Do "Too-Big-To-Fail" Banks Receive Preferential Treatment in Bailouts? Surprising Results from a Cross-Country Analysis

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April 26, 2024

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Abstract

Regulators more often bail out "Too-Big-To-Fail" banks than others, but this may not imply preferential treatment as commonly believed. Bailouts are complex dynamic processes involving more than one-time aid, so harsh treatments elsewhere in the process may counter the benefits of the higher likelihood of bailouts for these banks. Using bailout data from 22 European countries we find relatively harsh treatment for Globally-Systemically Important Banks. Regulators bail out G-SIBs at later stages of financial deterioration, impose stronger restrictions, and withdraw aid after less significant recoveries. We explain these findings using cross-country data on supervisory powers, political connections, and national culture.

(100 words)

JEL Classification Codes: G21, G28

Keywords: Banks, Bailouts, Too-Big-To-Fail, European Union, G-SIBs

1. Introduction

The "Too-Big-To-Fail" (TBTF) concept in banking asserts that government regulators more often bail out large, systemically important banks in the event of financial distress than other banks. This concept has been engrained in the minds of banking researchers, policy makers, and the public around the world for decades.[1] Consistent with TBTF, U.S. regulators insisted that eight of the largest banking organizations take the first Troubled Asset Relief Program (TARP) bailout funds in 2008. Also, this practice of consistently bailing out the largest banks was replicated in other countries during and after the Global Financial Crisis (GFC) and the European Sovereign Debt Crisis (ESDC). Thus, TBTF is not just an article of faith, but it is also well established in practice.[2]

It is also largely a matter of faith that regulators around the world give TBTF banks preferential treatment in bailouts relative to other banks, often viewed as an unfair advantage for these banks. However, this is not necessarily a logical implication of TBTF. Bailouts are complex dynamic processes

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[1] The TBTF term is often traced back in time to congressional testimony in 1984 in which the U.S. Comptroller of the Currency C. Todd Conover stated that federal regulators would not allow any of the eleven largest "money center" banks to fail. Representative Stewart McKinney of Connecticut, a member of the committee, then declared that "[w]e have a new kind of bank. It is called too big to fail. TBTF, and it is a wonderful bank." "[T]he next day (September 20, 1984), the Wall Street Journal headlined a lengthy article on the hearings "U.S. Won't Let 11 Biggest Banks in Nation Fail – Testimony by Comptroller at House Hearing Is First Policy Acknowledgment . . . [by Carrington (1984)]. And so, the term TBTF was born." (see also Kaufman, 2002; with the discussion taken from the *Full text of Financial Crisis Inquiry Commission: Documents Relating to the Financial Crisis of 2007-2009: Preliminary Staff Report: Governmental Rescues of "Too-Big-To-Fail" Financial Institutions*, pp. 426 and 434-435).

[2] For expositional convenience, we use the term "regulator" when referring to bailout decisions, but recognize that agents making these decisions differ widely across nations, and may include political appointees, central bankers, and prudential supervisors or regulators.

involving more than just providing aid at a single point in time. Following the financial assistance, regulators restrict banks' activities for periods of time that may last for years until banks recover to sufficiently healthy financial states. The restrictions often include dividend bans, limits to executive pay, imposition of government fees, and limits on risk-taking. When the regulators determine that the rescued banks have rebuilt sufficient capital, the banks are released from restrictions, and the bailouts are reversed. Thus, once the entire bailout process is considered, harsh treatments following the aid distribution may offset the benefits of the higher likelihood of bailouts for TBTF banks.

Whether regulators around the world treat TBTF banks more leniently or harshly over the entire bailout process is an important unanswered question. The failure or financial distress of these institutions can cause or exacerbate financial crises and economic recessions and spill across international boundaries, given that the financial system is globally interconnected. The treatment of large, systemically important banking organizations also has implications for the well-known moral hazard effects of bailouts on risk taking, as well as potentially granting unfair competitive advantages to one group of banks over another. Knowledge about how these relative bailout treatments vary across countries may also help with our understanding of international differences in regulatory behaviour, with potential policy implications. Some implications are well recognized in both the academic literature and in findings by international banking agencies, such as the Bank for International Settlements (e.g., Penas and Unal, 2005; Buch, Dominguez-Cardoza, and

Völpel, 2021).

