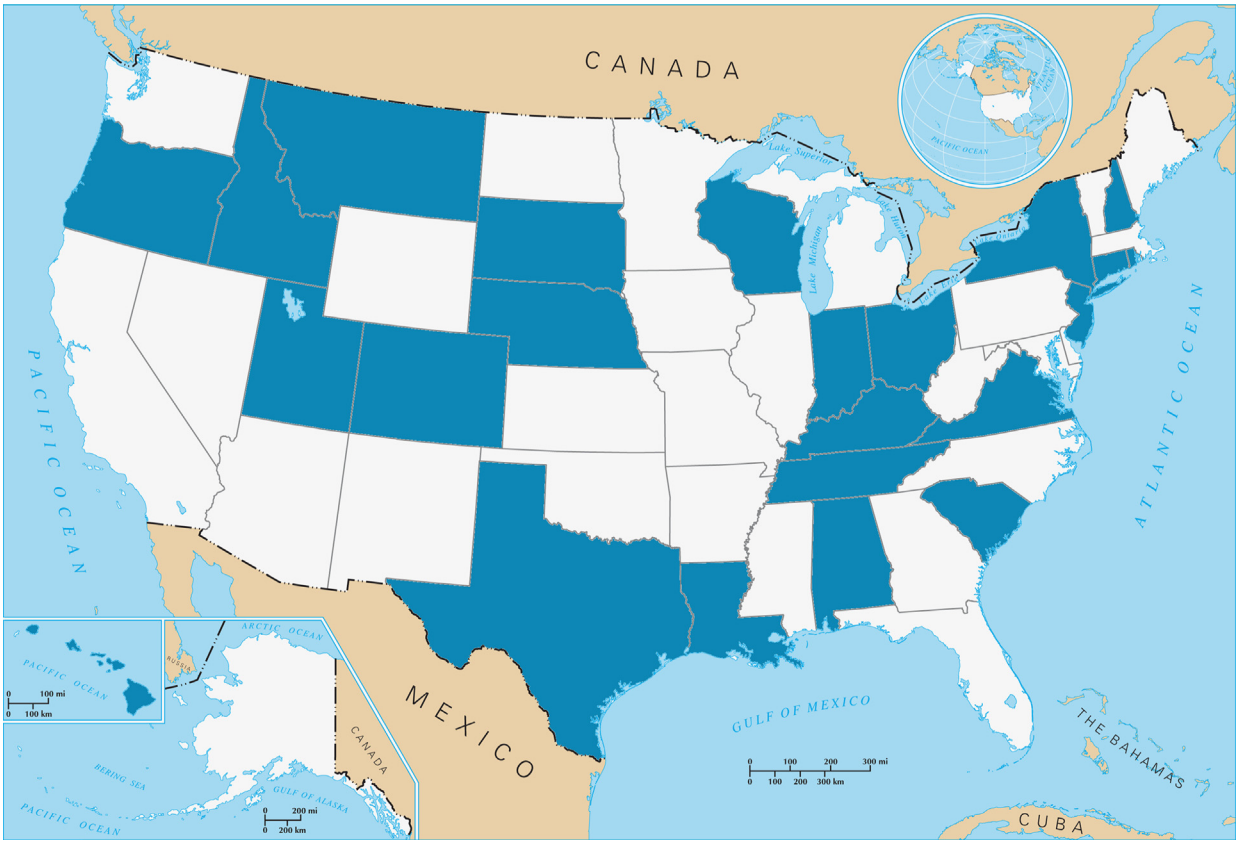

Fig. 1. Representation on Senate Banking Committee.
The figure shows the senators on the Senate Banking Committee (as of 2010) and the states that they represent. The map shows which states had representation on the committee (in blue) and which states are not represented (in white). Committee Democrats include Christopher J. Dodd, the chairman (D-CT), Tim Johnson (D-SD), Jack Reed (D-RI), Charles E. Schumer (D-NY), Evan Bayh (D-IN), Robert Menendez (D-NJ), Daniel K. Akaka (D-HI), Sherrod Brown (D-OH), Jon Tester (D-MT), Herb Kohl (D-WI), Mark Warner (D-VA), Jeff Merkley (D-OR), and Michael Bennet (D-CO). Committee Republicans include Richard C. Shelby, the ranking member (R-AL), Robert F. Bennett (R-UT), Jim Bunning (R-KY), Mike Crapo (R-ID), Bob Corker (R-TN), Jim DeMint (R-SC), David Vitter (R-LA), Mike Johanns (R-NE), Kay Bailey Hutchison (R-TX), and Judd Gregg (R-NH).

from moral hazard. However, the financial industry is dispersed across the country so the Banking committee is different from the Agriculture Committee in which the committee members are mostly from Midwest farm states. The membership of the Senate Banking Committee as of 2010 (see Fig. 1) includes senators from all regions of the country, from large states and from small states, from largely urban states and from largely rural states. So what factors do explain committee membership? According to the Congressional Research Service (CRS) Report for Congress explaining the committee choice process, senators usually try to get a seat on one of the big-four committees (Appropriations, Armed Services, Finance, and Foreign Relations), which have the most power and exposure. As for the other committees (such as Banking), senators are assigned to committees to "match the legislator's skills, expertise, and policy concerns".[8]

I regress stock volatility on the dummy variable *Committee Senator*, which equals one for a financial institution if it is headquartered in a state whose senator is a member of the Senate Banking Committee and zero otherwise. The results of these regressions are reported in the first three columns of Table 2. In the univariate regression shown in Column 1, the coefficient on *Committee Senator* is approximately 0.24% (*t*-statistic of 2.52), which drops to 0.16% (*t*-statistic of 2.95) when I include industry and firm controls (Column 2). Because the average stock volatility in my sample is about 3 percentage points, having a home senator on the Banking Commitee increases an average firm's risk by about 5% to 8%. In Column 3, I add firm fixed effects to investigate whether firm risk exposure changes with time series variation in Banking Committee representation. The coefficient on *Committee Senator* remains positive and statistically significant, suggesting that financial firm risk exposure varies in response to variation in political connections, consistent with moral hazard theory.

