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Governance and bank characteristics in the credit and sovereign debt crises – the impact of CEO power[1]

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Abstract

The global financial sector recently suffered from two interrelated crises: the credit crisis and the sovereign debt crisis. A common question is whether the recent experience with the credit crisis has helped in dealing with the sovereign debt crisis. We study more specifically whether banks with powerful CEOs perform better or worse than other banks, and if there is any difference in this relationship between the two crises. Using unique hand-collected data for 378 large global banks, we find that CEO power has a significant positive relation to bank profitability and asset quality, but also to insolvency risk, during the sovereign debt crisis. Thus, strong CEOs

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do not appear to be detrimental to bank performance. Our results also support the idea that deposit insurance may have contributed to the credit crisis.

Keywords: global large banks, CEO power, bank performance, the credit and sovereign debt crises
JEL Classifications: G01, G18, G21.

1. Introduction

The Financial Crisis Enquiry Commission (FCIC) concluded that the credit crisis was avoidable and attributable to human actions, inactions, and misjudgements. "The greatest tragedy would be to accept the refrain that no one could have seen this coming and thus nothing could have been done. If we accept this notion, it will happen again" (FCIC, 2011, p 28). However, another crisis ensued after the publication of this report: popularly known as the sovereign debt crisis in Europe. Banks were severely affected by both the credit crisis and the sovereign debt crisis. After the credit crisis, the natural expectation was that the banks would take measures to safeguard themselves against future financial turmoil (Acharya et al. 2009). However, many banks performed poorly also during the sovereign debt crisis (e.g., Hoque et al. 2015). While part of that may be explained by the differences between the two crises (see e.g. Hoque 2013)[3], a question that arises is whether banks took such lessons from the credit crisis that could have helped them in the subsequent sovereign debt crisis.

We contribute to the scarce literature (see e.g. Hoque, 2013, and Hoque, Andriosopoulos, Andriosopoulos, Douady, 2015) that compares the credit and the sovereign debt crises, and study the relationship between CEO power and bank performance, measured by distance to default, ROA (return on assets), and asset quality (non-performing loans), while controlling for a number of bank and governance characteristics. Our set of variables is broader than in prior studies, including both bank governance variables, bank characteristics, as well as country governance and regulatory variables. Using a Difference-in-Difference (D-i-D) analysis, and conducting 3SLS estimations to tackle the endogeneity problem between CEO power and bank performance, we find that CEO power has a positive and statistically significant effect on bank profitability and asset quality, but it is also positively related to insolvency risk, during the latter crisis. Our study complements studies of governance characteristics and performance such as that by Pathan and Faff (2013) for banks.[4]

Concerning the credit crisis, several papers study the relationship between bank performance and bank governance. Cornett et al. (2009) stress that weak corporate governance caused significant damage to the financial performance of large banks. Sharfman (2009), Erkens et al. (2012), and Kirkpatrik (2009) attribute the financial crisis to the failure of corporate governance due to the boards' lax oversight, which evidently encouraged aggressive risk-taking. Kashyap et al. (2008) also argue that while the failure to offload subprime risk occurred during the credit crisis, the root cause of the crisis lies in the breakdown in the monitoring by shareholders. In an aggressive risk-taking regime, managers are instantly rewarded for short-term profits

[3]For example, the large market for short-term funding that existed prior to the credit crisis had largely dried out when the sovereign debt crisis came. The subprime loans crisis and the default of Lehman Brothers also created features that were specific to the credit crisis. Hoque (2013) finds that while a higher loans and funding fragility was a significant determinant for share price performance in the credit crisis, deposits – in the otherwise pretty dry funding markets – explain bank performance in the sovereign debt crisis.

[4]Concerning bank governance, see e.g. Kashyap et al. (2008), who discuss problems in the traditional view of bank governance. Cornett et al. (2009) find that several measures of bank governance decreased significantly prior to the financial crisis. Sharfman (2009), Erkens et al. (2012), and Kirkpatrik (2009) all point out to bank governance failures as potential reasons for the crisis.

without adequate safeguards to prevent the costly consequences of such actions. However, Ladipo et al. (2008) emphasize that risk governance is the responsibility of the board, and that it appears that a majority of the banks' boards lacked specific knowledge of their company's method of risk measurement. Beltratti and Stulz (2012) find that banks with more shareholder friendly boards performed worse during the credit crisis, also supporting higher risk taking incentives (which during good times boosted the banks' returns) in such banks.

Fewer papers study the sovereign debt crisis and contrast it to the credit crisis. Hoque (2013) finds that bank regulation at the country level is associated with less risky banks during both crises, whereas banks in countries with deposit insurance performed worse during the sovereign debt crisis than during the credit crisis. Concerning firm level governance variables, Hoque (2013) considers closely held shares (as a governance vs. agency problem indicator), along with a number of board characteristics related to e.g. age, interconnectedness, board size and gender. He finds that closely held banks (banks with lower agency problems) performed significantly better in the sovereign debt crisis, whereas among board characteristics, during the sovereign debt crisis, interconnectedness and board size, had a negative effect on performance. Hoque at al. (2015) focus on country level regulatory variables, but they include also a score for private monitoring. Their results indicate that regulatory restrictions and capital stringency, along with private monitoring, can explain bank risks in both crises.

We contribute to the above body of literature by studying how CEO power is related to bank performance in these crises.[5] More powerful CEOs may be able to negotiate more competitive compensation contracts, in turn leading to higher risk taking, such as being involved in subprime lending (Lewellyn and Muller-Kahle, 2012). On the other hand, a powerful CEO may have a positive effect on performance. An endogeneity problem lies in the potential selection problem: better performing banks may choose more powerful CEOs. We thus talk more about a relationship than a causal effect. We also estimate 3SLS models incorporating potential determinants for CEO power as well as governance determinants. Our study is

[5] Our study hence extends the debate by addressing the important question asked by Mehran et al. (2011) on whether the banks re-structured their corporate governance in the aftermath of the credit crisis. Our study also complements Masciandaro et al. (2013) by adding bank-level governance changes in the ongoing debate of the credit crisis and the sovereign debt crisis.

facilitated by a unique database that uses hand-collected data from annual reports for 378 global banks. The banks in our dataset have a major systemic importance.[6]

The rest of the paper proceeds as follows: In section 2 we discuss the relevant literature and develop our hypotheses. Section 3 presents the data and our method. Section 4 contains the empirical results, and the concluding remarks are in section 5.

2. Related literature and hypotheses development

Corporate governance deals much with the incentives that the managers have, including incentives for risk taking. In principle, managerial incentives should be aligned with those of the owners. In banking, institutional settings leading to moral hazard (Galai and Masulis, 1976; Jensen and Meckling, 1976) may generate higher shareholder preference for risk taking as compared to other firms. Also convex pay-off systems (Coles, Daniel, Naveen, 2006) may be more of a problem in banks[7]. During a credit crisis, additional moral hazard problems may be present in large banks because they may receive bailout money if considered 'too-big-to-fail' (O'Hara and Shaw, 1990; Acharya and Yorulmazer, 2007; Brown and Dinc, 2011; Dam and Koetter, 2012).Deposit banks face a similar issue due to deposit insurance schemes (John et al, 1991; Karels and McClatchey, 1999).[8]

Since the risk appetite of banks should be reflected in the quality of their assets, and subsequently affect their performance, we next discuss how CEO power can affect bank performance, asset quality, and bank profitability. We also discuss whether the relationship between CEO power and bank performance might differ between the credit and sovereign debt crises.

In this type of studies, endogeneity presents potential problems. One cannot make inferences on causality from mere correlation, and prior research has extensively shown that firm governance is influenced by board and CEO characteristics that are endogeneously chosen (see e.g. Hermalin and Weisbach, 2003, and Adams et el., 2010). In order to be able to address causality issues, one would need a completely different setup. Although the two crises in one way can be viewed as natural experiments, the firm characteristics such as board characteristics and CEO power are likely to be endogeneous to each other, and jointly related to how the banks are affected by the crises. We therefore only study associations between CEO power and bank

[6]In November 2011, the Financial Stability Board announced which financial institutions were systemically vital to the global economy. Global Systemically Important Banks (G-SIBs) were determined based on four main criteria: (a) size, (b) cross-jurisdiction activity, (c) complexity, and (d) substitutability. The list of G-SIBs is published annually by the Financial Stability Board.