Our paper provides two unique contributions to these academic and policy issues. The first is a comprehensive empirical analysis of whether bailout treatments of TBTF banks are preferential or harsh relative to other banks using a comprehensive international dataset. The second is a cross-country investigation of reasons for these differences in treatment that considers international variations in supervisory powers, political connections, and national culture. The findings from our first analysis are quite surprising and run counter to conventional wisdom, while our cross-country investigation provides previously unknown findings as well that yield several policy implications.

We evaluate the different elements of bailouts using a hand-collected dataset of bailouts in 22 EU countries. The data are for 2008-2014, a period covering both the GFC and the ESDC. We choose EU bailout data over U.S. TARP bailout data or data from other individual nations because the EU offers greater variation in bailout approaches, countries, regulatory characteristics, and time periods.

To ensure that we provide an adequate, real-world-based analysis, we distinguish between two common, but structurally different, bank bailout methods: capital injections and debt guarantees. In the former, regulators directly supply capital to immediately boost bank health, while in the latter, regulators provide guarantees that help the banks gain easier access to debt at relatively low cost. We apply our econometric tests to each of these bailout

methods separately.

We employ the official list of Globally-Systemically Important Banks (G-SIBs) as our empirical definition of TBTF, given that these institutions are considered to be those for which the global financial system would be most endangered by their failures. We compare the treatment of rescued G-SIBs with other banks across all the bailout phases.

Our findings strongly contradict the widespread belief that regulators provide preferential bailout treatment to TBTF banks. We find statistically and economically significant evidence that regulators treat G-SIBs more harshly than other banks. Regulators make G-SIBs wait longer for bailouts until their capital ratios have more significantly deteriorated, provide smaller bailouts relative to asset size, apply more severe restrictions to them, and withdraw government bailout support sooner at lower capital ratios than for other banks in their countries.

In our second analysis, we collect additional data at the country level on supervisory powers, political connections, and national culture for the 22 countries to help unveil why this harsher treatment of G-SIBs in bailouts occurs. We test whether a country's regulators treat G-SIBs relatively harshly in the different bailout phases based on the degree of supervisory independence, the share of politicians on bank boards, and the national culture characteristics of individualism, masculinity, power distance, and uncertainty avoidance.

We find that supervisory treatment is harsher when supervisory authorities have less independence, suggesting that there may be pressure from

politicians acting through supervisory authorities to be tougher on TBTF banks. Yet, the harsher treatment is modulated when politicians occupy more chairs on the boards of directors. This implies that politicians on TBTF bank boards, i.e., "on the inside", may lobby for softer treatment from their colleagues "on the outside" acting through the supervisory authorities. Our results also show sharp key differences across nations along several national culture dimensions. For example, in societies characterized by stronger individualism and less uncertainty avoidance, supervisors exhibit significantly more harshness towards G-SIBs.

These findings have potential policy implications in terms of capital surcharges for G-SIBs, allocating supervisory powers, restricting political connections, and designing country-specific bailout policies to align with exogenous differences in national cultures.

Our paper stands in sharp contrast to much of the bailout literature. Both the theory (e.g., Farhi and Tirole, 2012; Philippon and Skreta, 2012; Philippon and Schnabl, 2013; Berger, Himmelberg, Roman, and Tsyplakov, 2022), and empirical work (e.g., Dam and Koetter, 2012; Duchin and Sosyura, 2012, 2014; Black and Hazelwood, 2013; Behn, Haselmann, Kick, and Vig, 2020; Berger, Roman and Sedunov, 2020) employ a "one-shot" approach that focuses on the bailout intervention and do not consider the restrictions and release elements that follow.[3] Recent literature indicates that bailouts are dynamic processes

[3] Some papers also focus on the drivers of releases from TARP (Bayazitova and Shivdasani,

consisting of multiple phases over which banks dynamically manage their capital structure in anticipation of different bailout elements (Mücke, Pelizzon, Pezone, and Thakor, 2021; Martynova, Perotti, and Suarez, 2022; Cardillo, Fiordelisi, Ricci 2023; Berger, Nistor, Ongena, and Tsyplakov, 2024). The influence of national characteristics of supervisory powers, political connections, and national culture are also generally not previously studied.

The remainder of the paper has the data in Section 2, methodology in Section 3, results in Section 4, and conclusion in Section 5.