I perform the same tests in Columns 4 through 6 of Table 2 but use leverage (debt over assets) as an alternative measure of risk exposure. The presence of a committee senator is associated with an increase of between 1.7 and 2.3 percentage points in the debt-to-assets ratio. This correlates to about an 8% to 11% higher ratio for a (typical)

[8] The CRS report for Congress is available at http://assets.opencrs.com/rpts/RL30743_20061103.pdf.

Table 2
Senate banking committee representation and firm risk.

The table shows estimated coefficients from OLS regressions of volatility and leverage on *Committee Senator*, an indicator variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee. In Columns 1 through 3, the dependent variable is *Volatility*, the standard deviation of firm's stock returns for that calendar year. In Columns 4 through 6, the dependent variable is *Leverage*, debt scaled by assets. Columns 1 and 4 are results of univariate regressions, Columns 2 and 5 add firm and industry controls, and Columns 3 and 6 include firm fixed effects. Industries are defined using the first two digits of the SIC code. All variable definitions are described in Table 1. All specifications include year dummies. The sample period is from 1973 through 2009. *t*-Statistics using heteroskedasticity-robust standard errors clustered at the state level are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Dependent variable					
	Volatility (1)	*Volatility* (2)	*Volatility* (3)	*Leverage* (4)	*Leverage* (5)	*Leverage* (6)
Committee Senator	0.237%** [2.52]	0.160%*** [2.95]	0.103%** [2.15]	0.023** [2.52]	0.017*** [3.26]	0.013 [1.48]
Log Assets		−0.278%*** [19.64]	−0.062% [1.14]		0.005 [1.07]	−0.003 [0.14]
Book-to-Market		0.366%*** [5.65]	0.417%*** [6.25]		−0.012** [2.16]	−0.003 [0.87]
ROA		−9.308%*** [18.66]	−6.233%*** [8.30]		−0.807*** [3.57]	−0.705*** [3.26]
Dividends/Assets		−6.458%** [2.57]	−3.457%** [2.43]		0.810** [2.53]	0.245 [0.35]
Cash/Assets		0.839%*** [2.89]	0.019% [0.06]		−0.237*** [6.79]	−0.082 [0.77]
No. of observations	33,280	25,034	25,143	25,185	24,904	25,009
Firm fixed effects	N	N	Y	N	N	Y
Industry dummies	N	Y	N	N	Y	N
Year dummies	Y	Y	Y	Y	Y	Y
Clustering	State	State	State	State	State	State
Adjusted R^2	0.12	0.34	0.59	0.01	0.14	0.39

firm with a leverage ratio of 0.21. The coefficient of interest is positive but no longer significant when firm fixed effects are included (Column 6). Still, the leverage results are consistent with the results on volatility, which point to a positive effect of political connections on risk exposure by financial firms.

One could hypothesize that these results should be stronger for firms that are more important for their states, because the state's senator would be more likely to work on the firms' behalf. In unreported tests (results available upon request), I measure firm importance by its revenues scaled by the population of the state where it is headquartered, and include I interactions of different versions of this ratio with *Committee Senator*. This measure of firm importance suffers from significant measurement error because how much of a firm's activities are in the state where it is headquartered is not known. Nevertheless, the coefficient on the interaction term is positive and weakly significant in some specifications, suggesting that more important firms in politically connected states are more likely to take on risk.

One possible alternative explanation for the higher volatility of politically connected financial companies is higher idiosyncratic risk due to the fact that a firm's value becomes more sensitive to changes in the power of its ally senator in Washington. For example, if the senator is involved in a scandal or has a health episode, the stock price could go down, and if the senator gains influence (because a more senior senator retires, for example), the stock price could go up. While these types of events increase total risk (measured by stock volatility), they should not affect the systematic risk of the firm. I test this hypothesis in Table 3, which examines the effect of *Committee Senator* on market beta.

In Panel A of Table 3, I sort firms by year into ten portfolios based on firm size quintile and committee senator. I then regress monthly returns of these portfolios (minus the risk-free rate) on the market return minus the risk-free rate (MKTMRF), a *Committee Senator* dummy, and an interaction term. The variable of interest is the interaction term, which shows the difference in market beta between connected and unconnected portfolios. The market beta for portfolios of unconnected stocks is 0.912, and the coefficient on the interaction term is 0.134 (*t*-statistic of 3.17). Portfolios of connected firms are significantly more sensitive to market movements than portfolios of unconnected firms.

Running this regression within each size quintile shows that portfolios of politically connected firms of all sizes are more sensitive to the market than corresponding unconnected portfolios. The differences in market betas between connected and unconnected firms range from 0.023 for stocks in the first quintile to 0.136 for stocks in the third quintile. Furthermore, the coefficient on *Committee Senator* is negative, which means that risk-adjusted returns are slightly lower for portfolios of connected stocks. While this

Table 3
Sensitivity of sorted portfolio returns to risk factors.