[7]Interestingly, the positive association between equity-based compensation and risk taking can break down during systemic financial crises (Raviv and Sisli-Ciamarra, 2013).

[8] In addition, the financial safety net can reduce the social cost of the banks' failures (Gropp et al., 2011) but the safety net can also create moral hazard in the form of excessive risk-taking (Cordella and Yeyati, 2003; and Gorton and Huang, 2004).

performance, avoiding to state that CEO power (rather than firm characteristics) are the source of any relationship detected. In this we follow other studies such as Hoque et al. (2013), facing the same problem.

Agency theory suggests that managers may be more risk averse than what the shareholders prefer them to be (Amihud and Lev, 1981; Eisenhardt, 1989; Jensen and Meckling, 1976). Powerful CEOs may pursue actions that fulfill their own objectives and interests and avoid risky ventures because they are risk-averse[9] and perhaps also poorly diversified as investors.[10] Furthermore, tax shields and bankruptcy costs in highly leveraged firms such as banks may contribute to tilting the management's incentives towards selecting overly safe projects (Parrino et al., 2005). Managers have little to gain if banks do well, but they could lose their jobs when the bank fails (Saunders and Cornett, 2006). Thus, shareholders' and managers' incentives may be in conflict because the shareholders want the managers to invest in all positive net present value (NPV) projects irrespective of their level of risk (Guay, 1999). Milidonis and Stathopoulos (2014) test the career concern hypothesis, and find that high firm leverage and high default risk are positively related to managerial risk aversion.

Executive compensation can be used to align the interests of managers with those of the shareholders. Although many factors suggest that managerial risk aversion tends to be too high, rather than too low, the banking crisis was largely later blamed on the managerial compensation packages being too highly tailored towards counteracting managerial risk aversion, and instead encouraging it in an environment where downside risks were considered limited by deposit insurance and other mechanisms.

In addition to executive compensation, CEO power is a factor in corporate governance. Although different researchers define the CEO's power in different ways[11], they argue that powerful CEOs have a better ability to control the boards' decisions (Fama and Jensen, 1983). Adams et al. (2005) view the CEO's power as the ability to influence key decisions in spite of potential discontentment from other executives. Adam et al. (2005) report a positive association with the CEOs' power and the variance in stock returns, and also Wu et al. (2011) find a positive relationship between the CEOs' power and the variability in the firms' performance. On the other hand, a more powerful CEO might be risk averse and less willing to take on new business ventures, which might decrease risk and also the firm's future growth (May, 1995). This view is consistent with the findings of Pathan (2009) for banks. Thus, we conjecture that the powerful bank CEOs should (despite potentially generous compensation packages and the shareholders' preferences) be engaged in

[9]Berk et al. (2010) attribute this managerial behavior to the large human costs of bankruptcy. This cost is in relation to the managers' career concerns. Employment incentives (Amihud and Lev, 1981; Agrawal and Mandelker, 1987; Kempf et al., 2009) and reputational concerns (Holmstrom and Costa, 1986; Hirshleifer and Thakor, 1992) are proposed as key reasons for managerial risk aversion.

[10] The managers' risk preference is determined by the trade-off between expected wealth and risk aversion (Milidonis and Stathopoulos, 2014). The managers' wealth consists of a portfolio of tangible and financial assets, and human capital. Because the managers' wealth is typically concentrated in the firms where they operate, they may protect their wealth in the firm by selecting excessively safe assets or by diversifying at the firm level (Smith and Stulz, 1985; May, 1995). However, the central assumption under the agency theory that managers are risk averse or risk neutral may be questionable (Sanders and Hambrick, 2007).

[11]Morck et al. (1989) and Adams et al. (2005) proxy the CEO's power with the CEO's chair-role duality, Pathan (2009) defines the power as the power which an originally internally hired CEO has in his chair-role duality, while Hermalin and Weisbach (1988) and Fracassi and Tate (2012) proxies the power with CEO tenure.

less risk-taking activities, especially during crises, and hence the risk-averse behavior of the CEOs may help banks perform better[12] and consequently increase their asset quality.

The weaknesses of corporate governance and risk-management systems in banks came under scrutiny during the credit crisis when the governance mechanisms in the banking industry had often failed to safeguard against excessive risk-taking (Kirkpatrik, 2009). Cornett et al. (2009) demonstrate that performance decreased dramatically during the credit crisis in the large banks. More particularly, the corporate governance controls (i.e., pay-performance sensitivity and insider ownership) in large banks were weakened before and during the credit crisis. Bank failures drew significant media coverage due to the retail deposit market's disruption, and banks went through severe restructurings. CEO turnover was extraordinary high during the credit crisis. There were also major shifts in the boards' characteristics after the credit crisis. By considering all of these changes in the banking industry, we assume that banks learned some lessons during the credit crisis, and that there were improvements in the governance mechanism. Fahlenbrach et al. (2012) argue that banks have learned from previous financial crises and have changed their behavior to protect themselves from a future financial crisis. In light of the regulatory changes that occurred after the credit crisis, we assess whether the banks changed their business models regarding risk-taking. We assume that the changes in the governance structure of banks lead them to pursue lower risk activities after the credit crisis, which, in turn, helped the banks perform better and improve their asset quality during the sovereign debt crisis. Based on this assumption, we hypothesize that the relationship between risk-taking behavior and CEO power is significantly more positive[13] for the credit crisis as compared to the sovereign debt crisis:

H1: CEOs' power (a strong CEO) is related to less risk-taking during the sovereign debt crisis as compared to the credit crisis.

Previous studies also note that the financial crisis has influenced the association between governance and value because managers are more likely to be entrenched during the crisis because of the declines in their expected investment returns (e.g., Francis et al., 2012; Lemmon and Lins, 2003). In addition, during the crisis, the quality of corporate governance received more public attention. As such, any weaknesses in the corporate governance of firms would be more noticeable, resulting in a transfer of funds to better governed firms and

[12] However, prior research often finds a negative association between the CEO's power and the firm's performance. In particular, Ashbaugh-Skaife et al. (2006) find a negative association between the CEOs' power and the firms' credit ratings. Bebchuk et al. (2009) find a negative relationship between the CEOs' power and the firms' value.

[13] The effect can be significantly different either if the characteristics have changed, or if the characteristics matter more in the latter crisis, or both. The latter effect may occur if the Basel III's and the national regulators' directives, and the debate of the recent banking failures, have lead especially smaller and more independent boards to take their roles more seriously during the sovereign debt crisis. The regulations have, e.g., over time increased the private monetary responsibility of an individual board member (a responsibility that cannot be insured away). That may e.g. lead to a CEO having more power only in case the board perceives it is optimal for the firm.

thus dampening the share prices of poorly governed firms. Therefore, we expect that the credit crisis has influenced the relation between the CEO power, and performance and asset quality during the latter crisis:

H2: The CEOs' power (a strong CEO) is more positively related to performance during the sovereign debt crisis than during the credit crisis.

H3: The CEOs' power (a strong CEO) is more positively related to asset quality during the sovereign debt crisis than during the credit crisis.

3. Data and method

3.1 Data

Bankscope is the primary source of our data. In line with e.g. Hoque (2013), we collect the top 1,000 banks in Bankscope according to their asset size at the end of 2006.[14] This sample comprises commercial, savings, cooperative, and mortgage banks. We eliminate the banks that have been delisted after the credit crisis (the 2007 crisis) because their data are not available when studying the sovereign debt crisis (the 2011 crisis). This elimination leaves a sample of 378 banks, for which we have accounting and share price data for 2007 and 2011. All of the systematically important banks (29) are included in the sample.[15] We download the share price data and the MSCI index from DataStream. All of the data are in US dollars. We also collect bank-specific variables from Bankscope. However, the variables for the boards' characteristics are not readily available from Bankscope; therefore, we hand collect the boards' size and independence and six CEO related variables from the annual reports of the banks. We collect country-specific governance and regulatory variables from the World Bank's website.

