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Political connections and the impact on financial risk taking in financial institutions

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Abstract

Regulators form an important link in the governance framework of the financial industry. The stability of the financial system depends to a large extent on independence and soundness of regulatory monitoring and -enforcement. Interorganizational connections, such as board interlocks, reduce de independence between firms and regulators. This dissertation studied the effect of political connections on the financial risk-taking using a sample of European listed financial institutions across a 14-year period. The results of this dissertation show that political connections between financial institutions and regulators generate higher moral hazard. Politically connected financial institutions take on more financial risk than their non-connected counterparts. The results of this dissertation imply that political connections between financial institutions and regulators can weaken the financial system by exposing it to extra risk. Apart from that this dissertation examines the moderating effect of gender diversity in boards on the effect of interlocks in which it did not find any significant results for this effect.

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1. Introduction

In 2012 the news came out that some of the largest financial institutions[1] were colluding in the illegal fixing of LIBOR interest rates[2] (McConnell, 2013). The LIBOR rate is determined on a daily basis as the mean of offered rates, these offered rates are manually entered in the system by traders of participating institutions (HM Treasury, 2012). During a five year period traders colluded to fix the LIBOR, used to determine the underlying price of derivatives and other assets (Ashton & Christophers, 2015). Traders were using LIBOR rates to manipulate markets and speculate on financial instruments, imposing a systematic risk to the financial system (HM Treasury, 2012). The prosecutors place primary responsibility on management, but regulators also have a major role in this scandal (HM Treasury, 2012). The abstinence of monitoring by regulators has given the financial institutions the opportunity to participate in the scandal for five years without any inquiries (McConnell, 2013). Some journalists have questioned if personal relationships between the banks and regulators have led to laxer monitoring policies (The New York Times, 2016). It has not been a secret that financial institutions play an important role in campaign financing (Claessens et al., 2008), and form a strong lobbying group for politicians (Lambert, 2018). Prior studies have revealed that parties that engage in lobbying or other political activities benefit from laxer enforcement (Lambert, 2018). However, it is not clear whether companies receive fewer enforcement because they act more fairly or because they receive preferential treatment.

Commercial organizations are designed to operate in the best interest of their shareholders, which does not ensure the welfare of consumers (Stigler, 1971). Regulators are put into place to ensure the welfare of consumers (Peltzman, 1976), and are active in most markets and industries. The financial industry is of special interest to regulators as their capital structure requires extra attention. Due to the high leverage financing, the classical agent-principal relationship does not hold in which the agent (management) is controlled by the principal (shareholder)(Fama, 1985). Regulators are therefore put into place to act as a principal to control the management of financial institutions (Ciancanelli et al., 2000). Bank regulations have increased after the financial crisis with the introduction of Basel III, imposing stricter capital requirements to banks (Becht et al., 2012). Bank executives have repeatedly raised complaints about these post-crisis regulations, as these regulations would restrict banks from operating in a competitive market (Reuters, 2012, 2014). Apart from using the media, financial

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[1] HSBC, Deutsche Bank, JPMorgan, CitiGroup, RBS and Barclays to name a few (Ashton & Christophers, 2015)
[2] The London Interbank Offered Rate (LIBOR) is a benchmark rate that financial institutions use to determine short-term interest rates (Upper & Michaud, 2008)

institutions have used campaign contributions and lobbying to gain grip on regulatory decision making (Claessens et al., 2008).

More formal ways of gaining access to information and networks is by appointing regulators or decision makers to the board of a firm. When politicians are appointed to a board of directors of a focal firm they form an interlocking directorate (Mizruchi, 1996). Interlocking directorates, or board interlocks, are one of the most studied forms of interorganizational networks, because they form a unique opportunity of sharing information between organizations (Haunschild & Beckman, 1998). Outside information can help companies to make strategic decisions in cases of uncertainty. This is why highly regulated sectors, with more uncertainty, are more strongly connected than others (Agrawal & Knoeber, 2001). Firms can use interlocking directorates to gain multiple advantages over their non-connected competitors. Interlocking firms can adopt effective strategies from their connected firms (Pfeffer & Salancik, 1978), or use their relationship to signal prestige and trustworthiness (Mizruchi, 1996). Firms can also use political ties to capture regulators with the selective spread of information, adding information asymmetry to the market (Dal Bó, 2006).

This dissertation will contribute to the literature of risk by studying the effects of political connections through interlocks on the financial risk taking of financial institutions in Europe from a perspective of information and regulatory capture. Recent literature has not been coinciding about the effects of interlocks to the financial risk taking of financial institutions. Contreras et al. (2018) studied the effect of regulatory interlocks on the financial risk-taking on banks in the US and found that it can have a moderate positive effect on reducing risk. Contrary to these findings Kaczmarek et al. (2014) found that interlocks decrease the effectiveness of boards and their governance structure using a UK dataset.

Boards form an important link in corporate governance as they are the transmitter of information and responsible for controlling the firm (Beltratti & Stulz, 2012). The composition of a board causes for a unique microsystem, with its own culture and moral codes (Rhoades et al., 2000). There is an abundance of literature about the positive effects of gender diversity on governance (see Adams & Ferreira, 2009; Francoeur et al., 2008; Tejedo-Romero et al., 2017). These microsystems interact with the external sources of information, such as interlocks (Ong et al., 2003). This dissertation will contribute to the field over governance and risk by examining the moderating effect of women on interlocks. As we believe that a female board would interact differently with information than a male board would do (Powell & Ansic, 1997).

2. Literature review

2.1 Governance in the financial industry

The recent financial crisis of 2008, and the aftermath, have fired up the debate about the risk-taking and corporate governance of financial institutions (Goldstein & Veron, 2011). The Basel Committee on Banking Supervision have further strengthened this debate by inquiring new research on the topic of corporate governance in the financial industry (Andres & Vallelado, 2008). The financial industry requires extradentary attention due to the large societal impact (Dell'Atti et al. , 2017), and reliance on tax payers in case of bail outs (Duchin & Sosyura, 2012). Corporate governance frameworks for other industries are not applicable in the financial industry due to the difference in capital structure (Laeven & Levine, 2009) and the complex agency-principal relationship imposed by this structure (Ciancanelli et al., 2000). The capital of financial institutions is nearly entirely composed of deposits and bonds making classical shareholder oversight inefficient (Becht et al., 2012). Managers do not need the approval of depositors and bond holders when making risk bearing decisions (Becht et al., 2012), thereby creating large information asymmetry between the institutions and the capital providers (Ciancanelli et al., 2000). Regulators are put into place to monitor the industry creating a more complex governance structure (Ciancanelli et al., 2000). Shareholders, and other capital suppliers, largely rely on these regulators to monitor the financial institutions on their behalf (Aebi et al., 2012).

Directors are appointed on behalf of the shareholders to manage and monitor the capital investments in the best interest of shareholders (Fama, 1980). In the governance framework of financial institutions, directors are not only responsible to operate in the best interest of shareholder but are also responsible for the transmission of information to regulators and depositors (Andres & Vallelado, 2008). This causes a triangular agency problem between the management, shareholders and regulators (Ciancanelli et al., 2000). As a result of this triangular relationship and the complexity of the agency-principal relationship, financial institutions tend to have higher information asymmetry than organizations in other industries (Dal Bó, 2006). Strict banking regulations are put into place by governments to combat the problem of asymmetric information (Chortareas et al., 2012), and the societal risk this asymmetry entails (Houston et al., 2010). There is a conflict of interest between shareholders and regulators that further increases the tension on the classical agency relationship. While shareholders want to maximize their investment in terms of capital gains and returns (Fama, 1980), regulators want to reduce the risk taking in a competitive market (Grove et al., 2011). Capital reserve criteria cause for non-return accumulating capital and thereby act in contrast to the interest of

shareholders (Fama, 1985). In other ways there might even be a conflict of interest within the regulators themselves. While regulators impose capital restraints to reduce the risk of the market (Fama, 1985), regulators are also responsible for market competition and the prevention of monopolies (Jiménez et al., 2013). Competitions within the banking industry have caused banks to take increase the investment in risky assets in order to stay competitive for both shareholders and depositors (Boyd & De Nicolo, 2006). Regulators are balancing the interests of consumers and the stability of the market (Dal Bó, 2006), and relying on the information provided by the market to do so efficiently. Directors are an important source of market information (Andres & Vallelado, 2008) sharing both information using formal reporting as well as voluntary discharge of information (Dal Bó, 2006). The asymmetric nature of information spread between regulators and financial institutions reduces the effectiveness and efficiency of market monitoring by regulators (Dal Bó, 2006).