The table shows estimated coefficients from OLS regressions of monthly portfolio returns on *Committee Senator*, an indicator variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee and zero otherwise, the returns on zero-cost portfolios from the three-factor model of Fama and French (1993) and the momentum factor of Carhart (1997), and interaction terms. Each year, stocks are sorted into five size quintiles based on end-of-year market capitalization (using NYSE breakpoints) and allocated into ten portfolios based on size quintile and whether *Committee Senator* is zero or one. A monthly portfolio return is the value-weighted (using market capitalization) average of returns of stocks in that portfolio. Panel A regresses monthly portfolio returns on MKTMRF (return of market minus the risk-free rate), *Committee Senator*, and an interaction term. Panel B regresses monthly portfolio returns on MKTMRF, SMB (return of small stocks minus large stocks), HML (return of high book-to-market stocks minus low book-to-market stocks), and MOM (return of prior winners minus prior losers), *Committee Senator*, and interaction terms. MKTMRF, SMB, HML, and MOM portfolio returns are obtained from Ken French's website at http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/ The sample period is from 1973 through 2008. t-Statistics are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Value-weighted monthly portfolio returns (sorted by committee representation)					
	All stocks (1)	*SizeQ*=1 (2)	*SizeQ*=2 (3)	*SizeQ*=3 (4)	*SizeQ*=4 (5)	*SizeQ*=5 (6)
Panel A: Beta in a market model of stock returns						
MKTMRF	0.912***	0.748***	0.795***	0.831***	0.975***	0.952***
	[30.57]	[20.50]	[23.03]	[25.25]	[26.75]	[26.15]
MKTMRF × Com Sen.	0.134***	0.023	0.097**	0.136***	0.114**	0.098*
	[3.17]	[0.45]	[1.99]	[2.91]	[2.22]	[1.91]
Committee Senator	−0.001	−0.000	−0.001	−0.002	−0.001	−0.001
	[0.76]	[0.17]	[0.23]	[0.74]	[0.42]	[0.30]
Intercept	0.002	0.003**	0.004**	0.004**	0.003	0.000
	[1.27]	[2.04]	[2.44]	[2.43]	[1.53]	[0.15]
No. of observations	864	864	864	864	864	864
Panel B: Factor sensitivities in a four-factor model of stock returns						
MKTMRF	1.019***	0.811***	0.864***	0.923***	1.103***	1.065***
	[34.59]	[30.29]	[30.59]	[30.23]	[30.49]	[28.67]
MKTMRF × Com Sen.	0.123***	0.002	0.091**	0.130***	0.096*	0.083
	[2.94]	[0.05]	[2.28]	[3.01]	[1.87]	[1.57]
SMB	−0.053	0.707***	0.545***	0.286***	0.063	−0.320***
	[1.34]	[19.55]	[14.28]	[6.93]	[1.29]	[6.38]
SMB × Com Sen.	0.032	−0.001	0.034	0.072	0.088	0.125*
	[0.56]	[0.03]	[0.62]	[1.23]	[1.27]	[1.76]
HML	0.401***	0.706***	0.627***	0.543***	0.549***	0.262***
	[8.84]	[17.12]	[14.42]	[11.56]	[9.85]	[4.59]
HML × Com Sen.	−0.007	−0.083	−0.011	0.034	−0.010	0.031
	[0.10]	[1.43]	[0.18]	[0.51]	[0.12]	[0.38]
MOM	−0.140***	−0.081***	−0.086***	−0.086***	−0.131***	−0.177***
	[4.82]	[3.05]	[3.08]	[2.84]	[3.66]	[4.82]
MOM × Com Sen.	−0.045	0.015	0.035	−0.027	−0.008	−0.027
	[1.10]	[0.40]	[0.89]	[0.64]	[0.15]	[0.52]
Committee Senator	−0.001	−0.000	−0.001	−0.002	−0.001	−0.001
	[0.56]	[0.02]	[0.46]	[0.84]	[0.41]	[0.31]
Intercept	0.001	−0.000	0.001	0.001	0.000	0.000
	[0.46]	[0.42]	[0.46]	[0.76]	[0.23]	[0.25]
No. of observations	864	864	864	864	864	864

effect is not statistically significant, the stock market could be overvaluing political connections, leading to lower future excess returns for these firms.

In Panel B of Table 3, I expand this analysis to a four-factor model to ensure that the differences in market betas in Panel A are not coming from differences in other pricing variables such as size, value, or momentum effects. I regress monthly portfolio returns on the monthly returns from the market-minus-risk-free portfolio (MKTMRF), small-minus-big portfolio (SMB), high book-to-market minus low book-to-market portfolio (HML), and winners-minus-losers portfolio (MOM). Again, I add the *Committee Senator* dummy variable and interaction terms to pick up differences in loadings between portfolios of connected and unconnected stocks. I find a positive coefficient of 0.123 (t-statistic of 2.94) on the interaction term between

Committee Senator and MKTMRF, which means that portfolios of connected stocks have a higher market beta (as in Panel A). However, the coefficients on the other interaction terms are not significant. Therefore, the only difference in factor sensitivities between portfolios of politically connected and unconnected stocks is a higher sensitivity to movements in the broader market. This is consistent with greater risk-taking activity by managers at politically connected firms.

Inspecting the interaction term within each of the five quintiles shows that mid-size firms (in quintiles 2 through 4) have the largest effect on market beta from political connections. This could be explained by a threshold theory in which the smallest firms do not increase their risk taking if they have a connected senator because they are too small to expect help from Washington. Very large firms operate across the country and have connections to many politicians so they are also not as affected by their home senator. The biggest effect from a connected senator would thus be seen at mid-size, regional financial firms with operations focused in their home states and that employ enough constituents to influence their senators to bail them out.

4. Political connections and firm risk around the US housing bubble and 2008 financial crisis

I next focus in on financial firm decisions during the US housing bubble and the ensuing financial crisis (from 2003 through 2008). One of the difficulties in assessing risk-taking behavior is that great opportunities are not always available for financial institutions to engage in risky behavior even in the presence of moral hazard incentives. In addition, firm exposure to tail risk can be difficult to measure because, by definition, it adversely affects the firm only during a very rare event. The mid-2000s in the US are, therefore, a perfect setting because the opportunity for making loans due to the housing boom created more cross-sectional variation in risk taking and also because the resulting bust was one of those rare events in which the consequences of tail risk and the associated government intervention can be seen. Finally, much better data are available during the most recent decade so I am able to examine the effect of other common measures of political connections and also control for a number of firm and CEO characteristics that are not available for the earlier panel from 1973 through 2009.