We describe the distribution of the sample in Table 1. In our sample, Japan alone represents 29% (71 banks). This is not an exception because Beltratti and Stulz (2012), Hoque (2013), and Hoque et al. (2015) report a similar statistics for Japanese banks in their studies. However, China, France, India, Italy, Spain, the United Kingdom, and the United States range from 5–12%. The rest of the sample countries represent between

[14]Based on asset size in 2006, our data covers 64.45% of the cumulative asset value of the 1000 largest banks. This gives our sample comparability to those few earlier studies comparing the two crises. Naturally, our results may not be valid for smaller banks, and only a large-scale study of both small and large banks can answer the question of whether bank size as such brings some survivorship bias into the analysis. However, we study cross-sectional differences between large banks, and in that framework, our results should carry some validity.

[15]The list of Globally Systemically Important Financial Institutions is very much as had been expected, with 17 European banks, eight US ones, three Japanese and one Chinese on it: Bank of America, Bank of China, Bank of New York Mellon, Banque Populaire CE, Barclays, BNP Paribas, Citigroup, Commerzbank, Credit Suisse, Deutsche Bank, Dexia, Goldman Sachs, Crédit Agricole, HSBC, ING Bank, JP Morgan Chase, Lloyds Banking Group, Mitsubishi UFJ FG, Mizuho FG, Morgan Stanley, Nordea, Royal Bank of Scotland, Santander, Société Générale, State Street, Sumitomo Mitsui, UBS, Unicredit Group, and Wells Fargo.

1 and 3%. This type of distribution is also common in the banking literature (e.g., Erkens et al., 2012; Beltratti and Stulz, 2012; Hoque, 2013; Hoque et al. 2014).

[*Insert Table 1 about here*]

3.2 Measures for the dependent variables

We relate CEO power during the two interrelated crises to bank performance, measured by bank risk, profitability, and asset quality. We use insolvency risk (1/Z-score) as a proxy for bank risk, the return on assets (ROA) as a proxy for profitability, and the NPLs (non-performing loans) as a proxy for asset quality. Due to potential endogeneity problems, we estimate 3SLS models also including equations for board size, board independence, and CEO power.

3.3 Measures for the explanatory variables

To measure CEO power, we construct an index based on six dummy variables (i.e. it is a sum of six binary variables). The variables measure (a) if there is a CEO-Chair duality, (b) if the CEO is internally recruited, (c) if the age of the CEO is greater than median age, (d) if the CEO's tenure is greater than median tenure, (e) if the CEO's banking experience is greater than the median banking experience, and (f) if the CEO's qualifications surpass the median qualifications. If a condition exists, the dummy equals one, and zero otherwise. The bank-level variables comprise the deposits, short-term funding, and the leverage ratio (Tier 1 capital and tangible equity). We also include measures for bank regulation (Caprio et al., 2007), country governance (Kaufmann et al., 2009), deposit insurance (Demirgüç-Kunt et al., 2007), and an anti-director index (La Porta et al., 1998)[16]. There is a detailed description of the explanatory variables in Table 2.

3.4 Empirical model and method

To test the hypotheses (H1 to H3), we employ Difference-in-Difference (D-in-D) equations for risk, performance, and asset quality. Our Difference-in-Difference (D-in-D) models include data for both crises, where our firm specific governance and bank variables are included both in levels as well as interacted with a dummy for the latter crisis. The D-in-D models thus allow us to test for significant changes in the slope coefficients between the two crises. The explanatory variables are year-end numbers before the credit and the sovereign debt crisis, respectively. However, to tackle the endogeneity problem between CEO Power and other

[16] The anti-director index (LaPorta et al., 1998) is composed on the basis of six rights which are either in place or not in the country in question (i.e. it is a sum of six binary scores), and measures how strong a country's legal rights favor minority shareholders against management or dominant shareholders.

firm level governance variables, we estimate the following 3SLS equations under the Difference-in-Difference (D-in-D) specification:

$$Depvar_{b,c} = \alpha_0+\alpha_1 SDC +\alpha_2 CEO_{b,c}+\alpha_3 BS_{b,c}+\alpha_4 Indep_{b,c}+\alpha_5 X_{b,c}+\beta_1 SDC * CEO_{b,c} +\beta_2 SDC * BS_{b,c} + \beta_3 SDC * Indep_{b,c} + \beta_4 SDC* X_{b,c} + \gamma * R_c + \varepsilon_{b,c} \quad (1)$$

$$BS_{b,c} = \alpha_0 + \alpha_1 SDC + \alpha_2 CEO_{b,c} +\alpha_3 Indep_{b,c} +\alpha_4 X_{b,c} + \beta_1 SDC * CEO_{b,c} + \beta_2 SDC * Indep_{b,c} + \beta_3 SDC* X_{b,c} + \gamma * R_c + \varepsilon_{b,c}, \quad (2)$$

$$Indep_{b,c} = \alpha_0 + \alpha_1 SDC + \alpha_2 CEO_{b,c} +\alpha_3 BS_{b,c}+\alpha_4 X_{b,c} + \beta_1 SDC * CEO_{b,c} +\beta_2 SDC * BS_{b,c} + \beta_3 SDC* X_{b,c} + \gamma * R_c + \varepsilon_{b,c} \quad (3)$$

$$CEO_{b,c} = \alpha_0 + \alpha_1 SDC +\alpha_2 BS_{b,c} +\alpha_3 Indep_{b,c} +\alpha_4 X_{b,c} +\beta_1 SDC * BS_{b,c} + \beta_2 SDC * Indep_{b,c} + \beta_3 SDC* X_{b,c} + \gamma * R_c + \varepsilon_{b,c} \quad (4)$$

where the dependent variables i.e. $Depvar_{b,c}$ for the main equations for either risk-taking (A), performance (B), or asset quality (C), respectively, are : A.) $Risk_{b,c}$, a proxy for the default risk (1/z) of bank b in country c; B.) ROA_{bc}, a proxy for the performance of bank b in country c; or C.) $AQ_{b,c}$, a proxy for the asset quality (non-performing loans) of bank b in country c. We estimate, for each dependent variable, an instrumental variables equation system, that also includes three endogeneous equations (Eqs. 2-4), to account for potential endogeneous relationships between performance on one hand, and governance/ CEO power on the other hand. The dependent variables for these three endogeneous equations (Eqs. 2-4) are BS (board size), Indep (board independence), and CEO (CEO Power). SDC is the dummy for the sovereign debt crisis, and it is included both in its level form as well as an interaction variable (as specified below) into these equations, interacting with all the CEO and bank specific variables in our models and making the models D-in-D models for this set. The other explanatory variables are: $CEO_{b,c}$, a matrix of the firm-level CEO Power characteristics of bank b in country c; $X_{b,c}$, a matrix of the firm-level variables for bank b in country c; R_c, the country-level measures for regulations, governance, and controls; SDC * $CEO_{b,c}$, a matrix of interaction variables between the sovereign debt crisis dummy and the firm level CEO Power characteristics; SDC* $X_{b,c}$, a matrix of interaction variables between the sovereign debt crisis dummy and the firm level variables. $\varepsilon_{b,c}$ is the error term, and α, β, and γ are the vectors of the coefficient estimates. The descriptions of the variables including their calculation procedures are presented in Table 2.

[*Insert Table 2 about here*]

3.5 Descriptive statistics

We report the descriptive statistics for the data in Table 3. We find that most of the variables are significantly different in the sovereign debt crisis (in 2011) as compared to the credit crisis (in 2007). We find that the CEO's power was significantly lower in the sovereign debt crisis as compared to the credit crisis (0.57 vs. 0.70) whereas the board's size and independence only changed marginally. We find that the average operating profit (ROA) is lower in the sovereign debt crisis (0.72%) as compared to the credit crisis (1.05%), while also the 1/Z-Score[17] is significantly lower in the latter (1.01 vs. 1.18). The proxy for asset quality (non-performing loans) takes a significantly higher value during the sovereign debt crisis as compared to the credit

[17]The distance to default shows a similar picture as in Milne (2014), though his measure is based on contingent claims.

crisis (3.93 vs. 3.07), indicating a poorer asset quality in the latter. Although tangible equity is about the same in the two crises, the Tier I capital is significantly higher in the sovereign debt crisis, which is consistent with the more stringent Basel III (June, 2011) requirements. Moreover, while the deposits to total assets ratio is similar in both crises, funding fragility (*funfrag*) is significantly lower for the sovereign debt crisis as compared to the credit crisis. Further, the liquidity ratio is significantly higher for the sovereign debt crisis, while income diversity (*incdiv*) was higher during the credit crisis as compared to the sovereign debt crisis. These significant differences indicate that the banks were in different starting points in the wake of the second crisis: better in terms of Tier 1 capital, more focused (with a lower income diversity) and more liquid, and with a lower funding fragility (probably partly also due survivorship bias, since our sample only covers banks that have survived both crises).