2. Data and sample

This section provides an overview of the bailout process in the European Union (EU) and summary statistics of the data employed in our study. We hand-collect information on the characteristics of bailouts received by financial institutions from the EU during 2008-2014. We focus on this period for two reasons. First, it allows us to assess the rescue mechanisms available to governments during two financial crises, i.e., the GFC and the ESDC. Second, the majority of bailouts are concentrated within this period, as most banks are administered rescue packages between 2008 and 2012.[4]

2.1. Sample

2012; Cornett, Li, and Tehranian, 2013) or the effects of executive compensation restrictions on banks' likelihood to participate in TARP (Cadman, Carter, and Lynch, 2012), but not in the context of multiple points in time bailout process.

[4] The adoption of the EU Bank Recovery and Resolution Directive (BRDD) in 2014 changed the legal framework regarding state aid. Starting from January 1st, 2016, banks are required to arrange a bail-in before being intervened with a bailout (European Commission, 2014).

We construct our sample starting from a large number of banks from the EU with data available in the Bankscope and Orbis databases. Then, we apply several selection criteria. First, we identify publicly traded banks with at least 75 percent of the quarterly data needed to calculate financial ratios available. Second, we eliminate banks that ceased to exist, to control for a potential survivorship bias. Third, we exclude banks with total assets below 100 million euro, to assure an appropriate balance between intervened and non-intervened institutions. We identify 110 banks from 22 EU countries that meet these criteria (Appendix 1). Their cumulated total assets represent about 50 percent of the total assets of EU banks at the end of 2014.

For this sample we check if the governments provided financial assistance packages by consulting the State Aid register of the European Commission (EC), our main data source. We hand-collect data about the size, duration, and restrictions associated with each bailout. In addition, we double-check all the entries from the EC's online database, with information from banks' annual reports, financial statements, press releases, and websites.

The EU regulators bail out banks through several methods (i.e., capital injections, debt guarantees, other liquidity assistance, or asset protection schemes).[5] For several reasons, we decide to focus on capital injections and debt

[5] The eligible institutions were healthy banks with capitalization above the regulatory requirements. The rescue decision was either a standalone action for an individual bank, or part of a country-wide scheme. For some banks the bailout packages were implemented in several rounds, when the first round was not sufficient to strengthen the financial health of the bank or when country-wide schemes have been put in place several times.

guarantee bailouts. First, these two intervention types are among the most widely used by the EU governments to avoid bankruptcies, restore confidence, and ensure bank financing during the GFC and the ESDC. Second, they are provided in the first phases of distress of financial institutions (Panetta et al., 2009; Brei and Gadenecz, 2012). Third, they are more country-wide in nature (Panetta et al., 2009). And finally, the cost and regulatory restrictions associated with these two bailout methods are more severe.

Our selection criteria allow us to identify 30 banks from 15 countries with interventions during the 2008-2014 period: 17 banks received both types of bailouts, 22 banks were given capital injections, and 25 banks obtained debt guarantees.[6] Out of these banks, seven are designated as G-SIBs by the Financial Supervisory Board as shown in Table 1.[7]

2.2. Data on European bailouts

Table 1 provides a summary of the bailouts provided to the European banks from our sample during 2008-2014. In total, we identify 35 bailout events for capital injections and 61 bailout events for debt guarantees. Among these, 10

[6] Capital injections were non-dilutive and took the form of hybrid capital, participation capital, preferred shares, deeply subordinated perpetual notes, or contingent convertible subordinated bonds (CoCos). Debt guarantees included the guarantees for newly issued bonds, senior notes or other form of debt, as well as liquidity injections such as loan facilities or swap facilities.

[7] We checked the list of G-SIBs provided yearly by the Financial Stability Board since November 2011. A bank found on this list in a given year is considered a G-SIB. For the period prior to the official publication of the first G-SIB list (November 11th, 2011) we use the data corresponding to the first official designation. The G-SIBs from our sample are: BNP Paribas (France), Commerzbank AG (Germany), Crédit Agricole S.A. (France), ING Groep NV (Netherlands), Lloyds Banking Group Plc (United Kingdom), Royal Bank of Scotland Group Plc (United Kingdom), and Société Générale SA (France).

capital injections and 24 debt guarantee bailouts are provided to large, systemically important banks. The size of bailouts relative to asset size provided to G-SIBs is considerably smaller compared to that provided to non-G-SIBs, as shown in Table 1. The share of capital injections in total assets is 1.08 percent for G-SIBs and 1.78 percent for non-G-SIBs. G-SIBs also get smaller debt guarantees relative to their sizes than non-G-SIBs (i.e., 0.67 percent for G-SIBs and 3.97 percent for non-G-SIBs). Thus, the differential size of bailouts we observe provides the first evidence rejecting the conventional wisdom that regulators treat G-SIBs preferentially.