2.2 Political connections and risk-taking

The entanglement of corporate businesses and politicians is not a new topic. For the past decades researchers have studied the networks of social elites between corporates and governments (Mizruchi, 1982). More recent studies have looked at the effects of these networks on the performance and risk-taking within firms (e.g Davis, 1996; Mizruchi, 1996; Pombo & Gutiérrez, 2011; Zona, Gomez-Mejia, & Withers, 2015). Despite the long history of research in this topic scholars do not seem to meet coherence. In the next two parts I will be discussing the two main hypotheses supported in this field today.

2.2.1 Information hypothesis

Firms, according to the recourse-dependence theory, rely on other firms within their environment to access resources such as information (Haunschild & Beckman, 1998). Such access may be particularly important when firms operate in uncertain environments or regulated markets (Kaczmarek et al., 2014). Firms manage to gain access to resources of other firms and governments through the formation of interorganizational networks (Provan & Milward, 2010). That is, firms build relations with each other through alliances, syndicates, and board interlocks, just to mention a few. The last one in particular is important to this research. In fact, board interlocks are one of the most studied forms of interorganizational networks because they offer resources to facilitate cooptation, monitoring and legitimacy (Mizruchi, 1996), all important for a well-functioning board (Dalton & Dalton, 2005).

Information asymmetry is a large source of risk for organizations as it reduces the grip on external factors influencing their business (Liao et al., 2009). Firms that are subject to large

amounts of information asymmetry are making higher hedging investments and operate less efficient (Choi et al., 2013), causing an increased financial risk for these organizations (Kwan & Eisenbeis, 1997). Recourse dependence-theory specifies the advantages of interlocks in terms of coordination of inter-organizational resources such as capital allocation, market access, and access to information (Pfeffer & Salancik, 1978). The sharing of inter-organizational resources reduces information asymmetry (Agrawal & Knoeber, 2001), and thereby reduces risk for the company (Kwan & Eisenbeis, 1997).

Apart from that firms utilize interlocks to adopt practices from other firms (Haunschild & Beckman, 1998), and to learn and implement stable strategies (Pfeffer & Salancik, 1978). Strategic planning and business planning are positively correlated to a firm's performance and long-term viability (Brinckmann et al., 2010), and thereby reduce financial risking of an organization (Kwan & Eisenbeis, 1997). However, long-term strategic planning requires a stable and certain external environment (Brinckmann et al., 2010). Environmental uncertainty plays a more dominant role in highly regulated markets such as financial industry (Kaczmarek et al., 2014). Interlocks play a large role in securing external resources from the external environment and reducing environmental uncertainty (Pfeffer & Salancik, 1978).

Organizations with interlocking boards achieve better financial results (Ong et al., 2003; Pombo & Gutiérrez, 2011), by engaging in alliances and pacts (Agrawal & Knoeber, 2001). These relationships cause for an increase in bilateral investments and procurements (Duchin & Sosyura, 2012), as well as reducing cost of capital (Di Donato & Tiscini, 2009). Risk-avoidance is not fixed over time and depends largely on experiences in the past. Success leads to a lower risk-taking in the future (March, 1988). A firm's performance can be interpreted as its measure for success. The abundance of available literature describing the positive effects of interlocks on financial performance leads us to believe there is a negative association between interlocks and financial risk taking.

The increased complexity of post-crisis regulation has put more pressure on management to govern firms (Goldstein & Veron, 2011). Political connections form a unique channel of knowledge and expertise on corporate governance and regulations. The "Information hypothesis" suggests that political connections reduces the financial risk taking of firms due to adaptation of knowledge and skills to govern firms. The implementation of effective corporate governance encourages financial institutions to reduce risk and use resources efficiently.

Hypothesis 1a "Information hypothesis": Political connections reduce financial risk-taking.

2.2.2 Regulatory capture hypothesis

When financial institutions appoint a regulator to sit on their board of directors this reduces the independence of this regulator, resulting in regulatory capture. The independence of regulators is of great importance to ensure proper monitoring and supervision of the financial industry (Quintyn & Taylor, 2003). A lack of independence can result in laxer monitoring and enhanced information asymmetry (Dal Bó, 2006). The presence of information asymmetry enables financial institutions to selectively disclose information that benefits their position (Grossman & Helpman, 1994), voluntary disclosure of information creates a signalling effect of well behaviour which results in laxer regulatory enforcement (Lambert, 2018). Empirical research has shown that financial institutions with political ties are 44.7% less likely to receive regulatory enforcement (Lambert, 2018). Regulatory capture as a result of political connections has been identified at the Security Exchange Committee (Correia, 2014), Internal Revenue Service (Hunter & Nelson, 1995), as well as the federal agencies in charge of American commercial and savings banks (Lambert, 2018). Regulators are limited to observe the financial risk within financial institutions due to regulatory capture, increasing the moral hazard within financial institutions (Dal Bó, 2006).

Moral hazard plays an important role within politically linked financial institutions as they anticipate preferential treatment in case of financial distress (Kostovetsky, 2015). Moral hazard occurs when organizations are taking on risk because there is an (assumed) external bearer of that risk (Tanaka & Vourdas, 2018). Politically connected financial institutions are more likely to receive government bailouts and other financial aid programs such as the US Trouble Asset Relieve Program (TARP) (Duchin & Sosyura, 2012). Not only have these institutions increased their financial risk, by increasing their leverage and underwritten more subprime mortgages, prior to the financial crisis (Kostovetsky, 2015), they have continued to do so during the financial crisis in anticipation of governmental aid (Dam & Koetter, 2012). Financial institutions use dividend payouts and share buybacks to divert the financial risk from shareholders to lenders and taxpayers (Onali, 2014). The incentives that organizations have to engage into political ties, cause large sources of moral hazard (Dal Bó, 2006).

The abundance of literature connecting political ties to financial risk taking leads to believe that organizations use political ties to avert regulatory supervision (Peltzman, 1976) and affectively increase the problem of moral hazard within financial institutions (Ciancanelli et al., 2000). Interlocking directorates between politicians and financial institutions reduces the independence of monitoring and thereby the effectiveness of monitoring (Quintyn & Taylor, 2003). Regulators are effectively removed from the governance framework when captured, weakening the corporate governance structure of financial institutions (Ciancanelli et al., 2000),

leading to higher risk taking (Aebi et al., 2012). This dissertation will therefore include the "Regulatory capture hypothesis" stating that political connections increases higher financial risk-taking within financial institutions because financial institutions operate under reduced scrutiny due to regulatory capture (Kostovetsky, 2015), and are taking on extra risk in anticipation of preferential treatment in case of financial distress (Dam & Koetter, 2012).

Hypothesis 1b "Regulatory capture hypothesis": Political connections increase financial risk-taking.

2.3 Interlocks in the presence of board diversity

Boards form a mechanism for corporate governance (Andres & Vallelado, 2008) by transmission of information on to regulators and principles (Ciancanelli et al., 2000). The processing of information conveyed by interlocking directorates is influenced by the receptiveness of a board (Shropshire, 2010). Board receptivity, the ability of a board to process information, is being determined by the structure and demographics of a board (Dalton et al., 1998), and can be increased by the inclusion of demographic diversity (Rhoades et al., 2000). Diversity, and more specific gender diversity, creates better performing teams (Schubert, 2006), and increases corporate governance within firms (Adams & Ferreira, 2009). The increase of corporate governance might be explained by the risk averse nature of women compared to their male counterparts (Powell & Ansic, 1997). Female managers are also more receptive to external sources of information, leading to better decision making (Powell & Ansic, 1997).

The majority of studies on the topic of gender diversity have discussed this topic as a microsystem, in isolation of external relationships (see Adams & Ferreira, 2009; Harjoto, Laksmana, & Lee, 2015; Tejedo-Romero, Rodrigues, & Craig, 2017). Boards are in this respect viewed as closed off microsystems with their own culture, social rules, regulations (Costa et al., 2001), which for their effectiveness rely on the characteristics of the members in their system (Dalton & Dalton, 2005). The receptiveness of these boards influences the effect of information introduced by interlocks. Ong et al. (2003) recognized that changes in board demography change the receptivity to information conveyed by interlocks. More recent studies have showed the positive impact of gender diversity on the receptivity of information conveyed by interlocks (see Kaczmarek et al. 2014; Shropshire, 2010). The effect of interlocks is moderated by gender diversity in boards as the microsystems of boards determine the treatment of information (Shropshire, 2010).