[*Insert Table 3 about here*]

4. Empirical results

Table 4 presents the results regarding risk-taking and the CEO's power during the two crises, i.e. the results of a 3SLS estimation under a Difference-in-Difference format. The level terms pick up the general effects, and the interaction terms test for significant differences in variable effects between the two crises. Following Eq. (1), column 1 reports the results for the main model using our risk-taking proxy (insolvency risk) as the dependent variable, and columns (2) to (4) report the coefficients for the endogeneous models for board size, board independence and CEO power, all four equations jointly estimated (Model 1). The explanatory variables in the last three models (board size, board independence, and CEO power) include the other two potentially endogeneous variables out of that group of three, in their level form as well and as in the form of interaction variables (interacted with the SDC Dummy). The equations 2 to 4 also include some firm and country characteristics (firm size, performance, and GDP Per Capita), both in their level form as well as in the form of interaction variables. The main model for insolvency risk (in column one) includes CEO and bank characteristics in their level form as well as interacted with the SDC Dummy (Model 1), and is later is extended by also including country characteristics in the equation for the risk taking variable (Model 2), and further by including a set of regulatory variables (Model 3).

Table 4 shows that while the level term for CEO power is insignificant, the interaction variable is positive and statistically significant at the 10% level in Model 1, at the 5% level in Model 2, and at the 1% level in Model 3, indicating a significantly stronger positive relationship between CEO power and Insolvency Risk during the latter crisis. This is in conflict with our H1. In case this result is more driven by the denominator of the z-variable (ROA volatility), i.e. the nominator of our 1/z variable, the results bear a similarity to the findings of e.g. Wu et al. (2011), who report a positive relationship between the CEO's power and the variability in the firm's performance. This might be the sign of a significant difference between the nature of the two crisis, allowing CEO power to have a significantly greater effect (for better or worse) during the latter one. This may

make sense when comparing the two crises. During the first crisis, a severe market-wide liquidity squeeze took place, the effects of which were hard to totally avoid for any bank, while the latter one was largely about sovereign debt to which banks were sensitive at a much more varying degree.

Table 4 also shows the inverse effect of Insolvency Risk on board independence is much stronger during the latter crisis, while board size fails to have an effect. Being aware of endogeneity problems (despite our 3SLS estimation), this can either be taken as an indication of board independence enhancing solvency, or that it is easier to attract independent board members to banks with better solvency.

[*Insert Table 4 about here*]

Also, other bank characteristics offer some insight into interesting relationships during the two crises. The interaction term for the regulatory capital is positive and significant at the 1% level in all models. Also Hoque (2013) obtains such results for the latter crisis.[18] This implies that banks with higher regulatory capital were able take more risk during the latter crisis. The level and interaction terms for performance are also negative and strongly significant in all models, implying that better performance is related to lower insolvency risk, and more so during the latter crisis. Interestingly, bank size has a significant positive relation to both board size and independence, but neither to CEO power, nor Insolvency Risk in our main equation of interest.

Table 5 reports the results for firm operating performance (ROA) in the base case in Model 1 (columns 1 to 4). In Models 2 and 3, we again first add country related governance measures, and then also variables related to bank regulation and supervision, to the main equation. CEO power is again insignificant in its level form, but its interaction term is positive and significant at the 5% or 10% levels in all models, in line with our H2. CEO power appears to have a greater effect on firm performance during the sovereign debt crisis as compared to the credit crisis.

[*Insert Table 5 about here*]

Other interesting significant relationships are those between bank performance and our two other measures treated as endogeneous in the 3SLS system, that is board independence and size. In its level form, board independence is significantly positively related to bank performance in Model 1 and Model 2, while board size obtains a negative and significant coefficient in all three models. The result for board size, indicating that smaller boards are associated with better performance, is in line with other studies , such as Yermack (1996),

[18]Hoque (2013) used ln Z, we use its inverse. They obtained a significantly positive relationship between regulatory (Tier I) capital and the distance to default (Log z) for the credit crisis (Table 8 in their paper), contrary to their expectations, and a negative one for the sovereign debt crisis (Table 9 in their paper).

and Hoque (2013), for banks during the sovereign debt crisis.[19] The positive relationship between board independence and performance is consistent with typical expectations, but most empirical governance studies fail to find support for it (see e.g. Hermalin and Weisbach 1988, 1998, and 2003; Bhagat and Black, 2002).

Of our other bank characteristics, the insolvency indicator, tangible equity and deposits all have a significant level terms in all or most of the models. The insolvency ratio as well as tangible equity obtain positive signs for their level terms, consistent with the idea that higher risk taking along with more tangible assets would be associated with better performance.[20] Their interaction terms are negative and significant, indicating a significantly weaker relationship during the sovereign debt crisis. For deposits, with a mostly significant negative level term and a significant positive interaction term, our results are directionally similar but stronger those by Hoque (2013), who found no significance for deposits for the credit crisis, and ambiguous signs for them for the sovereign debt crisis (significance with mixed signs, but positive in the extended models), and finally a significantly positive coefficient in the pooled model.[21]

The coefficient estimates for the interaction terms for deposits in our model are greater than those for the level terms, indicating that a negative relation during the credit crisis significantly switched to a positive one. Given the prior literature on the risk-inducing effects of deposit insurance (Merton, 1977; see also e.g. Demirgüç-Kunt, Kane and Levine, 2006), one way to interpret the negative coefficient estimates for the credit crisis may be that prior to the arrival of the credit crisis, deposit banks may have been incentivized to higher risk taking due to the deposit insurance schemes typically present, causing them to suffer more in comparison to other banks during the credit crisis. The positive interaction term supports Hoque (2013) and Berlatti and Stulz (2012) who suggest that deposits were with better performance during the latter crisis since banks' alternative funding sources were restricted on the dried-out funding markets. Moreover, the deposit insurance schemes were later modified in many countries, which, together with the growing importance of deposits,, may contribute to the net positive association to performance later on.[22] The interaction term for loans is negative and statistically significant, indicating a stronger inverse effect on performance during the sovereign debt crisis. This finding goes well in hand with the fact that the latter crisis indeed was a crisis related to bad (sovereign) loans.[23] Bank size in turn is significantly positively related to performance. Also bank concentration (banks having more market power) and an anti-director index (a proxy for stronger governance) are related to better

[19] While the relationship between board size and performance is a well documented one, the relationship between board size and board independence is a more debated one.
[20] Hoque (2013) found a positive relationship between tangible equity and performance only during the latter crisis.
[21] Hoque et al. (2015) report for the credit crisis that they find no evidence of funding fragility, liquidity, or ratio of deposits having impact on stock market behavior.
[22] Our variable for deposit insurance, inserted in Model 3, also obtains a negative (level) coefficient, but is not significant. Deposit insurance suffers from a high correlation with the banks' regulatory restriction.
[23] Interestingly, Hoque (2013) found the opposite, that loans were negatively associated with stock market performance in the credit crisis but no longer in the sovereign debt crisis.

performance. Our results also show that country-level governance[24] and banking supervision negatively influence performance during both crises.

Finally, we regress CEO power and bank characteristic variables on asset quality (NPL), again using the 3SLS and the Difference-in-Difference method. We report the results in Table 6 for models 1 to 3.

[*Insert Table 6 about here*]

In line with our H3, CEO power is related to better performance (less risk) in terms of a significantly lower amount of non-performing loans during the sovereign debt crisis. Among the other determinants to NPL, deposits and loans are significant both in the level form as well as when interacted with the dummy for the sovereign debt crisis. For deposits the results indicate that deposit banks suffered more due to NPLs during the first crisis as compared to the latter. For loans the results indicate a stronger association between loans and bad debt during the sovereign debt crisis.