We also identify a harsher treatment of G-SIBs compared to non-G-SIBs during the different bailout phases. Table 2 shows that, on average, regulators bail out banks at lower capital ratios (i.e., Equity to total assets ratio) through capital injections than debt guarantees. Differentiating by systemic importance, regulators provide capital injections to G-SIBs at a significantly later stage of distress than non-G-SIBs, indicating no preferential treatment. The average capital trigger at which the regulator injects capital is 3.04 percent for G-SIBs, while for the non-G-SIBs it is 5.38 percent. Debt guarantees bailouts follow a similar pattern. The average capital trigger at which the regulator provides debt guarantees is 3.39 percent for G-SIBs and 6.11 percent for non-G-SIBs.

During the duration of the bailouts, the regulators impose fees on the intervened banks, and a series of regulatory restrictions, to prevent market inefficiencies. These are more severe in the case of capital injection bailouts and

vary across countries, or banks within the same country.

Banks are charged either with a fixed fee or with a flat fee that varies with the riskiness of the bank or the market.[8] The guidelines for the fees associated with bailouts were established by the European Central Bank (ECB). The national authorities had the possibility to adjust the add-on fees thereby deviating from the recommendations of the ECB. The fees range between 8 and 15 percent per annum for capital injections, and between 5 and 9 percent per annum for debt guarantees.[9]

Among the most severe restrictions associated with bailouts are the dividend bans, especially for the recipients of capital injections. The regulator restricts dividends and share buy-back programs, the exercise of call options, or the extension and renewal of the existing share option programs.[10,11]

Regulators also appoint members to the supervisory board or different committees and have the right to supervise the corporate governance mechanisms. When the bank has to comply with a profound restructuring plan,

[8] In the case of the flat fee, which was market-determined and most often applied, the cost of the bailout varied with the riskiness of the bank or of the market (i.e., bank's CDS spread or the CDS of other representative euro area market benchmark when the former was not available).
[9] Two banks from our sample, i.e., Banco de Sabadell and Caixabank from Spain, were exempted from paying any fee for capital injections as the bailouts were provided to facilitate the acquisition of other distressed banks. OTP Bank was also exempted from paying fees for the loan received from the Hungarian state.
[10] At the beginning of the analyzed period, the regulator left the possibility to lift the dividend ban under a restructuring plan or did not impose such a ban. Through the 2013 Banking Communication, the European Commission required the regulator to impose dividend bans in case of all state aid under the form of capital injection (European Commission, 2013).
[11] In some countries the regulator allowed the buy-back programs at a premium over the issue price after a certain period.

regulators even nominate the CEO. In addition, the compensation of the senior management and board members is capped, wage increases and bonus payments are prohibited, and severance packages of bank executives are limited. Besides, some banks are told to follow an all-encompassing restructuring plan, consisting of divesting business lines, limiting exposure to certain sectors, reducing concentration risk, and/or narrowing their balance sheets.

To quantify the harshness of restrictions, we calculate two indices based on the following dimensions: regulatory fees, dividend bans, board intrusions, executive pay limits, and other operating restrictions.[12,13] First, we compute the Harshness Index (Unequal weights) using a principal component analysis (PCA). This method assigns an unequal importance to the restrictions' dimensions based on their variance. Second, we calculate the Harshness Index (Equal weights) by summing up the five elements of restrictions and allocating equal weights to each type of restriction. Higher values of the indices indicate more stringent restrictions for intervened banks during the bailout period. Table 3 reports the summary statistics of the variables we employ, while Appendix 2 provides the definitions. The output shows that the Harshness Index (Unequal

[12] For each dimension, we construct a dummy variable that takes the value of one if a bank was charged with a market-determined fee, or if it experienced dividend bans, board intrusions, executive pay limits, or other operating restrictions, and zero otherwise. In case of capital injection bailouts, 60 percent of the banks experienced market-determined fees, 63 percent dividend bans, 46 percent board intrusions, 77 percent executive pay limits, and 37 percent other operating restrictions. In case of debt guarantees, the percent of banks experiencing restrictions was 90 percent for market-determined fee, 33 percent for dividend bans, 21 percent for board intrusions, 64 percent for executive pay limits, and 10 percent for other operating restrictions.