An increase in gender diversity is expected to positively moderate the effect of interlocks as the information conveyed with these interlocks is been used more extensively

(Powell & Ansic, 1997). The effect of the interlocks will increase due to the better processing of information. In the light of the information hypothesis a more gender diverse board should be better able to accumulate and process information, in line with the resource-dependence theory this should cause a reduction of risk (Agrawal & Knoeber, 2001).

Hypothesis 2a: An increase in gender diversity positively moderates the influence of interlocks on firm risk-taking

In the light of regulatory capture hypothesis, we expect women to negatively moderate the effect of interlocks on firm risk-taking. Women are more likely to adopt conservative strategies that are risk averse to the nature of the business (Johnson & Powell, 1994). Increased dividend payouts, and other actions associated to moral hazard positively impact the risk-taking of an organization (Onali, 2014). An increase in gender diversity reduces the likelihood of moral hazard by strengthened corporate governance measures (Adams & Ferreira, 2009), and therefore negatively moderate the effect of interlocks on the financial risk-taking of organizations.

Hypothesis 2b: An increase in gender diversity negatively moderates the influence of interlocks on firm risk-taking
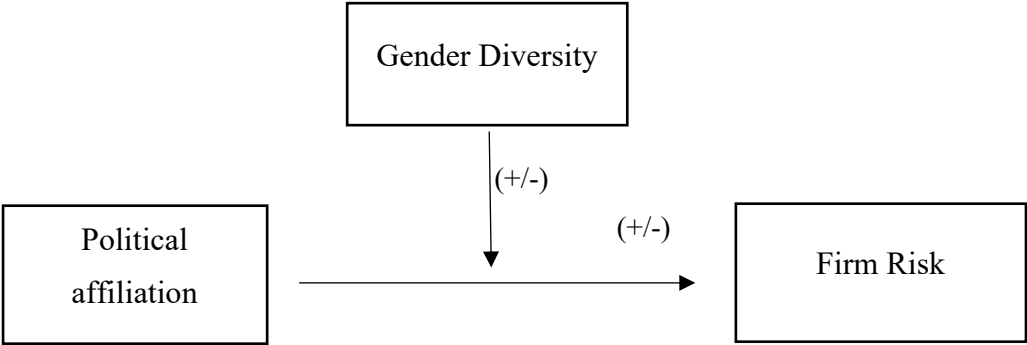

Figure 1: Conceptual model for the moderating effect of gender diversity

3. Methods

3.1 Sample and data collection

I test the proposed hypotheses using a panel dataset of 280 publicly listed financial institutions (including banks and investment firms) within the European Union between 2005 and 2018. The research is limited to the financial industry as political ties are not equal between industries (Peterson & Pfitzer, 2009). Due to limitations in data availability this research will only focus on financial institutions that are publicly traded within the European Union. The data for the sample is collected using multiple sources. Interlocks, board composition, and corporate governance data is collected from BoardEx, whereas financial data is collected using Thomson Reuters Eikon. Table one (1) shows the sample distribution by countries. It is clear from this table that due to data availability the sample is biased towards the United Kingdom (54.7%). To check the effects of this bias on the robustness of the model appendix 3 includes regressions without the UK. Table two (2) shows the sample distribution through time.

Table 1: sample distribution by country				Table 2: sample distribution by year		
	N	%			N	%
Austria	75	2.74		2005	186	6.80
Belgium	57	2.08		2006	195	7.13
Cyprus	20	.73		2007	194	7.09
Czech Republic	14	.51		2008	194	7.09
Denmark	42	1.54		2009	191	6.98
Finland	48	1.76		2010	189	6.91
France	153	5.59		2011	188	6.87
Germany	148	5.41		2012	190	6.95
Greece	37	1.35		2013	192	7.02
Hungary	27	.99		2014	202	7.39
Italy	227	8.30		2015	213	7.79
Lithuania	13	.48		2016	206	7.53
Luxembourg	16	.59		2017	207	7.57
Malta	14	.51		2018	188	6.87
Netherlands	46	1.68		Observations	2735	
Poland	91	3.33				
Portugal	24	.88				
Republic of Ireland	9	.33				
Romania	21	.77				
Spain	108	3.95				
Sweden	49	1.79				
United Kingdom - England	1160	42.41				
United Kingdom - Scotland	336	12.29				
Observations	2735					

3.2 Variables

3.2.1 Dependent variables

To measure risk, I use the Z-score as a proxy. The Z-score is a popular proxy for measuring the risk of banks (see Boyd et al., 1993; Jiménez et al., 2013; Konishi & Yasuda, 2004; Laeven & Levine, 2009). The Z-score measures the distance from insolvency by the amount of standard deviations (Roy, 1952). For the robustness of the model this dissertation will include two measures of Z-scores: Z1, and Z2. Z1 uses current return on assets (ROA) and capital assets ratios (CAR) divided by the mean variance of the returns on assets calculated of a rolling window or n=3 (Boyd & De Nicolo, 2006). This method allows for the most time variance between Z-scores, the negative side effect of this approach is that it requires to drop observations in the beginning of the sample resulting in a smaller sample (Lepetit & Strobel, 2013).

$$Equation\ 1: Z1_t = \frac{CAR_t + ROA_t}{\sigma_{ROA,t,n=3}}$$

Z2, proposed by Hesse & Čihák (2007), uses current CAR and ROA divided by the return on assets over the full sample[3]. While this approach reduces the time variance by using the sample mean for sigma ROA, it increases the sample size by reducing the number of dropped observations. The advantages of using standard deviations of the full sample is that it does not require to drop initial observations while allowing for time-varying Z-values (Lepetit & Strobel, 2013). To correct for skewness for the Z-score I take the natural logarithm of the Z-score (Laeven & Levine, 2009; Lepetit & Strobel, 2013, 2015).

$$Equation\ 2: Z2_t = \frac{CAR_t + ROA_t}{\sigma_{ROA}}$$

3.2.2 Political connections

This dissertation studies ties between financial institutions and regulators. The regulatory process can be broken up into four different parts: authorization, supervision, enforcement, and crisis management (Lastra, 2003), with over one hundred parties involved.

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[3] This approach is contrary of that of Boyd & De Nicolo (2006) (and many others: e.g. Contreras et al. (2018); Kaczmarek et al. (2014); Li, Tripe, & Malone (2017); Onali (2014)) who propose a rolling window of n=3. Lepetit & Strobel (2013) studied the accuracy and fit of five (5) different methods of calculating Z-scores (including the rolling window approach) and found that using standard deviations calculated of the whole sample resulted in lower RMSE. This method has the added advantage that it does not require to drop observations in the beginning of the sample.

(152 are included in this research, detailed list can be found in appendix 1). The authorization process starts with the European Commission. The European Commission is the only legal entity that can introduce new laws or amendments. All regulations have to be approved by both the European Parliament as well as the European Council (European Parliament, 2019). The International Monetary Fund (IMF) counts as an influential source of information in the decision-making of the European Commission. The European Central bank as well as National Banks participate in this process by providing information and projections about the current state of the market (Keller, 2018).

The supervisory process is more segregated with a large number of local parties involved. The Supervisory Board of the European Central Bank is mandated with organizing and overseeing the supervising responsibilities for local and European entities. These entities include national central banks, national financial authorities, as well as the European Banking Authority (ECB, 2019b). Depending by state, some of these agencies have the mandate to both supervise as well as to enforce regulations. The European Union does not require member states to have separate agencies for supervision and enforcement (ECB, 2019b). The Netherlands as well as The United Kingdom opted for a split system of supervision and enforcement with separate market authorities and national central banks, while Poland as well as Hungary are examples of countries that opted for single enforcement agency in the form of their national central bank (ECB, 2019c). National governments, and most importantly their mandated national ministries, play a large role in the execution of these supervisory and enforcement roles (Barth et al., 2003).

The importance of a crisis management framework became clear during the last financial crisis. The mandate of the ECB is to maintain the inflation rate at 2% and being responsible for adequate liquidity access for financial institutions within the Euro zone (Tillmann, 2016). In the event of a bail out multiple agencies have to cooperate: ECB, European Commission, national parliaments, as well as the Single Resolution Board (Single Resolution Board, 2019).

The variable Political Connection is a count variable that increases by one (1) for every board interlock the financial institutions has with a regulator.

3.2.3 Gender diversity

In order to determine the influence of gender diversity on board receptivity as in Adams & Ferreira (2009) I generate a variable that measures diversity as the percentage of board positions filled by women.

3.2.4 Corporate governance

I included corporate governance variables into my study to measure alternative sources of risk. Levels of corporate governance are strongly related to financial risk-taking (Aebi et al., 2012). I included four (4) proxies for corporate governance that are commonly used in literature related to financial risk taking.