5. Conclusion

The global financial sector has recently undergone two interrelated crises: the credit crisis and the sovereign debt crisis. A common question is whether the first crisis taught any lessons that helped in dealing with the second crisis. We address this question by studying differences in the way in which CEO power has been related to banks' risks, performance, and asset quality, while controlling for a large set of governance, bank, and regulatory characteristics. We contribute to prior studies such as Hoque (2013) and Hoque et al. (2015) by both introducing new variables, such as CEO power, and more detailed bank and country characteristics, as well as by the estimation of a 3SLS Difference-in-Difference model, which explicitly allows us to test for significant differences between the two crises, while incorporating endogeneous relationships. Such an inference is helpful in both understanding what may be different in the nature of the two crises, but also what may have changed in terms of governance effects. In our 3SLS estimations, we include equations not only for the performance variable studied in the model in question (either risk of financial distress, bank performance, or asset quality), but also for CEO power, board size, and board independence.

We find that the effect of CEO power on our performance variables (bank risk, profitability, and asset quality) differs significantly between the two crises. We obtain significant positive signs for the interaction variables for Insolvency Risk and Performance (ROA), but a significant negative sign for non-performing loans. Our results are robust to various model specifications. These results indicate that banks with more powerful CEOs have performed better during the latter crisis, despite accepting a higher insolvency risk. One potential

[24]Kaufmann et al. (2009) defined government effectiveness variables as voice, political stability, government effectiveness, regulatory quality, rule of law, and corruption.

interpretation of this result is that there was more room to influence a bank's performance during the sovereign debt crisis, which had more heterogeneous effects on individual banks.

Our results also shed light on the role of many other interesting relationships during the crises, and highlight interesting differences between the two crises. In line with Hoque (2013), we find that the positive effect of bank regulatory capital on insolvency risk is significantly stronger during the sovereign debt crisis. Board independence affects insolvency risk more negatively during the latter crisis. Being aware of endogeneity problems (despite our 3SLS estimation), this can either be taken as an indication of board independence enhancing solvency, or that it has been easier to attract independent board members to banks with better solvency during the latter crisis. Our results also e.g. support the idea that deposits are more positively, and loans more negatively, related to bank performance during the latter crisis.

Our results have some important policy conclusions. Our results support the idea that deposit insurance may have contributed to the credit crisis, by giving incentives for deposit banks to undertake riskier operations. Our results also belong to that small group of studies that actually do find a positive relationship between bank performance and board independence, lending some support for their governing role. We also find a significant negative relationship between board size and bank performance. Finally, strong CEOs do not appear to be detrimental for performance in banking.

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Table 1 Sample distribution by country

This Table presents the distribution of our sample by country origin. We extract 378 banks out of 1,000 global large banks from 56 countries. Our sample also includes 29 systemic banks.

Country	No. of Banks	Percent	Country	No. of Banks	Percent
Australia	6	2.49%	Korea Rep. Of	3	1.24%
Austria	5	2.07%	Kuwait	2	0.83%
Bahrain	2	0.83%	Malaysia	3	1.24%
Belgium	2	0.83%	Morocco	3	1.24%
Brazil	4	1.66%	Netherlands	2	0.83%
Canada	9	3.73%	New Zealand	2	0.83%
Chile	5	2.07%	Norway	3	1.24%
Chinese people's rep.	18	7.47%	Oman	1	0.41%
Colombia	3	1.24%	Peru	1	0.41%
Croatia	2	0.83%	Philippines	1	0.41%
Cyprus	1	0.41%	Poland	9	3.73%
Czech republic	1	0.41%	Portugal	4	1.66%
Denmark	4	1.66%	Qatar	2	0.83%
Finland	4	1.66%	Romania	1	0.41%
France	17	7.05%	Russian Federation	6	2.49%
Germany	8	3.32%	Saudi Arabia	6	2.49%
Greece	6	2.49%	Singapore	2	0.83%
Hong kong	6	2.49%	South Africa	2	0.83%
Hungary	1	0.41%	Spain	13	5.39%
Iceland	1	0.41%	Sweden	4	1.66%
India	28	11.62%	Switzerland	5	2.07%
Indonesia	6	2.49%	Taiwan	5	2.07%
Ireland	3	1.24%	Thailand	7	2.90%
Israel	5	2.07%	Turkey	8	3.32%
Italy	21	8.71%	United Arab Emirates	6	2.49%
Japan	71	29.46%	United Kingdom	16	6.64%
Jordan	1	0.41%	USA	18	7.47%
Kazakhstan	1	0.41%	Vietnam	2	0.83%
TOTAL				**378**	**100%**

Table 2 Description of the variables
This Table includes the description of the variables used in our analysis.

Name	Description
Bank Performance Variables	
Insolvency Risk (1/z)	1/Z is calculated as the inverse of the Z-score. *Z-score* is the distance to default estimated as the average ROA plus capital to ass deviation of ROA. Beltratti and Stulz (2012), Laeven and Levine (2009), and Pathan (2009) use a similar proxy for insolvency ri the higher the risk-taking of the banks. Source: Authors' estimation.
Operating Performance (ROA)	ROA is estimated as Net Income/ Average Total Assets. Source: Bankscope.
Asset Quality	Asset Quality is estimated as Nonperforming Loans (NPL) to gross loans. Source: Bankscope.
CEO Power Variable	
CEO Power	We construct an index for the CEO's power by following the procedure below for six selected CEO variables: (a) If CEO-Cha otherwise zero. (b) If the CEO is internally recruited, then one, otherwise zero. (c) If the age of the CEO is more than median zero. (d) If the board tenure of the CEO is more than median CEO tenure, then one, otherwise zero. (e) If the banking experi median CEO banking experience, then one, otherwise zero. (f) If the qualification of the CEO is more than median CEO qu zero. Source: Hand Collection.
Other Board Characteristics	
Board Size	Board Size is the log of board size. Source: Hand Collection.
Independence	Independence is the proportion of independent directors to board size. Source: Hand Collection.
Capitalization Variables	
Regulatory Capital (Tier 1)	Regulatory capital is Tier 1 capital. That is shareholder funds plus perpetual noncumulative preference shares as a percentage balance sheet risks measured under the Basel rules. This figure should be at least 4%. Source: Bankscope
Tangible Equity	Tangible equity is a cushion against asset malfunction. This ratio measures the amount of protection afforded to the bank by the higher this figure is the more protection there is. Source: Bankscope
Liquidity Variables	
Short-Term Funding/Total Deposit (Funding Fragility)	Funding fragility is the ratio of deposits from other banks, other deposits, short-term borrowing/ total deposit plus money m Source: Beltratti and Stulz (2012) and Demirguc-Kunt and Huizinga (2010).

Loans/Total Assets (Loan)	Loan is a liquidity ratio. This liquidity ratio indicates what percentage of the assets of the bank is tied up in loans. The higher this is. Source: Bankscope
Deposit/Total Asset Ratio (Deposit)	Deposit is defined as deposit to total assets. Source: Bankscope
Other Bank-Specific Variables	
Noninterest earnings to total earning (Noninterest Earnings)	Noninterest earnings divided by total earnings. Source: Bankscope.
Other earning assets to loans plus other earning assets (Other Earnings)	Other earnings are the derivatives and other securities to loans plus other earning assets. Source: Bankscope.
Income Diversity	Income diversity is diversity of income measured as the absolute value of the difference between net interest income and other o operating income. Source: Bankscope.
Bank Size (Size)	Size is the log of total assets of a bank in bn$. Source: Bankscope.
Country-specific Bank Regulatory and Governance Variables	
Bank Supervisory Variables	Bank Supervision, Bank Capital Oversight, Bank Regulatory Restriction, and Bank Private Monitoring. Bank Supervision is commercial bank supervisory agency, Bank Capital Oversight is a score of regulatory oversight of bank capital, Bank Regul regulatory restrictions on the activities of banks, and Bank Private Monitoring is a score of monitoring on the part of the private are from Barth et al. (2004) and Caprio et al. (2007) using the data downloaded from the World Bank (http://econ.worldbank.o
Anti-Director Index	Anti-Director Index is the anti-director index of La Porta et al. (1998) and as revised in Djankov et al. (2008).
Government Effectiveness	The variable Government Effectiveness is the average of six indicators reported by Kaufmann et al. (2009) called voice, effectiveness, regulatory quality, rule of law, and corruption.
Deposit Insurance	Deposit insurance is a score for the explicit deposit insurance from Caprio et al. (2007) (updated in 2008) using the World Ban and Demirgüç-Kunt et al. (2007) (http://www.luclaeven.com/Data.htm).
Bank Concentration	*Bank Concentration* is the ratio between the assets of the three largest banks in each country and total assets of the national banking bank

Table 3 Descriptive statistics

This Table presents the descriptive statistics for the variables. The variables are defined in Table 2. ***, **, and * denote significance at the 1,5, and 10 perc
the t-values from a test comparing the means for the variables in the two crises (CC and SDC).