[13] The indices do not account for behavioral commitments because these were common across all intervened banks.

weights) ranges from -1.66 to 2.99, while the Harshness Index (Equal weights) is within the 0-5 interval.[14]

Finally, the regulators release the banks from regulatory restrictions and reverse the bailouts. On average, the duration of the bailouts is about three years for capital injections and four years for debt guarantees, ranging between one and ten years. Statistics from Table 2 reveal that regulators release banks from both bailout methods at lower capital ratios for G-SIBs than non-G-SIBs. The release capital trigger for G-SIBs intervened with capital injections is 3.29 percent, while for non-G-SIBs it is 5.99 percent. In the case of debt guarantees, the release capital trigger is 4.35 percent for G-SIBs and 6.94 percent for non-G-SIBs, respectively. Data also shows that regulators withdraw their aid after less significant recoveries for G-SIBs than non-G-SIBs.

3. Empirical methodology

3.1. Logit model for bail out probability

We first test whether regulators more likely bail out G-SIBs than other banks, and whether regulators initiate bailouts for these banks at earlier or later stages of distress. To examine this, we use a Logit model that assesses the likelihood that the regulators bail out a bank through capital injection or debt guarantee. This is in line with the approach used in previous literature (Bayazitova and

[14] For one bank from our sample the regulator imposed behavioral commitments, but no fees and restrictions (i.e., OTP Bank from Hungary). The bailout took the form of a non-subordinated loan and was part of a nationwide scheme to remedy a disturbance in the Hungarian economy.

Shivdasani, 2012; Gerhardt and Vander Vennet, 2017; Berger, Nistor, Ongena and Tsyplakov, 2024). The empirical specification takes the following form:

$$\begin{aligned} Ln\left(P_{Bail\ out\,i,t}/\left(1-P_{Bail\ out\,i,t}\right)\right) \\ = \beta_1 \times Dummy\ GSIB_{i,t-1} + \beta_2 \times Capital\ Ratio_{i,t-1} \\ + \beta_3 \times Dummy\ GSIB_{i,t-1} \times Capital\ Ratio_{i,t-1} \\ + \gamma X_{i,t-1} + \delta Z_{c,t-1} + \alpha_c + \alpha_y + \varepsilon_{i,t} \end{aligned} \quad (1)$$

where $P_{Bail\ out\,i,t}$ is the conditional probability that the regulator bails out bank *i* in quarter *t* through one of the bailout methods. $Dummy\ GSIB_{i,t-1}$ is a dummy for banks included on the list of G-SIBs one quarter prior to intervention. $Capital\ Ratio_{i,t-1}$ is the capital ratio of bank *i* in quarter *t-1*, expressed by Equity/Total assets. $X_{i,t-1}$ is a set of bank-level control variables lagged by one quarter, represented by the natural logarithm of Total assets, the Loans/Customer deposits ratio, the Loan loss provisions/Gross loans ratio, the Return on assets (ROA), and the standard deviation of ROA. $Z_{c,t-1}$ is a set of macroeconomic controls lagged by one quarter, which consists of regulatory quality, inflation, GDP growth, supervisory power index, and the Lerner index. β are the slope coefficients associated with a bank's systemic importance, capital ratio, and their interaction.

β_3 is the coefficient of main interest, that reflects the relation between the capital ratio at which the regulator intervenes and the likelihood of bailout for large, systemically important banks. A negative estimate of this coefficient implies that regulators bail out G-SIBs at lower capital ratios, hence less pro-

actively than non-G-SIBs.

γ and δ are the slope coefficients for the control variables. α_c and α_y denote country and year fixed effects.[15] $\varepsilon_{i,t}$ is the standard error term clustered at country and year level. We run this specification separately by bailout method and consider the no-bailout case as the base category.

To alleviate a potential omitted-variables bias, we include an extensive range of bank-level and country-level controls that are widely employed in the literature. Our regressions include for example several key financial ratios with a quarterly frequency that are extracted from Bankscope and Orbis BankFocus databases. The size of the banks is reflected by the natural logarithm of Total assets. To account for capitalization, we use the Equity/Total assets ratio. The bank's rollover risk is given by the Loans/Customer deposits ratio, while the credit risk is expressed by the Loan loss provisions/Gross loans ratio. Finally, we use the Return on assets ratio as a proxy for profitability and its volatility expressed by the standard deviation of ROA.[16] Table 3 reports the summary statistics of the variables for the entire sample, and Table 4 provides the descriptive statistics by bailed-out and non-bailed-out banks, and by G-SIBs and non-G-SIBs. One striking difference between non-bailed banks on the one hand

[15] To avoid upward biased estimates, our model does not include individual fixed effects (Greene, 2004).