Table 4 presents summary statistics on the data set used for the bubble and crisis period tests. Panel A reports time series averages of cross-sectional summary statistics. Two new political connections variables that are available during this period are lobbying spending and political directors. The average firms spends about $150,000 per year on lobbying, although the distribution is highly skewed (90% of firms have no lobbying expenditures). The average firm has 1.2% of its board consisting of politically connected directors, and 92% of firms have no politically connected directors. The summary statistics for the other new control variables show that 3% of CEOs in the sample are women, the average CEO age is 56 years, and the typical CEO has worked for eight years in that position. Insiders own 14% of the typical firm in this sample. The average firm is in a metro area where the quarterly growth in median housing prices is 0.4% (or about 1.6% per year). On first impression, this figure seems low, but it does include 2008 when housing prices fell significantly, and it is a reminder that the housing bubble missed a large swath of the United States. Finally, only about 2% of financial firms had significant subprime exposure. I control for these firm characteristics in the remaining tests.

In Panel B of Table 4, I tabulate average values of important firm variables for the sample of firms with (Column 2) and without (Column 1) a Banking Committee senator connection. Column 3 of Panel B shows the difference between the sample means, and the *t*-statistic of this difference is in Column 4. Interestingly, I find no significant differences between the two samples of connected and unconnected firms over this period. Firms headquartered in a state with a Banking Committee senator are slightly larger, have higher leverage, have lower ROA, and do more lobbying. However, none of these differences is statistically significant at the 5% level. While this table shows only a simple comparison of means, it does suggest that the *Committee Senator* dummy variable is not picking up some important differences in firm characteristics that can explain the results presented in the remainder of this section.

To test this idea in a more rigorous manner, I run a probit regression of the *Committee Senator* dummy variable on firm characteristics at the start of the housing bubble. The results are displayed in Table 5. For comparison, I also run ordinary least squares (OLS) regressions of two other measures of political connections—lobbying spending and political directors—on firm characteristics at the same time. Columns 1 and 2 of Table 5 show that none of the firm characteristics predicted the presence of a committee senator at the start of the housing bubble. In contrast, Columns 3 through 6 reveal that many firm characteristics, including size (+), book-to-market (−), ROA (−), cash holdings (+), insider ownership (−), and subprime status (+), predicted lobbying spending or political directors, or both, with a statistically significant coefficient. Table 5 highlights the advantages of using a more exogenous measure such as *Committee Senator* as opposed to firm choice variables such as lobbying spending and political directors. Because the former measure is not a function of firm characteristics, I can be confident that its effects on firm behavior are coming from the political connections themselves and not due to some omitted firm variables.

Next, I investigate whether political connections during the housing bubble affected firm leverage immediately prior to the financial crisis. I regress firm leverage during the first quarter of 2008 on precrisis measures of political connections as well as firm and CEO characteristics. In Table 6, Columns 1 and 2 show the effect of *Committee Senator* (*precrisis*) on firm leverage, with and without firm controls. The coefficients on the variable of interest are positive and statistically significant at the 5% level. The coefficients' magnitude is approximately 0.03, so firms in states that had representation on the Senate Banking Committee during the housing bubble ended up with

Table 4
Summary statistics for housing bubble and financial crisis period variables.

The table presents summary statistics for measures of firm risk, political connections, and other firm-specific variables for a panel data set from 2003 through 2008. Panel A displays time series averages of cross-sectional summary statistics, and Panel B shows average values for firms with and without a committee senator connection, difference between the two, and the *t*-statistic on that difference (in brackets). 2008 *Stock Returns* is the stock return from the end of 2007 until the end of 2008 (or until the firm is delisted). *Bankruptcy* is a dummy variable that equals one if the firm went bankrupt or was seized by the Federal Deposit Insurance Corporation (FDIC) from January 2008 to December 2010 and zero otherwise. These two variables are only defined for firms in the December 2007 cross section. *Leverage* is defined as debt divided by assets. *Committee Senator* is a dummy variable that equals one if the firm is headquartered in a state that is represented on the Senate Banking Committee and zero otherwise. *Lobbying Fees* is the natural log of the dollars (in units of $10,000) spent by the firm (in that year) on lobbying. *Political Director* is the proportion of a firm's board that consists of politically connected directors. *Log Assets* is the natural logarithm of the firm's book assets. *Book-to-Market* is the ratio of book shareholder equity to the market capitalization of equity. *ROA* is quarterly income before extraordinary items divided by book assets. *Dividends/Assets* is quarterly dividends scaled by book assets, and *Cash/Assets* is cash holdings scaled by assets. The last four variables are winsorized at the 1% and 99% levels. *CEO Female* is a dummy variable equaling one if the CEO is female and zero otherwise. *CEO Age* is the age in years of the CEO, and *CEO Tenure* equals the number of years that the CEO has led the firm. *Insider Ownership* is the proportion of the firm's shares outstanding held by top executives of the firm. *Housing Price Growth* is the quarterly growth in median house price in the metropolitan area where the firm is headquartered. *Subprime* is a dummy variable that equals one if the firm is a subprime lender (or controls a subprime lender subsidiary) and zero otherwise. *Monthly stock returns* are average monthly stock returns, and *Volatility* is the standard deviation of daily stock returns over a calendar year.

Variable	Mean (1)	Standard deviation (2)	10th percentile (3)	Median (4)	90th percentile (5)	Fraction > 0 (6)
Panel A: Summary statistics for housing bubble-financial crisis period						
2008 Stock Returns	−0.33	0.39	−0.83	−0.36	0.16	0.21
Bankruptcy (dummy)	0.08	0.27	0.00	0.00	0.00	0.08
Leverage	0.18	0.24	0.02	0.13	0.37	0.94
Committee Senator	0.46	0.50	0.00	0.00	1.00	0.46
Lobbying Fees (log $10,000)	0.60	1.89	0.00	0.00	1.41	0.10
Political Director (fraction)	0.012	0.048	0.000	0.000	0.000	0.08
Log Assets	7.26	1.94	5.26	6.94	9.72	1.00
Book-to-Market	0.76	0.45	0.36	0.67	1.23	1.00
ROA	0.003	0.014	−0.002	0.002	0.013	0.88
Dividends/Assets	0.001	0.003	0.000	0.001	0.002	0.68
Cash/Assets	0.09	0.13	0.02	0.04	0.22	1.00
CEO Female (dummy)	0.03	0.16	0.00	0.00	0.00	0.03
CEO Age	55.7	7.8	45.5	55.8	64.8	1.00
CEO Experience	7.6	7.2	0.9	5.6	17.3	0.93
Insider Ownership (percent)	0.14	0.21	0.00	0.06	0.38	0.89
Housing Price Growth (percent)	0.004	0.042	−0.046	0.004	0.052	0.53
Subprime (dummy)	0.02	0.15	0.00	0.00	0.00	0.02