Panel A: Firm Specific Variables

	Credit Crisis (CC)						Sovereign Debt Crisis			
variable	N	Mean	Median	Std. Dev.	p5	p95	N	Mean	Median	Std. De
1/Z-Score	312	1,18	1,05	1,86	0,79	1,45	320	1,01	1,00	0
ROA	343	1,05	0,89	1,07	0,14	2,85	354	0,72	0,61	0
Non-performing Loans	311	3,07	2,43	3,74	0,26	7,77	331	3,93	3,12	3
LnBoard	292	2,50	2,48	0,37	1,95	3,09	329	2,49	2,48	0
Independence	292	0,49	0,48	0,27	0,12	0,94	329	0,51	0,47	0
CEO power	376	0,70	0,67	0,17	0,33	1,00	376	0,57	0,67	0
Tier I Capital	295	9,74	8,85	3,66	5,84	16,53	321	11,16	10,40	4
Tangible Equity	342	6,57	6,02	3,79	1,96	13,49	356	6,62	5,77	3
Deposit/Total Asset Ratio	342	61,25	67,48	24,37	16,56	90,39	356	62,31	66,42	23
Funding fragility	342	21,26	11,83	22,38	0,95	73,28	356	17,71	10,31	20
Liquidity ratio	342	59,09	59,83	15,06	32,50	82,76	356	61,18	62,53	14
Other Earnings	342	12,56	3,16	28,45	0,00	56,82	356	14,38	2,54	31
Non interest Earnings	342	53,70	53,43	38,77	26,98	77,50	354	53,49	58,07	72
Income Diversity	342	0,18	0,12	0,31	-0,04	0,74	354	0,14	0,10	0
Log Assets	342	4,64	4,47	0,63	3,89	5,91	356	4,82	4,66	0

Panel B: Country Variables

variable	N	Mean	Median	Std. Dev.	p5	p95
GDP Per Capita	756	24,81	29,68	15,82	1,60	47,91
Current Account Balance	756	1,34	0,70	7,16	-9,77	12,34
Bank Concentration	756	0,52	0,50	0,18	0,32	0,85
Anti-Director Index	756	3,69	4,00	1,17	1,00	5,00
Government Effectiveness	756	0,83	1,18	0,70	-0,56	1,68
Bank Supervision	756	10,11	10,00	2,05	7,00	13,00
Bank Capital Oversight	756	5,91	6,00	1,49	4,00	8,00
Bank Regulatory Restriction	756	9,52	10,00	2,51	5,00	13,00
Bank Private Monitoring	756	6,74	7,00	1,07	5,00	8,00
Deposit insurance	756	0,84	1,00	0,37	0,00	1,00

Table 4 Risk-taking and CEO power: Differences between the credit crisis and the sovereign debt crisis

This table presents the 3SLS, D-in-D results for Insolvency Risk as the dependent variable in the main equation (the first column in each model specification). The vari adjusted robust standard errors are used to calculate the t-values for the models without country fixed effects. The t-values are reported in the parenthesis. ***, **, and 10% levels.

	Model (1)				Model (2)				
Dependent Variable	Insolvency Risk	Board Size	Board Independence	CEO Power	Insolvency Risk	Board Size	Board Independence	CEO Power	Insolvency Risk
SDC Dummy	-0.992***	-0.0697	-0.0635	-0.220	-1.021***	-0.0697	-0.0635	-0.220	-1.062***
	(-3.055)	(-0.251)	(-0.232)	(-1.311)	(-3.158)	(-0.251)	(-0.232)	(-1.311)	(-3.331)
SDC Dummy X CEO Power$_{t-1}$	0.166*	0.229	-0.300**		0.185**	0.229	-0.300**		0.193***
	(1.685)	(1.552)	(-2.264)		(1.978)	(1.552)	(-2.264)		(2.884)
SDC Dummy X Board Size $_{t-1}$	0.000469		-0.0502	0.0710	-0.000851		-0.0502	0.0710	-0.00884
	(0.00776)		(-0.644)	(1.362)	(-0.0142)		(-0.644)	(1.362)	(-0.150)
SDC Dummy X Independence$_{t-1}$	-0.122*	-0.0455		-0.148***	-0.123*	-0.0455		-0.148***	-0.120*
	(-1.823)	(-0.484)		(-2.619)	(-1.848)	(-0.484)		(-2.619)	(-1.840)
SDC Dummy X Regulatory Capital $_{t-1}$	0.0868***				0.0877***				0.0881***
	(12.36)				(12.55)				(12.76)
SDC Dummy X Funding Fragility $_{t-1}$	0.000442				0.000759				0.000692
	(0.323)				(0.554)				(0.513)
SDC Dummy X Loan $_{t-1}$	0.00273				0.00288				0.00329*
	(1.418)				(1.501)				(1.732)
SDC Dummy X Other Earnings $_{t-1}$	-0.000188				-0.000267				-0.000284
	(-0.210)				(-0.299)				(-0.323)
SDC Dummy X Noninterest Earnings $_{t-1}$	-7.87e-05				3.92e-05				3.21e-05
	(-0.149)				(0.0743)				(0.0620)
SDC Dummy X Income Diversity $_{t-1}$	0.0860				0.0751				0.0738
	(1.014)				(0.887)				(0.874)
SDC Dummy X Size $_{t-1}$	-0.0102	-0.0323	0.0781	-0.0161	-0.0111	-0.0323	0.0781	-0.0161	-0.00543
	(-0.236)	(-0.625)	(1.623)	(-0.490)	(-0.259)	(-0.625)	(1.623)	(-0.490)	(-0.128)
SDC Dummy X Performance $_{t-1}$	-0.115***	0.0399	-0.0169	0.00900	-0.115***	0.0399	-0.0169	0.00900	-0.118***
	(-4.371)	(1.213)	(-0.568)	(0.457)	(-4.420)	(1.213)	(-0.568)	(0.457)	(-4.512)
CEO Power$_{t-1}$	-0.0416	-0.108	-0.0750		-0.0781	-0.108	-0.0750		-0.0935
	(-0.506)	(-0.934)	(-0.714)		(-0.943)	(-0.934)	(-0.714)		(-1.139)
Board Size$_{t-1}$	0.0257		0.213***	-0.0287	0.0286		0.213***	-0.0287	0.0355
	(0.560)		(3.617)	(-0.730)	(0.624)		(3.617)	(-0.730)	(0.782)
Independence$_{t-1}$	0.00979	0.247***		-0.0392	0.0303	0.247***		-0.0392	0.0237
	(0.203)	(3.678)		(-0.963)	(0.622)	(3.678)		(-0.963)	(0.485)
RegulatoryCapital$_{t-1}$	-0.00798				-0.00814				-0.00481
	(-1.367)				(-1.403)				(-0.836)
FundingFragility$_{t-1}$	-7.50e-05				0.000352				0.00133