[16] Several other studies identified these financial ratios as determinants of likelihood to bail out banks from bailouts. Regulators are more prone to bail out banks with larger size, higher rollover and credit risk, lower profitability and higher volatility of ROA (Ng, Vasvari, and Moerman, 2010; Dam and Koetter, 2012; Duchin and Sosyura, 2014; Fernandes, Farinha, Martins and Mateus, 2016; Kick, Koetter and Poghosyan, 2016; Acharya, Borchert, Jager and Steffen, 2020).

and bailed-out G-SIBs and non-G-SIBs on the other hand is for example that the equity ratio is 9.41 percent for the former group, while it is 4.10 and 7.22, respectively, for the latter two groups. This implies that G-SIBs may be bailed out at much lower equity ratios than non-G-SIBs, and that both bailed-out groups clearly have lower ratios than the non-bailed group. We discuss these findings based on multivariate regressions below.

For country-level controls, we consider several covariates that reflect macroeconomic and banking market conditions. They are obtained from various databases provided by the World Bank. We use the Regulatory quality index to capture the perceptions of the government's ability to formulate and implement sound policies and regulations that promote private sector development. Our second macroeconomic variable is inflation, measured by the consumer price index. We also employ the gross domestic product growth (GDP), to account for business cycles. To reflect the country-specific banking market conditions, we use the Supervisory power index, that measures the extent to which official supervisory authorities have the power to take specific actions to prevent and correct problems in the banking sector. Finally, we employ the country-level Lerner index that indicates the market power in the banking market. We winsorize the variables within the 1% and 99% percentiles.

3.2. OLS model for the harshness of the activity restrictions

To test the relation between banks' systemic importance and the harshness of the activity restrictions that regulators impose during bailouts' duration, we

estimate the following specification using an OLS model with fixed effects:[17]

$$
\begin{aligned}
Harshness\ index_{i,t} \\
&= \theta_1 \times Dummy\ GSIB_{i,t-1} + \theta_2 \\
&\times Dummy\ Debt\ guarantee_i + \theta_3 \\
&\times Dummy\ GSIB_{i,t-1} \times Dummy\ Debt\ guarantee_i \\
&+ \gamma X_{i,t-1} + \delta Z_{c,t-1} + \varepsilon_{i,t}
\end{aligned}
\tag{2}
$$

where $Harshness\ index_{i,t}$ is represented alternatively by the unequal weights and equal weights measures of the severity of restrictions applied by the regulator for bank *i* during the bailout duration. Somewhat different from equation (1), the capital ratio of bank *i* in quarter *t-1* is no longer featured prominently but is now simply included in the vector of bank-level control variables $X_{i,t-1}$. The other explanatory variables are similar to those employed previously for the likelihood of bail out. We consider their value one quarter prior to intervention. $\varepsilon_{i,t}$ is the standard error term clustered at the bank level.

Due to the limited size of the sample, we cannot run the specification separately for each bailout method. To assess whether the harshness of restrictions is different for the two bailout methods, we include a dummy variable for debt guarantees and its interaction with G-SIB status. Then, we employ a joint test of the sign of summed coefficients associated with Dummy G-SIB and Dummy G-SIB × Dummy capital injection, and respectively with

[17] By including country or year fixed effects the estimates can be biased due to the limited number of observations (Nickell, 1981), thus we decided not to include them.

Dummy G-SIB and Dummy G-SIB × Dummy debt guarantee. The same sign of the sum of coefficients indicates that the effect of systemic importance on the harshness of restrictions is similar to capital injections and debt guarantees.

3.3. Logit model for release probability

To test how regulators release rescued TBTF banks (from the imposed restrictions), we slightly modify the empirical strategy above. We estimate a Logit model, as in (1) but on the left-hand side featuring $P_{Release_{i,t}}$, which is the likelihood that the regulator releases bank *i* in quarter *t* from one of the bailout methods. The explanatory variables are similar to those employed in equation (1) for the likelihood of bail out and all explanatory variables are lagged one period to address reverse causality concerns.[18] $\varepsilon_{i,t}$ is the standard error term clustered at country and year level. The specification is run separately by the bailout method, with no release being the base category.

4. Results

This section presents the results of our empirical strategy. First, we describe the output of the basic regressions associated with each of the three stages of bailouts. Then, we present the cross-country estimates for the channels that can influence the bailout process of large, systemically important banks, including country-level supervisory powers, political connections, and national culture.