Variable	*Committee Senator*=0 (1)	*Committee Senator*=1 (2)	Difference (3)	Difference *t*-Statistic (4)
Panel B: Summary statistics by Committee Senator				
Leverage	0.170	0.188	0.018	[1.03]
Monthly Stock Returns	0.013	0.012	−0.001	[0.29]
Volatility of Returns	0.026	0.025	−0.001	[0.77]
Log Assets	7.13	7.37	0.24	[1.87]
Book-to-Market	0.75	0.75	0.00	[0.19]
ROA	0.004	0.003	−0.001	[1.30]
Dividends/Assets	0.001	0.001	0.000	[0.18]
Cash/Assets	0.09	0.08	−0.01	[0.50]
Lobbying Fees (log $10,000)	0.44	0.76	0.32	[1.67]
Political Director (fraction)	0.011	0.013	0.002	[0.39]
Housing Price Growth (percent)	0.004	0.006	0.002	[0.69]
Subprime (dummy)	0.02	0.03	0.01	[0.63]

leverage ratios that were approximately 18% higher than firms without such political connections, after controlling for firm and CEO characteristics. This coefficient is nearly twice as large as the analogous coefficient for the entire panel from 1973 through 2009 (see Column 5 of Table 2) and suggests that the increased opportunity for risk taking from the housing boom strengthened the effect of moral hazard incentives on firm leverage.

I repeat the same analysis but replace *Committee Senator* with *Lobbying Fees* (in Columns 3 and 4) and *Political Director* (in Columns 5 and 6) as measures of political connections. While the signs of the coefficients on these variables are positive, they are not statistically significant. Political connections created endogenously by lobbying spending and political directors might not be as useful in increasing the probability of government assistance and, therefore, do not produce as much moral hazard incentives. Alternatively, they could be correlated with some omitted firm characteristics that act to reduce leverage. In Column 7, I regress firm leverage on all three political connections measures and find that the effect of *Committee Senator* remains positive and significant, while

Table 5
Probit and OLS regressions of political connection measures on pre-bubble firm characteristics.

The table presents estimated coefficients from regressions of political connection variables on firm and CEO characteristics using a cross section of financial firms in December 2002, prior to the start of the housing bubble in the United States. Columns 1 and 2 show the results of probit regressions with the dependent variable *Committee Senator*, a dummy variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee and zero otherwise. Columns 3 and 4 show the results of OLS regressions with the dependent variable *Political Director*, which is the proportion of a firm's board that consists of politically connected directors. Columns 5 and 6 show the results of OLS regressions with the dependent variable *Lobbying Fees*, which is the natural log of the dollars (in units of $10,000) spent by the firm in that year on lobbying. Definitions of all independent variables are in Table 4. Each specification includes industry dummies, defined by the first two digits of the firm's SIC code. *t*-Statistics using heteroskedasticity-robust standard errors clustered at the state level are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Dependent variable					
	Committee Senator, Probit (1)	*Committee Senator*, probit (2)	*Political Director*, OLS (3)	*Political Director*, OLS (4)	*Lobbying Fees*, OLS (5)	*Lobbying Fees*, OLS (6)
Log Assets	0.014 [0.53]	0.030 [1.17]	0.006*** [4.13]	0.006*** [3.67]	0.436*** [6.80]	0.457*** [5.96]
Leverage	0.102 [0.40]	−0.240 [0.91]	−0.003 [0.24]	−0.013 [1.00]	0.541 [1.83]	0.109 [0.31]
Book-to-Market	−0.033 [0.31]	0.153 [1.32]	−0.006** [2.50]	−0.005 [1.61]	0.058 [0.58]	0.088 [0.60]
ROA	−1.087 [0.61]	−0.433 [0.18]	−0.081 [1.39]	−0.066 [1.00]	−3.724* [1.91]	−3.749 [1.71]
Dividends/Assets	35.149 [0.97]	46.388 [1.17]	−0.909 [1.03]	−1.556 [1.51]	13.413 [0.36]	3.979 [0.10]
Cash/Assets	−0.074 [0.14]	0.041 [0.07]	0.035** [1.98]	0.040* [1.76]	2.335*** [4.12]	2.431*** [3.03]
CEO Female		0.301 [1.13]		−0.003 [1.56]		−0.114 [0.84]
CEO Age		0.005 [0.61]		0.000 [0.70]		−0.002 [0.29]
CEO Experience		−0.011* [1.67]		0.000 [1.18]		−0.005 [0.81]
Insider Ownership		−0.189 [0.88]		−0.021*** [4.26]		−0.612** [2.29]
Subprime dummy		0.131 [0.41]		0.020* [1.94]		0.914** [2.09]
Committee Senator				0.007** [2.61]		0.179** [2.00]
No. of observations	942	721	956	721	956	721
Industry dummies	Y	Y	Y	Y	Y	Y
Log-likelihood	−642.4	−489.3				
Adjusted R^2			0.17	0.22	0.37	0.41

the effects of *Lobbying Fees* and *Political Director* become even smaller and remain nonsignificant. In summary, although firm leverage was uncorrelated with *Committee Senator* at the start of the housing bubble (Table 5), firms with a *Committee Senator* during the housing bubble had significantly higher leverage ratios by the first quarter of 2008 than firms without one (Table 6).

In addition to looking at overall levels of risk exposure, examining the connection between changes in risk exposure and the risk environment (housing bubble) is useful. Thus, I test the hypothesis that risk taking at politically connected was more sensitive to the housing bubble than risk-taking at politically unconnected firms. I regress quarterly changes in firm leverage on lagged quarterly changes in median housing prices in the metropolitan area where the firm is headquartered, separately for firms with and without a *Committee Senator*. The results are presented in Table 7.