	(-0.0762)				(0.355)				(1.323)
$Loan_{t-1}$	0.000539				0.000300				-0.000348
	(0.388)				(0.213)				(-0.250)
$OtherEarnings_{t-1}$	-0.000231				-0.000338				-0.000505
	(-0.380)				(-0.557)				(-0.837)
$NoninterestEarnings_{t-1}$	-9.96e-05				-0.000220				-0.000217
	(-0.202)				(-0.444)				(-0.445)
$IncomeDiversity_{t-1}$	0.0121				0.000299				0.00485
	(0.264)				(0.00652)				(0.106)
$Size_{t-1}$	0.0276	0.219***	0.0659*	-0.0205	0.0309	0.219***	0.0659*	-0.0205	0.0213
	(0.861)	(5.955)	(1.863)	(-0.864)	(0.965)	(5.955)	(1.863)	(-0.864)	(0.661)
$Performance_{t-1}$	-0.0863***	-0.0654***	0.0579***	-0.0242*	-0.0744***	-0.0654***	0.0579***	-0.0242*	-0.0680***
	(-4.416)	(-2.823)	(2.757)	(-1.736)	(-3.668)	(-2.823)	(2.757)	(-1.736)	(-3.376)
GDP Per Capita $_t$	-0.00162**	-0.00229**	0.00212**	0.00105*	-0.00221**	-0.00229**	0.00212**	0.00105*	-0.00301***
	(-2.296)	(-2.369)	(2.416)	(1.804)	(-2.252)	(-2.369)	(2.416)	(1.804)	(-3.017)
Current Account $Balance_t$					0.000874				2.91e-05
					(0.568)				(0.0180)
Bank $Concentration_t$					-0.205***				-0.233***
					(-2.843)				(-2.834)
Anti-director Index $_t$					0.000156				0.0121
					(0.0152)				(0.953)
Government $Effectiveness_t$					0.0246				0.0716**
					(0.982)				(2.296)
Bank Supervision $_t$									-0.00542
									(-0.896)
Bank Capital $Oversight_t$									0.00969
									(1.055)
Bank Regulatory $Restriction_t$									0.0207***
									(3.452)
Bank Private $Monitoring_t$									0.000174
									(0.0123)
Deposit Insurance $_t$									-0.0815**
									(-1.998)
Constant	0.961***	1.595***	-0.622***	0.893***	1.061***	1.595***	-0.622***	0.893***	0.907***
	(4.022)	(7.865)	(-3.078)	(7.444)	(4.303)	(7.865)	(-3.078)	(7.444)	(3.347)
Observations	536	536	536	536	536	536	536	536	536
R-squared	0.507	0.164	0.122	0.167	0.515	0.164	0.122	0.167	0.533
Chi2	551.93***	128.24***	114.55***	124.14***	569.65***	128.24***	114.55***	124.14***	611.74***

Table 5 Performance and CEO power: Difference between the credit crisis and the sovereign debt crisis

This table presents 3SLS, D-in-D results for performance (ROA) as the dependent variable in the main equation (the first column in each model specification). All varial robust standard errors (Petersen, 2009) are used to calculate the t-values for the models without country fixed effects. The t-values are reported in the parenthesis. ***, * and 10% levels.

	Model (1)				Model (2)				
Dependent Variable	Operating Performance	Board Size	Board Independence	CEO Power	Operating Performance	Board Size	Board Independence	CEO Power	Operating Performance
SDC Dummy	0.0273	0.101	-0.153	-0.223	-0.0311	0.101	-0.153	-0.223	0.0805
	(0.0272)	(0.380)	(-0.592)	(-1.412)	(-0.0324)	(0.380)	(-0.592)	(-1.412)	(0.0847)
SDC Dummy X CEO $Power_{t-1}$	0.415*	0.159	-0.285**		0.299**	0.159	-0.285**		0.274**
	(1.776)	(1.087)	(-2.183)		(2.031)	(1.087)	(-2.183)		(1.963)
SDC Dummy X Board $Size_{t-1}$	0.228		-0.0105	0.0522	0.230		-0.0105	0.0522	0.228
	(1.349)		(-0.138)	(1.041)	(1.419)		(-0.138)	(1.041)	(1.422)
SDC DummyX $Independence_{t-1}$	-0.103	0.00290		-0.146***	-0.0902	0.00290		-0.146***	-0.0462
	(-0.544)	(0.0310)		(-2.658)	(-0.495)	(0.0310)		(-2.658)	(-0.257)
SDC DummyX1/Z_{t-1}	-0.261***	0.0339	-0.0690	0.0335	-0.220**	0.0339	-0.0690	0.0335	-0.212**
	(-2.646)	(0.689)	(-1.561)	(1.154)	(-2.324)	(0.689)	(-1.561)	(1.154)	(-2.246)
SDC Dummy X Tangible $Equity_{t-1}$	-0.0346*				-0.0385**				-0.0385**
	(-1.721)				(-1.992)				(-2.015)
SDC $DummyXDeposit_{t-1}$	0.00760**				0.00796***				0.00820***
	(2.482)				(2.709)				(2.818)
SDC $DummyXLoan_{t-1}$	-0.00996*				-0.00886*				-0.0105**
	(-1.952)				(-1.800)				(-2.135)
SDC Dummy X Other $Earnings_{t-1}$	0.000637				0.00108				0.000767
	(0.246)				(0.433)				(0.312)
SDC Dummy X Noninterest $Earnings_{t-1}$	-0.00458***				-0.00512***				-0.00499***
	(-3.077)				(-3.571)				(-3.522)
SDC Dummy X Income $Diversity_{t-1}$	0.252				0.351				0.377
	(1.037)				(1.501)				(1.609)
SDC DummyX $Size_{t-1}$	-0.0853	-0.0578	0.0811*	-0.0102	-0.0809	-0.0578	0.0811*	-0.0102	-0.0865
	(-0.647)	(-1.151)	(1.735)	(-0.322)	(-0.639)	(-1.151)	(1.735)	(-0.322)	(-0.693)
CEO $Power_{t-1}$	-0.287	-0.0390	-0.0892		-0.107	-0.0390	-0.0892		-0.0140
	(-1.229)	(-0.343)	(-0.873)		(-0.472)	(-0.343)	(-0.873)		(-0.0621)
Board $Size_{t-1}$	-0.338***		0.140**	-0.00877	-0.285**		0.140**	-0.00877	-0.316***
	(-2.686)		(2.493)	(-0.236)	(-2.349)		(2.493)	(-0.236)	(-2.623)
$Independence_{t-1}$	0.381***	0.164**		-0.0414	0.248*	0.164**		-0.0414	0.157
	(2.855)	(2.517)		(-1.072)	(1.910)	(2.517)		(-1.072)	(1.197)
$1/Z_{t-1}$	0.0101**	-0.00232	0.00275	-0.000610	0.00839*	-0.00232	0.00275	-0.000610	0.00720

	(2.007)	(-0.929)	(1.225)	(-0.413)	(1.738)	(-0.929)	(1.225)	(-0.413)	(1.505)
Tangible Equity$_{t-1}$	0.187***				0.173***				0.170***
	(11.89)				(11.07)				(10.62)
Deposit$_{t-1}$	-0.00669***				-0.00402*				-0.00285
	(-3.064)				(-1.845)				(-1.271)
Loan$_{t-1}$	0.00377				0.00452				0.00493
	(1.073)				(1.309)				(1.412)
Other Earnings$_{t-1}$	-0.00314*				-0.00260				-0.00257
	(-1.823)				(-1.563)				(-1.534)
Noninterest Earnings$_{t-1}$	0.00466***				0.00539***				0.00536***
	(3.352)				(4.020)				(4.039)
Income Diversity$_{t-1}$	-0.0830				0.00358				-0.00673
	(-0.637)				(0.0285)				(-0.0533)
Size$_{t-1}$	0.239**	0.245***	0.0684**	-0.0242	0.243***	0.245***	0.0684**	-0.0242	0.266***
	(2.507)	(6.970)	(2.009)	(-1.070)	(2.648)	(6.970)	(2.009)	(-1.070)	(2.861)
GDP Per Capita $_t$	-0.0121***	-0.00171*	0.00129	0.00108*	-0.00285	-0.00171*	0.00129	0.00108*	-0.00359
	(-6.246)	(-1.822)	(1.523)	(1.948)	(-1.026)	(-1.822)	(1.523)	(1.948)	(-1.250)
Current Account Balance$_t$					-0.00500				-0.00753*
					(-1.144)				(-1.646)
Bank Concentration$_t$					1.247***				1.040***
					(6.441)				(4.607)
Anti-director Index $_t$					0.0583**				0.0827**
					(2.108)				(2.340)
GovernmentEffectiveness$_t$					-0.346***				-0.267***
					(-5.064)				(-3.093)
Bank Supervision $_t$									-0.0473***
									(-2.818)
Bank Capital Oversight$_t$									-0.00868
									(-0.348)
Bank Regulatory Restriction$_t$									-0.00120
									(-0.0712)
Bank Private Monitoring$_t$									-0.0408
									(-1.065)
Deposit Insurance$_t$									-0.165
									(-1.481)
Constant	-0.00765	1.368***	-0.359*	0.836***	-1.218*	1.368***	-0.359*	0.836***	-0.435
	(-0.0109)	(7.303)	(-1.946)	(7.808)	(-1.704)	(7.303)	(-1.946)	(7.808)	(-0.555)
Observations	556	556	556	556	556	556	556	556	556
R-squared	0.481	0.150	0.110	0.160	0.524	0.150	0.110	0.160	0.537
Chi2	516.15***	111.31***	98.43***	123.52***	613.26***	111.31***	98.43***	123.52***	644.89***