A meta-study conducted by Dalton et al. (1999) demonstrated that there is a significant interconnection between board size and firm performance. Thus, larger boards are more agile and better informed to manage firms. This theory is in line with the resource dependence theory that states that an increase of information availability leads to better corporate governance (Faccio, 2010). I constructed the variable for board size using a count variable that adds one (1) for every board member active in the board in a given year (Guest, 2009; Larmou & Vafeas, 2009).

Westphal & Zajac (1995) demonstrated that board experience and representation within the company is positively related to firm performance. I included the average experience of all board members as a proxy for tenure. The average experience is calculated by adding all the work experience in years of all executives divided by the number of board members.

The presence of risk committee is positively related to risk management performance (Aebi et al., 2012). Given this knowledge this study includes a dummy variable that counts one (1) for the presence of a risk committee or zero (0) for the absence of such a committee.

Independent directors are believed to be better controllers, as well as serving a role of professional advisor (Adams & Ferreira, 2009; Bear et al.,2010). Firms benefit from the inclusion of advisors into their company as it better informs them to make the right decisions (Agrawal & Knoeber, 2001). I therefore included a ratio variable ranging from zero (0) to one (1). With a value of one (1) if all members are independent and zero (0) if none of the board members are independent.

3.2.5 Firm characteristics

Firm size is commonly used as a variable to characterize firms (Kaczmarek et al., 2014; Stuart & Yim, 2010; Zona et al., 2015). In line with Fich et al. (2006) and Kaczmarek et al. (2014) I chose to measure firm size by its total assets.

Fama & French (1992) state companies with low price-to-book ratios are more likely to be in financial distress than companies with lower price-to-book ratios. Supporting this view Keeley (1990) provides evidence that companies with high price-to-book ratios do not take significant risk, while companies with low price-to-book ratios increase their risk to increase charter (Carletti & Hartmann, 2003). Demsetz & Strahan (1997) further add charter is

negatively related to financial risk. The variable price-to-book value is used to proxy charter value.

3.2.6 Significant Institutions

This dissertation controls for financial institutions that are directly supervised by the European Central Bank. The European Central Bank has the mandate to increase supervision on financial institutions that impose a large systematic risk to the European financial system. Institutions are marked as such based on multiple criteria (e.g. size, foreign transactions, financial assistance). The ECB re-evaluates their list of significant institutions on an annual basis (ECB, 2019a). While the criteria are publicly available due to data restriction, I have decided to restrict my proxy to the size (i.e. total value in excess of 30 billion euro). Institutions are either awarded a score of one (1) when marked as a significant institution or zero (0) when not.

3.2.7 Fixed effects

The model includes three fixed effects into my model to correct for biases from unobserved variables. First, I incorporated a fixed effect for the countries. Regulations and jurisdictional institutionalization of countries play a large role on corporate governance and the financial performance of firm (La Porta et al., 2000) Secondly, I corrected for year fixed effects as the timeframe of this study included financial shocks and other macro-shocks. Financial shocks can have an effect on institutions even outside the region of the original shock (Peek & Rosengren, 1997). Finally, I corrected for firm effects between institutions that are not included by the independent variables.

3.3 Analysis

To test the main hypotheses, this dissertation used a fixed effects panel regression[4]. The fixed effects model allows to measure changes over time while it corrects for time invariant variables that bias the estimation. Furthermore, fixed effects estimations are commonly used which allows for an easy interpretation and comparison with estimations from previous studies (e.g. Claessens et al. (2008); Contreras et al. (2018); Kaczmarek et al. (2014); Khwaja & Mian (2005); Pathan et al. (2007)).

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[4] This model was chosen based on the results of the Hausman test comparing the fit of the Random effects model and Fixed effects models (Bell & Jones, 2015). $\alpha = 0.0254 < 0.05$

For this regression I use the following equation (4):

$$Risk\ taking_{it} = \beta_0 + \beta_1 PolfCon_{i,t-1} + \beta_2 Diversity_{i,t-1} + \beta_3 PolCon \cdot Diversity_{i,t-1}$$
$$+ \beta_4 Boardsize_{i,t-1} + \beta_5 NED\%_{i,t-1} + \beta_6 CEO_{it} + \beta_7 RiskCom_{i,t-1}$$
$$+ \beta_8 Independent_{i,t-1} + \beta_9 Firmsize_{i,t-1} + \beta_{10} FirmCharter_{i,t-1}$$
$$+ \gamma_1 YearEffects + \gamma_2 CountryEffects + \gamma_3 FirmEffects + \epsilon_{it}$$

Equation 4: Functional form

In accordance to the findings of Brown et al. (2011) I will test my main hypothesis using a one period lag for all variables related to corporate governance. The effects of changes in the board that can alter the corporate governance of a firm are not instantaneously observable (Brown et al., 2011). In line with Ghosh and Vogt (2012) outliers are Winsorized at the 95th percentile. Winsorizing outliers will transform extreme observations to the maximum values given by the 95th percentile (Kokic & Bell, 1994). Furthermore, robust standard errors firm level clustering were used in all estimations to create unbiased standard errors, correct for heteroskedasticity[5] and serial correlation[6] (Petersen, 2008; Stock & Watson, 2008). Based on the variance inflation factors of the variables I will be using non log transformed total assets as a proxy for firm size (appendix 4)(O'brien, 2007).

3.4 Descriptive Statistics

Table three (3) shows the summary statistics of the sample. There seems to be a large difference in the estimations of our two Z-scores due to the difference in time variance (Lepetit & Strobel, 2013). As mentioned before lognormal transformation of the Z-values are used to correct for skewness resulting in possible negative Lognormal Z-scores. These banks did declare bankruptcy either during the year negative z-scores were reported or the year after. The larger time variance of Z1 is visible in the higher standard deviation compared to Z2.

Similar to the findings of Contreras et al. (2018) five percent (5%) of all financial institutions in the sample have political connections. This dissertation found that European firms have more gender diversity than similar American financial institutions (e.g. Contreras et al. (2018); Kaczmarek et al., (2014)). 17.2% Of all board members are female, but there are large differences between boards. Some firms are entirely managed by women while other firms in this sample do not have any women in their board. The financial institutions in this sample

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[5] Heteroskedasticity was identified using a modified Wald test for groupwise heteroskedasticity (Stock & Watson, 2008). $\alpha = 0.000 < 0.05$

[6] Serial correlation was identified using the Wooldridge test for autocorrelation in panel data (Drukker, 2003). $\alpha = 0.000 < 0.05$

differ greatly by size. The largest bank in our sample has total assets accumulating to 1.8 trillion euros while the smallest bank in this sample had only 6.8 million euro in assets. The average amount of assets in this sample is 94 billion euros. The variance in firms' size is reflected by the large variance in board size (9.4) with some companies have no more than one single executive while the largest board in this sample consists of 42 executives. The percentage of independent board members is ranging from 30% to 100% with a mean of 87%. The tenure of a board measured by the average experience of all board members in years is six years (6) the most experienced board in this sample had an average of 18 years of experience. 36.55% Of the institutions included in the sample have a risk committee appointed within the board. This is way higher than those in comparative American samples (e.g. Aebi et al., 2012; Contreras et al., 2018).

The average firm charter, measured by the price to book ratio, is 1.1. The minimum price to book ratio is 0.8 while the maximum price to book ratio within our set is 5.1 times the book value of assets. 21.1% Of the firms in our dataset can be marked significant institution based on the ECB criteria.

Table 3: Summary Statistics					
	Mean	Std.Dev	Min	Max	N
Ln[Z1]	2.6102	1.5611	-1.4102	7.2383	2398
Ln[Z2]	1.7053	1.0548	-2.3185	4.6523	2682
Political connections	.0498	.2436	0	3	2735
Female Directors %	.1719	.2615	0	1	2735
Moderator	.0106	.0617	0	1	2735
Board Size	8.4848	9.4295	1	42	2735
Independent board members	.8696	.1777	.3	1	2735
Avg. Experience Yrs.	6.0405	3.4963	1	18.2	2735
Risk committee	.3655	.4817	0	1	2735
Firm Size	9.43e+10	3.09e+11	6750	1.81e+12	2735
Charter	1.0816	.7234	.08	5.1	2735
Significant Institution	.2111	.4082	0	1	2735

To examine whether banks that have political connections within their boards do differ from those who do not I have divided the sample into two subsamples using the political connectivity dummy. I performed a t-test to examine the differences between the two subsamples (table 4). All variables apart from charter are significantly different between the two subsamples. Banks without political connectivity seem to have a lower risk preference than those with political connection within their board. This difference is robust no matter the time

variance measure applied to calculate the Z-score. Diversity plays a more important role in firms with political connections, having on average 5% more women in their board then firms without these connections. Firms with political connections tend to be larger than those who do not have these kinds of connections. This is not only displayed by the difference in total assets, which shows that firms with political connections are on average roughly three (3) times larger than those without, but also in board size. 69% of the firms having political connections are marked as a significant institution compared to 19% for those without ties.