In Columns 1 and 4 of Table 7, for a sample that contains only unconnected firms, firm leverage changes are not responsive to housing price changes. However, in Columns 2 and 5, for firms with a committee senator connection, leverage does respond to housing prices. The coefficients on *Housing Price Growth* are positive and statistically significant at the 5% level. I then repeat the same regressions for the entire sample and include an interaction term, *Housing Price Growth* × *Committee Senator*, to test whether the coefficients on *Housing Price Growth* are statistically different between connected and unconnected firms. I find that the coefficients on the

Table 6
OLS regressions of pre-crisis leverage on political connections.

The table presents estimated coefficients from cross-sectional OLS regressions of precrisis leverage (debt over assets) on measures of political connections and firm and CEO characteristics. The dependent variable in each regression is *Leverage*, measured in the first quarter of 2008. In Column 1, the explanatory variable of interest is *Committee Senator (precrisis)*, a dummy variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee in the precrisis period and zero otherwise. Column 2 adds firm and CEO controls. In Column 3, the explanatory variable of interest is *Lobbying Fees (precrisis)*, which is the natural log of the annual dollars (in units of $10,000) spent by the firm, averaged over the precrisis period. Column 4 adds firm and CEO controls. In Column 5, the explanatory variable of interest is *Political Director (precrisis)*, which is the proportion of a firm's board that consists of politically connected directors, averaged over the pre-crisis period. Column 6 adds firm and CEO controls. Column 7 includes all three measures of political connections and firm and CEO controls. Definitions of all independent variables are in Table 4. Each specification includes industry dummies, defined by the first two digits of the firm's SIC code. *t*-Statistics using heteroskedasticity-robust standard errors clustered at the state level are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Dependent variable						
	Leverage (1)	*Leverage* (2)	*Leverage* (3)	*Leverage* (4)	*Leverage* (5)	*Leverage* (6)	*Leverage* (7)
Committee Senator (precrisis)	0.031** [2.58]	0.029*** [2.61]					0.028*** [2.74]
Lobbying Fees (precrisis)			0.005 [0.95]	0.009 [1.20]			0.005 [0.63]
Political Director (precrisis)					0.152 [1.09]	0.140 [0.90]	0.032 [0.23]
Log Assets	0.017*** [4.07]	0.014*** [2.96]	0.016*** [3.36]	0.013** [2.34]	0.017*** [4.02]	0.015*** [3.09]	0.013** [2.27]
Book-to-Market		0.018 [0.99]		0.024 [1.38]		0.024 [1.36]	0.016 [1.09]
ROA		−1.349 [1.21]		−1.335 [1.19]		−1.299 [1.15]	−1.289 [1.38]
Dividends/Assets		−0.659 [0.29]		0.233 [0.11]		0.079 [0.04]	−0.745 [0.32]
Cash/Assets		−0.217*** [3.62]		−0.230*** [3.17]		−0.219*** [3.28]	−0.214*** [3.04]
CEO Female		0.019 [0.56]		0.016 [0.54]		0.016 [0.50]	0.018 [0.58]
CEO Age		−0.001 [1.02]		−0.001 [1.07]		−0.001 [1.00]	−0.001 [0.91]
CEO Experience		−0.001* [1.66]		−0.001 [1.65]		−0.001* [1.82]	−0.001 [1.38]
Insider Ownership		0.045* [1.90]		0.048* [1.87]		0.046* [1.86]	0.061* [1.68]
Subprime (dummy)		0.054 [0.86]		0.034 [0.48]		0.042 [0.68]	0.055 [1.08]
No. of observations	867	790	861	789	817	786	778
Industry dummies	Y	Y	Y	Y	Y	Y	Y
Adjusted R^2	0.29	0.33	0.29	0.33	0.29	0.33	0.32

interaction terms in Column 3 (without controls) and Column 6 (with controls) are positive and statistically significant. These results are important because they connect firm risk-taking decisions during the housing bubble to housing prices, thus providing strong evidence of a connection between political connections, risk taking, and a climate of risk-taking opportunities.

The economic significance of these findings can be analyzed through a back-of-the-envelope calculation, comparing average changes in leverage for high-bubble locations versus low-bubble locations. During the five-year period from 2003 through 2007, the 90th percentile (across states) of quarterly housing price growth was approximately 3%, and the 10th percentile (across states) of quarterly housing price growth was approximately 0%. Multiplying this by 20 quarters implies a difference between high-bubble and low-bubble locations of 60 percentage points (ignoring compounding) or 80 percentage points (with compounding). Finally, multiplying this difference by the coefficient on the interaction term, 0.026 in Column 6 of Table 7, implies a leverage ratio increase of between 1.5 to 2 percentage points in high-bubble locales compared with low-bubble locales, due to political connections.

This calculation suggests that if financial institutions are compared in two states with Senate Banking Committee representation such as Hawaii (high-bubble) and Ohio (low-bubble), those in Hawaii increased their leverage ratios by about 1.5 to 2 percentage points relative to those in Ohio, as

Table 7
OLS regressions of leverage changes on housing price growth and committee senator.