Table 6 Asset quality and CEO power: Difference between the credit crisis and the sovereign debt crisis

This table presents 3SLS, D-in-D results for asset quality (NPLs) as the dependent variable in the main equation (the first column in each model specification). All va
adjusted robust standard errors (Petersen, 2009) are used to calculate t-values for the models without country fixed effects. The t-values are reported in the parenthesi
the 1%, 5%, and 10% levels.

Dependent Variable	Model (1)				Model (2)				
	NonperformingLoans	Board Size	Board Independence	CEO Power	NonperformingLoans	Board Size	Board Independence	CEO Power	NonperformingLoans
SDC Dummy	2.150	0.152	-0.172	-0.203	1.849	0.152	-0.172	-0.203	2.243
	(0.446)	(0.562)	(-0.649)	(-1.254)	(0.389)	(0.562)	(-0.649)	(-1.254)	(0.481)
SDC Dummy X CEO Power$_{t-1}$	-2.003**	0.158	-0.305**		-1.499**	0.158	-0.305**		-2.020**
	(-2.381)	(1.073)	(-2.300)		(-2.045)	(1.073)	(-2.300)		(-2.427)
SDC Dummy X Board Size $_{t-1}$	-0.557		-0.0137	0.0516	-0.495		-0.0137	0.0516	-0.302
	(-0.673)		(-0.176)	(1.003)	(-0.608)		(-0.176)	(1.003)	(-0.378)
SDC DummyX Independence$_{t-1}$	-0.301	0.0102		-0.152***	-0.358	0.0102		-0.152***	-0.333
	(-0.328)	(0.108)		(-2.718)	(-0.395)	(0.108)		(-2.718)	(-0.375)
SDC DummyX1/Z $_{t-1}$	-0.354	0.0347	-0.0648	0.0445	-0.416	0.0347	-0.0648	0.0445	-0.401
	(-0.728)	(0.686)	(-1.420)	(1.485)	(-0.868)	(0.686)	(-1.420)	(1.485)	(-0.842)
SDC Dummy X Tangible Equity$_{t-1}$	0.128				0.150				0.145
	(1.317)				(1.554)				(1.538)
SDC DummyXDeposit$_{t-1}$	-0.0819***				-0.0855***				-0.0814***
	(-5.523)				(-5.832)				(-5.641)
SDC DummyXLoan$_{t-1}$	0.0626**				0.0676***				0.0588**
	(2.514)				(2.741)				(2.410)
SDC Dummy X Other Earnings$_{t-1}$	0.00911				0.00940				0.00795
	(0.725)				(0.756)				(0.652)
SDC Dummy X Noninterest Earnings$_{t-1}$	0.0214**				0.0221**				0.0191**
	(2.433)				(2.547)				(2.241)
SDC Dummy X Income Diversity$_{t-1}$	-0.486				-0.547				-0.207
	(-0.384)				(-0.437)				(-0.164)
SDC DummyX Size$_{t-1}$	0.349	-0.0673	0.0879*	-0.0150	0.285	-0.0673	0.0879*	-0.0150	0.259
	(0.545)	(-1.311)	(1.840)	(-0.463)	(0.452)	(-1.311)	(1.840)	(-0.463)	(0.419)
CEO Power$_{t-1}$	1.234	-0.0457	-0.0450		0.756	-0.0457	-0.0450		1.137
	(1.096)	(-0.398)	(-0.435)		(0.674)	(-0.398)	(-0.435)		(1.023)
Board Size$_{t-1}$	0.226		0.160***	-0.0116	0.126		0.160***	-0.0116	-0.0114
	(0.363)		(2.742)	(-0.299)	(0.205)		(2.742)	(-0.299)	(-0.0188)
Independence$_{t-1}$	-1.221*	0.182***		-0.0245	-0.728	0.182***		-0.0245	-0.625
	(-1.880)	(2.743)		(-0.620)	(-1.117)	(2.743)		(-0.620)	(-0.956)

$1/Z_{t-1}$	-0.00710	-0.00248	0.00288	-0.000663	-0.00265	-0.00248	0.00288	-0.000663	-0.00988
	(-0.296)	(-0.999)	(1.282)	(-0.448)	(-0.112)	(-0.999)	(1.282)	(-0.448)	(-0.424)
Tangible $Equity_{t-1}$	-0.0720				-0.102				-0.160**
	(-0.948)				(-1.316)				(-2.025)
$Deposit_{t-1}$	0.0242**				0.0182*				0.0303***
	(2.265)				(1.662)				(2.713)
$Loan_{t-1}$	-0.0390**				-0.0484***				-0.0323*
	(-2.280)				(-2.803)				(-1.861)
Other $Earnings_{t-1}$	-0.0162*				-0.0189**				-0.0150*
	(-1.923)				(-2.265)				(-1.795)
Noninterest $Earnings_{t-1}$	0.00535				0.00293				0.00321
	(0.807)				(0.445)				(0.495)
Income $Diversity_{t-1}$	-0.979				-1.188*				-1.175*
	(-1.417)				(-1.735)				(-1.721)
$Size_{t-1}$	-0.675	0.244***	0.0669*	-0.0264	-0.751	0.244***	0.0669*	-0.0264	-0.651
	(-1.443)	(6.829)	(1.917)	(-1.139)	(-1.624)	(6.829)	(1.917)	(-1.139)	(-1.401)
GDP Per Capita $_t$	-0.0223**	-0.00183*	0.00127	0.00119**	-0.0192	-0.00183*	0.00127	0.00119**	-0.00427
	(-2.378)	(-1.922)	(1.475)	(2.097)	(-1.399)	(-1.922)	(1.475)	(2.097)	(-0.304)
Current Account $Balance_t$					-0.00177				0.00816
					(-0.0816)				(0.361)
Bank $Concentration_t$					-3.390***				-2.850**
					(-3.505)				(-2.549)
Anti-director Index $_t$					-0.107				-0.254
					(-0.781)				(-1.456)
Government $Effectiveness_t$					-0.0424				-0.845**
					(-0.124)				(-1.982)
Bank Supervision $_t$									0.00927
									(0.112)
Bank Capital $Oversight_t$									-0.174
									(-1.372)
Bank Regulatory $Restriction_t$									-0.285***
									(-3.408)
Bank Private $Monitoring_t$									0.0525
									(0.272)
Deposit Insurance $_t$									1.262**
									(2.315)
Constant	6.920**	1.366***	-0.427**	0.843***	11.15***	1.366***	-0.427**	0.843***	12.06***
	(2.036)	(7.183)	(-2.275)	(7.678)	(3.141)	(7.183)	(-2.275)	(7.678)	(3.118)
Observations	539	539	539	539	539	539	539	539	539
R-squared	0.192	0.149	0.116	0.160	0.217	0.149	0.116	0.160	0.248
Chi2	128.10***	110.45***	99.04***	115.68***	149.30***	110.45***	99.04***	115.68***	177.86***