The average experience of board members tends to be higher for firms without political connections as well as their share of independent board members. While just 35% of firms without ties are having a risk committee appointed, 76% of firms with political connections have appointed such a committee.

Table 4: Mean differences between institutions with and without political connections within their board

| | Political connections | | | |
| | No | Yes | | |
	Mean	Mean	T-Statistic	N
Ln[Z1]	2.6359	2.0590	3.6935***	2398
Ln[Z2]	1.7349	1.0712	6.3239***	2682
Female Directors %	.1698	.2182	-1.8470*	2735
Board Size	7.9807	19.2789	-12.3240***	2735
Independent board members	.8746	.7627	6.3292***	2735
Avg. Experience Yrs.	6.0922	4.9344	3.3079***	2735
Risk committee	.3471	.7596	-8.6715***	2735
Firm Size	8.72e+10	2.46e+11	-5.1426***	2735
Charter	1.0821	1.0707	.1569	2735
Significant Institution	.1886	.6923	-12.7190***	2735
Observations	2331			

$^*\ p < 0.10,\ ^{**}\ p < 0.05,\ ^{***}\ p < 0.01$

4. Results

Table five (5) shows the results of four (2) different estimations. All regressions use lagged version of the governance proxies as prescribed by Brown et al. (2011).

The results suggest that Z1 is a better fit to the data compared to Z2, the overall goodness of fit in regression 7 is R-squared = 0.2188 compared to R-squared = 0.1246 in regression 8.

Both regressions do not show any evidence to support the information hypothesis (1a), that political connectivity reduces risk in accordance with the resource dependency theory. Across both regressions the coefficient for political connections (PolCon) is negative supporting the moral hazard hypothesis (1b). The effect is only significant ($p < 0.01$) in regression eight (8) using Z2 with lower time varying variance over Z1. According to the findings of regression eight a political connection increases the risk taking of a financial institution by 9.8%[7]. These findings are in line with the findings of Grusky & Mills (2018) and Mace (1972) and supported by the findings of Kostovetsky (2015) that banks with political connections take more risk than those who do not engage in those connections. These findings are contrary to the more popular concept of resource dependency and the positive effects of interlocks. A possible explanation for this behaviour can be found in the reduced likelihood for penalties for firms that have relationships with governments as well as an increased likelihood of bailouts for those firms (Dam & Koetter, 2012; Lambert, 2018).

The results provide evidence for the positive effect of women in boards. Across all panels the coefficients are positive, while only Z2 produces significant effects for gender diversity ($p < 0.1$). A one percent increase in women increases ln[Z2] by 0.071, thereby reducing the risk of the firm by 7.3%.

The moderator catches the interaction between gender diversity within the board and the existence of a board interlock (PolCon). Hypothesis 2a and 2b suggests that there is an effect between the ratio of women in a board and the treatment of the information that comes available from a political connection. As we just discussed the presence of women in boards reduces the risk taking in boards (Adams & Ferreira, 2009). We furthermore believe that women process information in a more risk averse manner to compared to men (Tom et al., 2007). Although our panel provides clues that this effect is indeed positive. There does not seem to be a significant effect of this interaction. None of our coefficients are significant at a minimum level of 10%. While these findings are not contrary to those of Kaczmarek et al. (2014) the null hypothesis, that there is no significant moderating effect between gender diversity and political connections, cannot be rejected in the case of these results.

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[7] $\delta Z = e^\beta - 1$

Table 5: Main results

This table presents the estimates of two regression: (7) using Z1 as a proxy for risk with a rolling window of n=3 as proposed by Boyd & De Nicolo (2006) (8) using Z2 as a proxy for risk with a sample mean ROA as proposed by Cihák & Hesse (2014)

	(7) Ln[Z1]	(8) Ln[Z2]
Political connections	-0.282 (-1.20)	-0.103*** (-2.80)
Female Directors %	0.330 (0.75)	0.0708* (1.65)
Moderator	0.991 (1.06)	0.240 (1.37)
Board Size	-0.0171 (-1.20)	-0.00391 (-1.26)
Independent board members	0.593 (1.23)	-0.000436 (-0.00)
Avg. Experience Yrs.	0.00303 (0.13)	0.00218 (0.62)
Risk committee	0.453*** (2.93)	-0.0234 (-0.58)
Firm Size	5.88e-10 (0.44)	-1.49e-09*** (-2.64)
Charter	-0.220** (-2.22)	0.142*** (4.36)
Significant Institution	0.587*** (3.08)	-0.0560 (-1.45)
Constant	3.608*** (7.65)	1.711*** (12.19)
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Firm fixed effects	Yes	Yes
Observations	2377	2377
R-squared	0.2188	0.1246

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Taking a step away from the main hypotheses when examining the control variables there are some inconsistent coefficients controlling for firm size and charter. Firm size seems to be negatively correlated with risk taking at ($p < 0.01$) which is in line with previous findings from Demsetz & Strahan (1997) who found that large banks hold less capital over smaller banks which inevitably leads to a lower Z-score. The findings for charter are not robust when using different time varying Z-scores. Interpreting these findings, I would argue that firms do not take into account short run volatility when making decisions based on their charter. Most common used valuation methods fail to incorporate volatility of returns into their pricing models (Ang

& Liu, 2004). Therefore, Z1 fails to capture the response time on charter made by bank executives (Brown et al., 2011). Z2 which takes into account long run volatility of returns, and therefore better fits the environment of valuation modelling captures the reaction of executives based on charter ($p < 0.01$). There is no robust effect for ECB scrutinization of significant institutions. However, when lags are applied the effect of ECB scrutinization becomes robust and significant ($p < 0.01$). Direct ECB supervision reduces the risk taking of the financial institutions in our sample. The increased robustness when including a lag is in line with the findings of Brown et al. (2011). Brown et al. (2011) found that governance effects are measurable after a lagged period because it takes time to set up infrastructures and processes within organizations.

Apart from ECB scrutinization the existence of a risk committee in a financial institution has the highest risk reducing effect, 80% and 57% respectively. The findings are significant and robust ($p < 0.01$). No other corporate governance indicators seem to have any robust effect on the organization. The panel does not provide any evidence that supports the claims of Adams & Ferreira (2009), Dalton et al. (1999) and Westphal & Zajac (1995) about independent board membership, board size, and tenure.

4.1 Robustness

To check the robustness of the main analysis this paragraph will compare the main results to those of three subsamples (appendix 3; table 7). These subsamples have been constructed to check for possible biases in the analysis caused by sample biases. As mentioned in paragraph 3.1, a large part of the sample consists of UK firms. To check for a possible sample bias Panel E is constructed by excluding all UK firms. Comparing panel D and E we find that political connections do not longer significantly influence ($p > 0.1$) the financial risk taking of financial institutions. Furthermore, there is no longer significant evidence to support the role of female directors on risk taking. Adding to that there seems no longer a significant effect of ECB scrutinization. The findings from continental Europe do not only fail to support the positive effect of board size claimed by Dalton et al. (1999) but more strongly indicate a negative relationship between board size and financial risk. This means that the UK observations are driving the results of the main analysis. The difference in results might be explained by the difference in board structure between continental Europe and the UK. While UK firms are governed by a one-tier system, most European countries adopt a two-tier system of having a separate executive and non-executive board (Jungmann, 2006). Firms adopting a two-tier system opt for a small executive board that is responsible for the daily management of the firm, and a generally larger non-executive board that controls the executive board. These two boards

operate side by side and meet only during planned meetings (Jungmann, 2006). A large non-executive board will thereby not influence the resilience of the executive board in their day to day activities. A large group of non-executive members in a one-tier board could lead to a busy board, creating endless long discussions and a lack of resilience and decision making abilities (Fich & Shivdasani, 2006).

Panel F and G are constructed to exclude the effects of the European financial crisis. Panel F excludes all year observations during the financial crisis (2008-2009). Peni & Vähämaa (2012) demonstrate that banks' financial performance during the financial crisis was largely based on their corporate governance performance prior to the crisis period. The findings of Contreras et al. (2018) further support that financial institutions behaved differently during the financial crisis than in other periods. Panel G excludes those European countries most effected by the financial crisis (Hansen & Gordon, 2014). These countries (Cyprus, Greece, Portugal, Ireland and Spain) not only had more sovereign and bank debt prior as well as during the financial crisis, they also needed longer to recover from the effects of the European financial crisis (Slovik et al., 2011). Overall our findings are robust with our main hypothesis. However, the estimations for political connections lost significance in both panel F and G. The significance might be influenced by to the decrease in observations caused by the sample selection criteria[8]. Independent board members tend to have a more significant effect on financial risk taking in firms that are less effected by the financial crisis.