The table presents estimated coefficients from OLS panel regressions of quarterly changes in firm leverage on lagged growth in median housing prices in the firm's metro area. The results in Columns 1 and 2 are for subsamples of firms with and without a committee senator connection, a dummy variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee and zero otherwise. Column 3 shows results for the entire sample with an interaction term between *Committee Senator* and *Housing Price Growth*. Columns 4 through 6 repeat the same analysis but control for firm and CEO characteristics. Definitions of all independent variables are in Table 4. Each specification includes industry dummies, defined by the first two digits of the firm's SIC code, and quarter dummies. The sample period is from the first quarter of 2003 through the fourth quarter of 2007. *t*-Statistics using heteroskedasticity-robust standard errors clustered at the state level are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Dependent variable					
	Δ Leverage, *ComSen* = 0 (1)	*Δ Leverage*, *ComSen* = 1 (2)	*Δ Leverage*, ALL (3)	*Δ Leverage*, *ComSen* = 0 (4)	*Δ Leverage*, *ComSen* = 1 (5)	*Δ Leverage*, All (6)
Housing Price Growth, lag	−0.003	0.024**	−0.003	−0.002	0.021**	−0.007
	[0.38]	[2.43]	[0.36]	[0.27]	[2.53]	[0.89]
Committee Senator			−0.002			0.000
			[1.06]			[0.43]
Housing Price Growth, lag × *Com Sen*			0.023**			0.026***
			[2.29]			[2.89]
Leverage (level), lag				−0.041***	−0.032***	−0.036***
				[8.24]	[10.24]	[11.44]
Log Assets	0.000	0.002	0.001	0.000	0.000	0.000
	[0.06]	[0.69]	[0.75]	[1.26]	[0.04]	[1.31]
Book-to-Market				0.003	−0.002	0.001
				[0.82]	[1.34]	[0.27]
ROA				0.276	0.007	0.183
				[1.18]	[0.17]	[1.06]
Dividends/Assets				0.120	−0.172*	−0.067
				[0.30]	[1.64]	[0.22]
Cash/Assets				−0.024**	−0.013	−0.018**
				[2.45]	[1.50]	[2.40]
CEO Female				0.004**	0.001	0.002*
				[1.99]	[0.57]	[1.67]
CEO Age				0.000	0.000**	0.000
				[0.00]	[2.21]	[0.99]
CEO Experience				0.000	0.000	0.000
				[1.26]	[0.63]	[0.19]
Insider Ownership				0.004	0.002	0.003
				[1.21]	[1.30]	[1.58]
Subprime (dummy)				0.003**	0.007***	0.005**
				[1.98]	[2.67]	[2.17]
No. of observations	9,552	7,799	17,351	8,122	6,837	14,959
Industry dummies	Y	Y	Y	Y	Y	Y
Adjusted R^2	0.01	0.01	0.00	0.02	0.02	0.03

a result of the representation. The median leverage ratio in my sample is 13% and the mean is 18%, so an extra 1.5 to 2 percentage points is economically significant growth in leverage of around 10%.

Finally, I examine the consequences of firm decisions on outcomes during the financial crisis. I measure outcomes using bankruptcy probabilities (from 2008 through 2010), and stock returns for the calendar year 2008. However, the results are robust to adjusting the time period for both crisis period bankruptcy and stock returns. An inherent difficulty exists in measuring the effect of political connections on performance during a financial crisis when the government provides assistance to distressed firms. On the one hand, any additional risk from moral hazard would worsen performance during the crisis. On the other hand, any additional assistance from political connections would improve performance. The sum of these countervailing effects could be either positive or negative and would depend on the magnitude of moral hazard as well as how the government assistance is structured (e.g., bailout of bondholders). Because TARP was structured as a lump-sum capital infusion, political connections could (on net) improve crisis performance as the liquidity from the capital infusion could outweigh any adverse effects of risk taking.

In Table 8, I attempt to disaggregate the two effects by regressing crisis performance on precrisis firm *Leverage*

Table 8
Regressions of bankruptcy probability and 2008 stock returns on leverage and committee senator.

The table presents estimated coefficients from regressions of bankruptcy after the financial crisis and 2008 stock returns on *Leverage*, *Committee Senator (during crisis)*, and firm and manager controls. The dependent variable in the probit regressions in columns 1 through 3 is *Bankruptcy*, which equals one if a financial firm went bankrupt or was seized by the FDIC from 2008 through 2010 and zero otherwise. The dependent variable in the OLS regressions in Columns 4 through 6 is *2008 Returns*, which is the stock return from the end of 2007 until the end of 2008 (or until the firm is delisted). The explanatory variables of interest are *Leverage* (at the end of 2007) and *Committee Senator (during crisis)*, a dummy variable that equals one if the state in which a firm is headquartered is represented on the Senate Banking Committee in 2008 and zero otherwise. Columns 3 and 6 control for firm and CEO characteristics. Definitions of all independent variables are in Table 4. Each specification includes industry dummies, defined by the first two digit of the firm's SIC code. *t*-Statistics using heteroskedasticity-robust standard errors clustered at the state level are reported in brackets. *** Indicates that the coefficient is statistically significant at the 1% level, ** indicates that the coefficient is significant at the 5% level, and * indicates that the coefficient is significant at the 10% level.

Predictor variable	Dependent variable					
	Bankruptcy, Probit (1)	Bankruptcy, Probit (2)	Bankruptcy, Probit (3)	2008 Returns, OLS (4)	2008 Returns, OLS (5)	2008 Returns, OLS (6)
Leverage	1.160***	1.275***	0.660	−0.282***	−0.275***	−0.257***
	[3.18]	[3.25]	[1.33]	[3.55]	[3.49]	[2.90]
Committee Senator (during crisis)		−0.342*	−0.333*		0.066	0.062
		[1.78]	[1.83]		[1.53]	[1.55]
Log Assets	−0.031	−0.0221	−0.043	−0.005	−0.006	−0.004
	[1.08]	[0.79]	[1.07]	[0.68]	[0.79]	[0.45]
Book-to-Market			0.814***			−0.125**
			[3.75]			[2.40]
ROA			−14.989***			2.064**
			[2.85]			[2.44]
Dividends/Assets			−105.605			−2.616
			[0.91]			[0.68]
Cash/Assets			−1.744*			−0.296***
			[1.86]			[3.40]
CEO Female			−0.039			0.009
			[0.13]			[0.11]
CEO Age			−0.014			0.002
			[1.29]			[0.70]
CEO Experience			0.016			−0.003
			[1.57]			[1.13]
Insider Ownership			0.130			−0.023
			[0.38]			[0.38]
Subprime (dummy)			0.805**			−0.221****
			[2.55]			[3.14]
No. of observations	871	859	785	871	859	785
Industry dummies	Y	Y	Y	Y	Y	Y
Log-likelihood	−228.1	−219.1	−162.8			
Adjusted R^2				0.05	0.05	0.10