[18] Prior literature shows that the probability to release a bank from bailout is associated with a stronger financial profile, higher profitability, and lower volatility of ROA (Bayazitova and Shivdasani, 2012; Wilson and Wu, 2012; Berger, Nistor, Ongena and Tsyplakov, 2024).

4.1.Main results

4.1.1. Bail out probability

Table 5, Panel A, presents the main results of our empirical strategy associated with the initial phase of the bailout process. Columns (1) and (2) depict the output for the baseline logistic regression. The estimates show that regulators are more likely to bail out large, systemically important banks, as indicated by the positive and significant coefficient for the G-SIB dummy variable. Controlling for other effects, regulators are 6.90 and 7.64 percent more likely to provide capital injections and debt guarantees to G-SIBs, respectively, than to non-G-SIBs.

Bank capitalization is negatively associated with the probability of bailout, indicating that regulators bail out most banks when their financial distress is deeper. The coefficient on the interaction term between capital ratio and G-SIB status is negative and highly significant for both bailout methods. Hence, we reject implications of unfair favorable treatment in the first phase of the bailout, as regulators bail out large, systemically important banks at *lower* capital ratios than non-G-SIBs, and not at *higher* ratios!

This unexpected finding is also economically relevant. Indeed the estimates suggest that a one percentage point (pp) decrease in the capital ratio would increase the probability that regulators use capital injections for G-SIBs by 0.10 pp more than for non-G-SIBs. In the case of debt guarantees, the effect of a one pp decrease in the capital ratio would consist of an increase in the

probability that regulators provide such bailouts of 0.17 pp more for G-SIBs than for non-G-SIBs. Thus, regulators wait longer until G-SIBs are in more dire financial distress than non-G-SIBs before bailing them out, i.e., at lower capital ratios, a finding running totally contrary to preferential treatment.[19]

We conduct several robustness tests on this surprising finding. In columns (3) and (4), we consider the Multinomial Logit regression (MLN) that allows multiple outcomes for the dependent variable. Concerning the initial phase of the bailout process, the dependent variable takes the following values: 1 if a regulator bails out a bank with capital injection, 2 if a regulator provides a debt guarantee, and 3 if the bank is not bailed out. The MLN implies testing the bailout choices 1 and 2 against 3, the base category. Results show that regulators bail out banks with decreasing capitalization, as reflected by the negative coefficient on capital ratio. Also, they are more likely to provide capital injection and debt guarantee bailouts at deeper stages of capital deterioration for G-SIBs than for non-G-SIBs, as reflected by the coefficients of the interaction between Dummy G-SIB and capital ratio which are negative and significant. Once more, the MLN models confirm our main findings that regulators are more likely to make G-SIBs wait longer for bailouts until their capital ratios have

[19] Among the country-level variables used as controls, our findings show a negative effect of regulatory quality, which is significant in the case of debt guarantee bailouts. This suggests that regulators are less likely to bail out banks in countries with strong policies and regulations. Our results also indicate a lower incentive for governments to bail out banks in countries with powerful supervision or where banks have higher market power, as depicted by the negative coefficients associated with the supervisory power and Lerner indices.

more significantly deteriorated!

As an additional check, we use an OLS model that accounts for the size of financial assistance in bailouts. The dependent variables are the total bailout amount that the regulator provides to bank *i* in quarter *t* as a share of the bank's total assets, as well as the capital injections and, respectively, the fraction of debt that the regulator guarantees measured also as share in bank's total assets.[20] Results reported in Table 5, Panel B, suggest that G-SIBs tend to receive smaller capital injections and debt guarantee bailouts relative to asset size than other banks, which is inconsistent with the story that G-SIBS receive preferential treatment during bailout.

4.1.2. Harshness of restrictions

During the restrictions phase we find a similar picture: G-SIBs are not favored. Indeed, the OLS results in Table 6 provide strong evidence against the idea that regulators favor G-SIBs. The coefficients from columns (1) and (2) indicate a significant and positive association between the G-SIB status and the harshness of restrictions, and that for both bailout methods.