Overall the three robustness checks seem to support our main findings. Apart from the difference in effect from independent board members the direction of the coefficients does not seem to be influenced by biases in the sample. The results from the robustness analyses are less significant than those using the complete sample.

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[8] Assuming an equal effect of the coefficient the p-value is reduced by an increase in observations. $T = \frac{\bar{x} - \mu}{S / \sqrt{N}}$

5. Conclusion and discussion

The purpose of this dissertation is to find the impact of political connections on the financial risk taking of financial institutions in the European Union. This dissertation adds to a long list of publications about the role of interlocking boards on firm performance and financial risk taking. The findings of this dissertation do not support the information hypothesis that suggests that political connections increase the information availability.

After the 2008-2009 crisis, stricter measures were taken to further reduce the risk within the financial sector, these regulations led to much critics from financial institutions. Financial institutions claimed that these regulations created uncertainty and reduced competitiveness within the market. Interorganizational networks can be used to counteract uncertainty by increasing access to information. This dissertation has investigated the influence of interconnected boards by interlocking directorates on the risk-taking of financial institutions. The results of this thesis support the hypothesis of regulatory capture, which states that the financial risk increases when entering into board interlocks. According to this hypothesis, financial institutions use their relationship not only to gain access to information but also to increase information asymmetry in the hope of staying under the radar of regulators. The findings of this dissertation are in line with those of Lambert (2018), which found that banks use campaign contributions to create information asymmetry and question the individuality of regulatory authorities. The results of this dissertation have found no evidence to confirm the information hypothesis. In this context we can say that financial institutions do not use their interlocks to adopt strategies that lead to better efficiency.

In an attempt to expose the importance of microsystems within boards this dissertation has studied the effects of gender diversity in boards and their moderating effect on political connections. While this dissertation will add to an increasing list of empirical studies that have claimed the positive impact of gender diversity within boards, no such evidence has been found for the interacting effect of gender diversity on political connections. Politicians and central banks are increasingly worried about the impact of large banks on the economy as a whole (Rajan, 2006). While it is commonly believed that scrutinization and formal supervision of regulators lead to a reduction of risk (also supported by the findings in this dissertation)(DeFerrari & Palmer, 2001). The results of this dissertation add to the understanding of ties between regulators, financial service authorities, and central banks and financial institutions on financial risk taking.

5.1 Limitations

Risk is unobservable variable that is impossible to measure directly, therefore this dissertation had to divert to using proxy variables. This dissertation relies heavily on the assumption that the Z-score is a precise proxy of financial risk. A Z-score measures the distance from insolvency from zero to infinite, where zero (0) equals a state of insolvency. Lepetit & Strobel (2013, 2015) have published about the multiple methods of approximating the Z-score of which I incorporated the two methods best fitting for our sample into this dissertation. The difference in time varying variance between these Z-scores leads to different results and estimations of the models. The uncertainty about the fit of these Z-scores to the data creates possible biases and the explicability of the results.

Moral hazard is another unobservable variable (Gayle & Miller, 2009). This dissertation assumes that the financial risk of institutions increases due to an increase in moral hazard caused by interlocking directorates. Furthermore, this dissertation believes that financial institutions use information asymmetry to cause regulatory capture (Peltzman, 1976; Stigler, 1971).

Compared to other recent studies (see Contreras et al., 2018; Kaczmarek et al., 2014; Kostovetsky, 2015) the dataset of this dissertation has a small number of observations. The size of the dataset is limited due to the lack of available data from sources available to scholars at Radboud University. The use of lagged variables has further reduced the size of the panels used in the analyses. Small panels can lead to misinterpretation of significance levels (Royall, 1986), caused by the influence of sample size in the estimation of t-statistics. Furthermore, the goodness of fit between estimations is reduced due to the small sample size (Taylor, 1980). In short, a small sample size can cause miss interpretation of the results and thereby falls assumptions.

5.2 Future research

This dissertation adds to the field of risk and governance with the finding of new insights in the relationship between risk taking and politically connected financial institutions. Deriving from the findings of this dissertation there are three main subjects that require further investigation to allow for a clear understanding of politically connected financial institutions.

Contreras et al. (2018) has identified a negative relationship between financial risk taking and regulatory interlocks using a US sample. This is opposed to the findings of this dissertation and raises questions about the role of legal systems and other country specific governance indicators. The US and Europe have a different legal system resulting in different protection of shareholders and credit holders between the two continents. Common law countries (such as the US) are more focused on shareholder protection and serve debtors less

compared to civil law countries (most commonly found in Europe)(La Porta et al., 2000). Regulators are primarily responsible for the protection of consumers and savers (Ciancanelli et al., 2000),which makes their role more important in countries with lesser protection for debt holders. Research comparing the role of political connections on financial institutions between different governance structures should help to identify the differences between sample results.

This dissertation assumes that moral hazard leads to the execution of regulatory capture however, this dissertation is limited in the respect that it does not measure the relationship between financial-risk, interlocking directorates and regulatory enforcement. The link between interlocking directorates and regulatory enforcement actions needs further investigation in order to better understand the role of political connections on regulatory enforcement and regulatory capture. Lambert (2018) investigated the role of campaign funding and lobbying on regulatory capture by examining regulatory enforcement actions. As a last topic for further review, more understanding about political connections and the relationship to bailouts needs to be studied. It is understood that a governmental willingness for bailouts increases the financial risk-taking of firms (Dam & Koetter, 2012), and that campaign contributors have an increased chance of bailouts (Faccio, 2006). However, the effects of politically connected boards on the likelihood to receive bailouts has not been studies. Both these topics will help understanding the rationale behind the results of this dissertation. Understanding the effects of political connections on regulatory enforcement and the likelihood of bailouts helps to understand the perceived risk framework of bank directors needed to understand their risk preferences and financial risk-taking decisions.

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7. Appendices

Appendix 1: Regulatory Institutions

Country	Institute
Austria	Austrian National Bank (OeNB) AG
Austria	Finanzmarktaufsicht (Financial Market Authority) (FMA)
Austria	Austrian Federal Ministry of Finance
Austria	Federal Ministry of Economics and Labor (Austria)
Austria	Bundesministerium für Wirtschaft Familie und Jugend (Federal Ministry of Economy Family and Youth)
Belgium	European Commission (EC)
Belgium	BANQUE NATIONALE DE BELGIQUE (National Bank of Belgium)
Belgium	Ministry of Finance (Belgium)
Belgium	Agence Federale pour la Securite de la Chaine Alimentaire (AFSCA) (Federal Agency for the Safety of Food Chain (FASFC))
Belgium	Belgium Ministry of Economic Affairs
Belgium	Nationale Bank van Belgie NV
Belgium	Single Resolution Board (SRB)
Belgium	FSCy SPRL
Bulgaria	Ministry of Economy and Energy (Bulgaria)
Bulgaria	Ministry of Finance of the Republic of Bulgaria
Bulgaria	Bulgarian National Bank
Bulgaria	National Bank of Bulgaria
Croatia	Ministarstvo gospodarstva rada i poduzetni?tva (MGRP) (Ministry of Economy Labour and Entrepreneurship)
Croatia	Ministry of Finance of the Republic of Croatia
Cyprus	Republic of Cyprus Ministry of Finance
Cyprus	Central Bank of Cyprus
Cyprus	Cooperative Central Bank Ltd (CCB)
Cyprus	National Bank of Greece (Cyprus) Ltd
Cyprus	Commercial Bank of Greece (Cyprus) Ltd
Czech Republic	Ministry of Finance (Czech Republic)
Czech Republic	Czech National Bank
Czech Republic	Ministry of Industry and Trade of Czech Republic
Czech Republic	Czechoslovak National Bank
Denmark	Danish Ministry of Economic and Business Affairs
Denmark	Danish Ministry of Finance
Denmark	Danmarks Nationalbank (National Bank of Denmark)
Denmark	Danmarks Nationalbanks Repræsentantskab
Denmark	Danish National Bank
Denmark	Ministry of Industry Business and Financial Affairs
Denmark	Finanstilsynet (Danish FSA)
Estonia	National Bank of Estonia
Estonia	Ministry of Finance (Estonia)
Estonia	Majandus-ja Kommunikatsiooniministeerium (Ministry of Economic Affairs and Communications)
Finland	Ministry of Finance (Finland)
Finland	Suomen Pankki (Bank of Finland)
Finland	Hungarian Financial Supervisory Authority (HFSA)
Finland	Finanssivalvonta (Financial Supervisory Authority) (FIN-FSA)
Finland	Ministry of Economic Affairs and Employment (MEAE) Finland
France	Banque de France (Bank of France)
France	Ministere de l'Industrie (French Ministry of Industry)
France	Ministry of Finance (France)
France	European Securities and Markets Authority (ESMA)
France	Autorité de contrôle prudentiel et de résolution (ACPR) (Formerly known as Autorité de Contrôle Prudentiel)
France	Ministère de l'Economie du Redressement productif et du Numérique (Ministry of Economy Productive Recovery and Digital)
France	Ministère de l'Economie de l'Industrie et du Numérique (Ministry of Economy Industry and Digital)
France	Ministère de l'industrie et de l'aménagement du territoire (Ministry of Industry and Spatial Planning)
France	French Central Bank
France	Banque de France de Toulouse SA
Germany	Bundesministerium der Finanzen (German Federal Ministry of Finance)
Germany	Deutsche Bundesbank AG
Germany	European Central Bank
Germany	German Ministry of Finance
Germany	Sächsisches Staatsministerium der Finanzen (Saxon State Ministry of Finance)
Germany	Ministry of Economics
Germany	Bundesministerium für Wirtschaft und Technologie (German Federal Ministry of Economics and Technology)
Germany	Bundesanstalt für Finanzdienstleistungsaufsicht (BAFin) (Federal Financial Supervisory Authority)
Germany	ECB Shadow Council
Germany	Bundesministerium für Wirtschaft und Energie (Federal Ministry for Economic Affairs and Energy)