(to measure effect of risk) and crisis *Committee Senator* (to measure the direct effect of political connections). In Columns 1 through 3, I run probit regressions with *Bankruptcy* as the dependent variable. Not surprisingly, more levered firms prior to the crisis were also more likely to go bankrupt. This result illustrates the downside of moral hazard. More interestingly, having a committee senator connection during the 2008 financial crisis is associated with a weakly lower bankruptcy probability (only statistically significant at the 10% level). This finding is consistent with Duchin and Sosyura (2012), who show that politically connected firms were more likely to receive TARP infusions. In Columns 4 through 6, I repeat the same analysis but run OLS regressions with 2008 stock returns as the dependent variable. The pattern of results is largely the same: Higher precrisis leverage leads to worse performance (lower stock returns), and a committee senator connection during the crisis is associated with higher stock returns (but not statistically significant). Overall, the social welfare implications of these results are not encouraging, with connected firms exposing themselves to higher risk (which helped contribute to the crisis) but not suffering as much of the consequences due to government action on their behalf.

5. Robustness checks

I perform a number of additional checks to test the robustness of my results (tables showing the results of these robustness tests are available upon request). Because of the large number of financial firms in New York City, endogenously higher probability of New York representation on the Senate Banking Committee could exist. I drop New

York-headquartered firms from all tests, with no significant changes to the main results. Government-sponsored entities were under an implicit guarantee so their risk-taking behavior could explain my findings. I drop Federal National Mortgage Association (Fannie Mae) and Federal Home Loan Mortgage Corporation (Freddie Mac) from all tests, and the paper's main results remain largely the same.

To distinguish moral hazard due to political connections from moral hazard due to firms being too big to fail, I drop firms from my sample that are categorized as "systemically important" by the Financial Stability Board and find that the paper's results still hold. I replace the political connection choice variables (lobbying, political director) with lagged versions (from 2000 to 2003) and find similar effects. I divide my sample period for the panel (1973 to 2009) into two equal subperiods, and find that the coefficients of interest in both subperiods are very similar, although statistical significance is lower because of the reduction in observations.

6. History of moral hazard in the financial industry

The critical component of the economic mechanism of moral hazard is the rational belief or expectation by market participants of outside intervention in adverse states of the world. In our example of financial risk taking by politically connected firms, the economic intuition makes sense only if management at financial institutions had good reason to believe that the government would get involved and that political connections would be helpful in those situations. Therefore, closely examining the history of US government involvement and intervention in financial markets is instructive.

The government's role in financial markets is most evident in the market for mortgages. Since the 1930s when the Fannie Mae was established, the US government has promoted home ownership by an implicit guarantee (which lowers the cost of capital) of government-sponsored enterprises that purchase and securitize mortgages. With the passage of the Community Reinvestment Act, in the late 1970s, the government started overseeing lending to ensure that low-income and urban communities would have access to credit. By the 1990s, increasing government pressure led to a growing subprime market for those borrowers whose income or credit rating would not qualify them for conventional loans (New York Times, 1999). The collapse of this subprime market was the beginning of the 2008 financial crisis.

The growing power of government in the mortgage markets spurred financial institutions to establish political connections with lawmakers whose decisions were increasingly affecting their bottom lines. For example, Countrywide Financial, once the nation's largest mortgage lender, gave special loans at below-market rates to the CEO of Fannie Mae and the chairmen of the Senate Budget Committee and the Senate Banking Committee. Citigroup added former Treasury secretary Robert Rubin to its board of directors. Other institutions increased their lobbying activity or stepped up political contributions through their political action committees (PACs). Enron, an energy trading company, established close connections to the administration of George W. Bush. Recently, US Senate majority whip Richard Durbin said that banks "frankly own the place," in reference to Congress.[9]

Earlier crises showed that a friendly politician (or group of politicians) is a powerful asset for a financial company to have at such a time. During the collapse of the S&L industry in the 1980s, a political scandal came to light involving the Keating Five, five senators who had received substantial contributions from Charles Keating, chairman of the Lincoln Savings & Loan Association. When his S&L became the target of a regulatory investigation in 1987, Keating got these senators to intervene on his behalf and quash the inquiry. Two years later, the Lincoln S&L collapsed and was bailed out by the federal government.

In 2009, OneUnited Bank, a small Boston institution in financial trouble as a result of poor lending practices, received an injection from TARP after the intercession of Massachusetts Representative Barney Frank, who was then the chairman of the House Financial Services Committee.[10] The nature of such interventions makes it hard to distinguish between corrupt bargains and constituent services performed by representatives on behalf of those they represent. However, the large amount of money and time spent in establishing political connections suggests that it does create an expectation of assistance in the future.

7. Conclusion

Moral hazard has been a staple of economic theory since the 1960s, but economists know little about how firm incentives are affected by potential future government intervention. In this paper, I examine whether moral hazard increases risk-taking behavior by financial institutions and if it played a role in the 2008 financial crisis. I use variation in the Senate Banking Committee membership of a company's home state senators to investigate the connection between risk taking and expected probability of government assistance. In a sample from 1973 through 2009, I find a positive relation between political connections and risk taking, as measured by stock volatility or leverage ratios. I also find that politically connected firms had higher leverage prior to the 2008 financial crisis and increased their leverage more in response to local housing price growth. But they were also less likely to go bankrupt or go insolvent during and after the financial crisis and had higher stock returns during that crisis.

Many open questions remain for future research. Is the financial industry the only industry in which political connections to Washington affect corporate policy? Other candidate industries are defense (and membership on the Senate Armed Services Committees), health care (and membership on the Senate Health, Education, Labor, and Pensions Committee), and others whose fundamental value is significantly affected or controlled by the federal government. Also still unknown is how campaign finance laws or court rulings such as the 2010 US Supreme Court

[9] This quote comes from a radio interview from April 27, 2009.

[10] For this and other examples of political interference in bailout decisions, see Wall Street Journal (2009).

Citizens United v. Federal Election Commission decision on corporate campaign expenditures affect the relation between political connections and corporate policies.

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