Germany	Hessisches Ministerium der Finanzen (Hessian Ministry of Finance)
Germany	Swiss Euro Clearing Bank GmbH (SECB)
Germany	European Insurance and Occupational Pensions Authority (EIOPA)
Germany	European Systemic Risk Board (ESRB)
Germany	Commercial Bank of Greece (Germany) GmbH
Germany	Ministry of Economics Transportation and Innovation (Hamburgy)
Greece	EMPORIKI BANK OF GREECE SA (Commercial Bank of Greece prior to 06/2004) (De-listed 10/2011)
Greece	ATEBANK SA (Agricultural Bank of Greece prior to 05/2006)
Greece	Hellenic Republic Ministry of Finance (Greece)
Greece	Investment Bank of Greece SA
Greece	Bank of Greece
Greece	Hellenic Capital Market Commission
Greece	Emporiki Bank of Greece SA (Ceased Trading 06/2013)
Greece	National Mortgage Bank of Greece
Greece	InterBank of Greece
Hungary	Magyar Nemzeti Bank (MNB) (National Bank of Hungary)
Hungary	Ministry of Finance (Hungary)
Italy	Ministry of Economy and Finance (Italy)
Italy	Banca d'Italia (Bank of Italy)
Italy	Ministero dello Sviluppo Economico (Ministry of Economic Development) (MSE)
Italy	Commissione Nazionale per le Società e la Borsa (CONSOB) (Italy)
Italy	Ministry of Industry and Trade of Italy
Italy	Italian Ministry of Industry and Foreign Trade
Latvia	Ministry of Finance of the Republic of Latvia
Lithuania	Ministry of Finance of the Republic of Lithuania
Lithuania	Bank of Lithuania (Lietuvos bankas)
Luxembourg	Commission de Surveillance du Secteur Financier (CSSF)
Luxembourg	Ministry of Finance (Luxembourg)
Malta	Malta Financial Services Authority (MFSA)
Malta	Central Bank of Malta
Malta	Malta Financial Services Centre (MFSC)
Netherlands	Netherlands Ministry of Economic Affairs
Netherlands	Autoriteit Financiële Markten (Netherlands Authority for the Financial Markets) (AFM)
Netherlands	Ministry of Finance (Netherlands)
Netherlands	De Nederlandsche Bank NV
Netherlands	Dutch Ministry of Economic Affairs (MinEA)
Netherlands	Ministry of Economic Affairs Agriculture and Innovation (EL&I)
Netherlands	Pension Fund of De Nederlandsche Bank NV
Poland	Ministerstwo Gospodarki (Ministry of Economy) (Poland)
Poland	Ministerstwo Finansów (Ministry of Finance) (Poland)
Poland	Republic of Poland Ministry of Finance
Poland	Narodowy Bank Polski (Polish National Bank) (NBP)
Poland	Komisja Nadzoru Finansowego (KNF) (Polish Financial Supervision Authority (PFSA))
Poland	Narodowego Banku Polskiego (National Bank of Poland)
Poland	Ministry of Industry and Trade of Poland
Portugal	Comissão do Mercado de Valores Mobiliários (CMVM)
Portugal	Banco de Portugal
Portugal	Ministério da Economia Inovação e Desenvolvimento (Ministry of Economy and Innovation)
Portugal	Ministry of Finance (Portugal)
Portugal	Instituto Francisco Sá Carneiro (IFSC) (Francisco Sa Carneiro Institute)
Portugal	Fundo de Sindicação de Capital de Risco (FSCR)
Portugal	Portuguese Securities Market Commission (CMVM)
Republic Of Ireland	Department of Finance Republic Of Ireland
Republic Of Ireland	Central Bank of Ireland
Republic Of Ireland	International Financial Services Centre (IFSC)
Republic Of Ireland	Central Bank and Financial Services Authority of Ireland (CBFSAI)
Romania	National Bank of Romania
Romania	Financial Supervisory Authority (ASF) (Autoritatea de Supraveghere Financiar?)
Slovakia	Ministry of Finance of the Slovak Republic
Slovenia	Ministry of Finance (Republic of Slovenia)
Slovenia	Banka Slovenije (Bank of Slovenia)
Slovenia	Ministry of Economic Development and Technology (Republic of Slovenia)
Spain	Ministerio de Industria Energía y Turismo (Spanish Ministry of Industry Energy and Tourism)
Spain	Ministerio de Economia y Hacienda (Spanish Ministry of Economy and Finance)
Spain	Comisión Nacional del Mercado de Valores - CNMV (Spanish National Securities Market Commission)
Spain	Banco de España SA (Bank of Spain)
Spain	Spanish Ministry of Industry Tourism and Commerce (The)
Spain	Ministerio de Economía y Competitividad (Ministry of Economy & Competitiveness)
Spain	Ministerio de Economía Industria y Competitividad (Ministry of Economy Industry and Competitiveness)
Sweden	Ministry of Finance (Sweden)

Sweden	Sveriges Riksbank
Sweden	Ministry of Industry Employment and Communications (Sweden)
Sweden	Central Bank of Sweden
United Kingdom	Bank of England
United Kingdom	Bank of England Pension Fund
United Kingdom	Financial Services Authority (FSA) (Formerly known as Securities and Investments Board Ltd (SIB)
United Kingdom	Bank of England Property Forum
United Kingdom	United National Bank Ltd (United Bank UK) (UBL UK) (Pakistan International Bank (UK) Ltd prior to 10/2002)
United Kingdom	National Bank of Kuwait (International) PLC
United Kingdom	Prudential Regulation Authority (PRA) (Ceased Trading 03/2017)
United Kingdom	European Banking Authority (EBA)
United Kingdom	Financial Conduct Authority (FCA)
United Kingdom	Abbey National Bank PLC
United Kingdom	Central Banking Publications Ltd
United Kingdom	ECB Management Solutions Ltd
United Kingdom	Department of Finance and Personnel (DFP)
United Kingdom	National Bank of Scotland (Ceased Trading 12/1959)
United Kingdom	Financial Services Compensation Scheme Ltd (FSCS)
United States	International Monetary Fund (IMF)
Observations	152

Appendix 2; Table 6: Comprehensive analyses

This table presents the estimates of four panels: (A) estimation using non-lagged political connections, (B) estimation using non-lagged political connections including non-lagged moderation, (C) estimation using lagged political connections, (D) estimation using lagged political connections including lagged moderation.

	Panel: A		Panel: B		Panel: C		Panel: D	
	(1) Ln[Z1]	(2) Ln[Z2]	(3) Ln[Z1]	(4) Ln[Z2]	(5) Ln[Z1]	(6) Ln[Z2]	(7) Ln[Z1]	(8) Ln[Z2]
Political connections	-0.133	-0.00824	-0.418	-0.0325	-0.110	-0.0614***	-0.282	-0.103***
	(-0.73)	(-0.30)	(-1.30)	(-0.79)	(-0.64)	(-2.76)	(-1.20)	(-2.80)
Female Directors %	0.365	0.0798*	0.341	0.0778*	0.364	0.0791*	0.330	0.0708*
	(0.84)	(1.83)	(0.78)	(1.80)	(0.84)	(1.82)	(0.75)	(1.65)
Moderator			1.284	0.109			0.991	0.240
			(1.27)	(0.87)			(1.06)	(1.37)
Board Size	-0.0181	-0.00432	-0.0164	-0.00418	-0.0181	-0.00415	-0.0171	-0.00391
	(-1.23)	(-1.38)	(-1.12)	(-1.34)	(-1.25)	(-1.32)	(-1.20)	(-1.26)
Independent board members	0.574	0.00278	0.590	0.00415	0.565	-0.00716	0.593	-0.000436
	(1.19)	(0.02)	(1.22)	(0.02)	(1.18)	(-0.04)	(1.23)	(-0.00)
Avg. Experience Yrs.	0.00344	0.00243	0.00288	0.00238	0.00364	0.00233	0.00303	0.00218
	(0.15)	(0.69)	(0.12)	(0.68)	(0.16)	(0.67)	(0.13)	(0.62)
Risk committee	0.443***	-0.0272	0.431***	-0.0282	0.445***	-0.0254	0.453***	-0.0234
	(2.89)	(-0.67)	(2.85)	(-0.69)	(2.89)	(-0.63)	(2.93)	(-0.58)
Firm Size	6.34e-10	-1.52e-09***	6.77e-10	-1.52e-09***	5.92e-10	-1.49e-09***	5.88e-10	-1.49e-09***
	(0.47)	(-2.63)	(0.50)	(-2.63)	(0.44)	(-2.65)	(0.44)	(-2.64)
Charter	-0.220**	0.144***	-0.221**	0.143***	-0.221**	0.142***	-0.220**	0.142***
	(-2.22)	(4.37)	(-2.25)	(4.37)	(-2.23)	(4.34)	(-2.22)	(4.36)
Significant Institution	0.579***	-0.0659*	0.599***	-0.0641*	0.576***	-0.0587	0.587***	-0.0560
	(3.07)	(-1.72)	(3.13)	(-1.67)	(3.04)	(-1.51)	(3.08)	(-1.45)
Constant	3.622***	1.708***	3.608***	1.707***	3.633***	1.717***	3.608***	1.711***
	(7.68)	(12.18)	(7.62)	(12.15)	(7.76)	(12.30)	(7.65)	(12.19)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2398	2682	2398	2682	2377	2377	2377	2377
R-squared	0.2182	0.1240	0.2188	0.1240	0.2181	0.1242	0.2188	0.1246

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- Political connections and their impact on financial risk taking among financial institutions -

Appendix 3; Table 7: Robustness analyses

This table presents the estimates for the main panel and three robustness panels: D: entire sample, E excluding UK, F excluding crisis years (2008-2009), G excluding crisis countries (Cyprus, Greece, Portugal, Ireland, Spain)

	Panel: D		Panel: E		Panel: F		Panel: G	
	(7) Ln[Z1]	(8) Ln[Z2]	(9) Ln[Z1]	(10) Ln[Z2]	(11) Ln[Z1]	(12) Ln[Z2]	(13) Ln[Z1]	(14) Ln[Z2]
Political connections	-0.282	-0.103***	-0.427	-0.103	-0.441	-0.0654	-0.407	-0.0803
	(-1.20)	(-2.80)	(-1.48)	(-0.88)	(-1.33)	(-1.00)	(-1.10)	(-1.35)
Female Directors %	0.330	0.0708*	0.457	0.122	0.397	0.0933*	0.422	0.0966*
	(0.75)	(1.65)	(0.74)	(0.94)	(0.97)	(1.85)	(0.93)	(1.90)
Moderator	0.991	0.240	1.541	0.390	1.498	0.238	1.252	0.257
	(1.06)	(1.37)	(1.11)	(0.71)	(1.31)	(0.89)	(1.05)	(0.96)
Board Size	-0.0171	-0.00391	-0.0286***	-0.00162	-0.00232	-0.00473	-0.0116	-0.00580*
	(-1.20)	(-1.26)	(-2.70)	(-0.52)	(-0.16)	(-1.30)	(-0.85)	(-1.77)
Independent board members	0.593	-0.000436	0.225	-0.0307	0.819	-0.0589	1.046**	-0.0782
	(1.23)	(-0.00)	(0.39)	(-0.18)	(1.59)	(-0.27)	(2.11)	(-0.38)
Avg. Experience Yrs.	0.00303	0.00218	-0.0502	-0.000950	0.00791	0.00418	0.00821	0.00482
	(0.13)	(0.62)	(-1.47)	(-0.11)	(0.38)	(1.42)	(0.37)	(1.53)
Risk committee	0.453***	-0.0234	0.182	-0.0920*	0.575***	-0.0445	0.541***	-0.0369
	(2.93)	(-0.58)	(1.04)	(-1.89)	(3.13)	(-0.87)	(3.02)	(-0.77)
Firm Size	5.88e-10	-1.49e-09***	7.71e-10	-7.14e-10**	8.91e-10	-8.32e-10***	4.45e-10	-7.24e-10**
	(0.44)	(-2.64)	(1.03)	(-2.27)	(1.41)	(-2.69)	(0.66)	(-2.25)
Charter	-0.220**	0.142***	0.0833	0.0632*	-0.203*	0.100***	-0.238**	0.0858**
	(-2.22)	(4.36)	(0.87)	(1.70)	(-1.87)	(2.60)	(-2.08)	(2.42)
Significant Institution	0.587***	-0.0560	0.192	0.00158	0.721***	-0.0234	0.656***	-0.0630
	(3.08)	(-1.45)	(0.99)	(0.03)	(3.04)	(-0.42)	(2.92)	(-1.18)
Constant	3.608***	1.711***	3.053***	1.555***	3.488***	1.815***	3.551***	1.908***
	(7.65)	(12.19)	(5.66)	(10.70)	(6.75)	(10.59)	(7.13)	(11.76)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2377	2377	1037	1037	1990	1990	2185	2185
R-squared	0.2188	0.1246	0.1526	0.1785	0.2476	0.1126	0.2234	0.1168

t statistics in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Appendix 4: Variance Inflation Factor

Table 8: VIF with log normal total assets

Variable	VIF	1/VIF
Ln[Firm size]	4.78	0.209325
Board Size	2.71	0.368552
Significant Institution	2.68	0.372466
Risk committee	2.25	0.444571
Independent board members	1.96	0.510286
Avg. Experience Yrs.	1.11	0.901052
Charter	1.10	0.908897
Political connections	1.09	0.917387
Female Directors %	1.06	0.944616
Mean VIF	2.08	

Table 9: VIF without log normal total assets

Variable	VIF	1/VIF
Board Size	2.42	0.413642
Significant Institution	2.11	0.474029
Risk committee	2.06	0.485801
Independent board members	1.84	0.542628
Firm size	1.43	0.701301
Political connections	1.09	0.917476
Charter	1.09	0.919481
Avg. Experience Yrs.	1.09	0.921148
Female Directors %	1.04	0.959648
Mean VIF	1.57	

Appendix 5; Table 10: Correlation table

	Ln[Z1]	Ln[Z2]	Political connections	Female Directors %	Board Size	Independent board members	Avg. Experience Yrs.	Risk committee	Firm Size	Charter	Significant Institution
Ln[Z1]	1										
Ln[Z2]	0.5742	1									
Political connections	-0.0803	-0.133	1								
Female Directors %	-0.0134	0.0451	0.0246	1							
Board Size	-0.2514	-0.3943	0.2463	0.0288	1						
Independent board members	0.2238	0.3368	-0.1228	0.0259	-0.5673	1					
Avg. Experience Yrs.	0.0959	0.1048	-0.0641	-0.1693	-0.1378	0.1905	1				
Risk committee	-0.2216	-0.3403	0.1631	0.0664	0.6576	-0.5311	-0.1471	1			
Firm Size	-0.1536	-0.2531	0.0819	0.0574	0.3621	-0.269	-0.0735	0.3407	1		
Charter	0.035	-0.0142	-0.0136	-0.0072	0.0448	-0.2463	-0.0249	0.0514	-0.0309	1	
Significant Institution	-0.221	-0.3995	0.2544	0.0458	0.6191	-0.4056	-0.119	0.5475	0.5384	-0.0013	1