Once more these estimates imply economic relevancy: the Harshness index is around one standard deviation higher for rescued G-SIBs than for rescued non-G-SIBs. Specifically, the coefficients for the harshness are 1.61 and 1.34 index

[20] We run these estimates for the sample of bailed out banks. Due to multicollinearity reasons, we exclude country and year fixed effects, and banks' size.

points higher for the Principal Component Analysis method and the equal weights method, respectively.[21]

For robustness, we employ two alternative specifications. In column (3), we run an OLS model with country-fixed effects for the unequally weighted harshness index, to control for country-level characteristics that are constant over time. For the equally weighted harshness index, we cannot include country-fixed effects in the OLS model for multicollinearity reasons. We also note that the index takes positive integer values. We therefore estimate a Negative binomial model in column (4). This method is specific to regressions with count data. It is similar to OLS, but the dependent variable follows the negative binomial distribution. Both models confirm the validity of our main findings, suggesting that regulators restrict G-SIBs more than non-G-SIBs during the bailout period. Hence no glove treatment here either for G-SIBS.

4.1.3. Release probability

Finally, we look at the release phase. Also here the Logit results in Table 7 indicate that regulators treat G-SIBs more harshly than other banks. Indeed, the positive and significant coefficient on the capital ratio for debt guarantees regression in column (2), suggests that regulators are more prone to release most

[21] We also find that regulators impose less harsh restrictions for debt guarantees than for capital injection bailouts, as shown by the significant and negative coefficient associated with dummy debt guarantees. However, the joint test on the sum of coefficients reported at the bottom of Table 6 does not indicate any significantly different regulatory behavior regarding restrictions associated with the two bailout methods for G-SIBs.

banks from debt guarantees when their capital ratios increase, and thus their financial health improves. However, regulators are more expedient towards G-SIBs and release them at a lower capital ratio than non-G-SIBs, and therefore withdraw aid after less significant recoveries!

To be more precise, the coefficient associated with the interaction term between G-SIB and capital ratio is negative and strongly significant for debt guarantees, and also economically noteworthy. The odds ratio equals 0.29, which implies that a one standard deviation increase in the capital ratio reduces the probability that regulators provide debt guarantees to G-SIBs by more than one third.

For capital injection bailouts, the interaction term between G-SIB and capital ratio is not significant. A possible explanation is that a capital injection release decision may be primarily up to the bank, as it must raise the capital to pay back the bailout. Thus, regulators are more likely to consider that supervisory differences concerning the release of G-SIBs at a lower capital ratio than non-G-SIBs are not relevant for capital bailouts. And remember, as long as G-SIBs are in "purgatory", the restrictions are harsher than for non-G-SIBs.

To assess the robustness of our findings, we employ an alternative methodology for the release decisions of regulators. In columns (3) and (4) we use a Multinomial Logit regression (MLN), where the dependent variable takes the following values: 1 if a regulator releases a bank from a capital injection bailout, 2 if a regulator releases a bank from a debt guarantee bailout, and 3 if

the bank is not released from a bailout. Through this MLN model we test the release choices 1 and 2 against 3, the base category. The findings are largely consistent with the basic regressions, providing evidence that regulators are more likely to withdraw the support earlier in the recovery processes of large, systemically important banks, at lower capital ratios than non-G-SIBs, when their financial conditions are less rehabilitated.

Overall, our findings indicate that regulators do not give large, systemically important banks preferential treatment during any of the three phases of the bailout process relative to other banks. On the contrary, regulators intervene later, at a lower capital ratio for G-SIBs than for non-G-SIBs, and they do it harsher, imposing more stringent restrictions during the duration of the bailout. In the third stage of the bailout process, they become more expedient in the case of debt guarantees, withdrawing bailout support and releasing G-SIBs after less significant recoveries than non-G-SIBs. Diagram 1 depicts a summary of our quite startling findings so far.

4.2. Supervisory powers

Given that we established that G-SIBs get treated harsher during bail-out, we now turn to evaluate whether and how this plays out across countries. In Table 8 columns (1)-(2) we assess whether the likelihood of regulators to bail out G-SIBs versus non-G-SIBs varies across countries with different supervisory powers. Also, we examine whether the effect is the same for capital injections and debt guarantee bailouts provided to G-SIBs in these countries.

To capture the restructuring powers of the supervisor, we employ the Supervisory authority independence index. Data are obtained from the Bank Regulation and Supervision Survey (BRSS) provided by the World Bank and are based on the surveys of Barth, Caprio, and Levine (2013). The Supervisory authority independence index reflects three dimensions of the degree of independence: the supervisor's ability to make decisions independent from government interference, the extent to which the supervisor is protected by the legal system from lawsuits, and the degree to which the supervisor can act independently of political considerations. Appendix 3 provides a detailed description of the index.

The estimate of the interaction term between the G-SIB dummy and supervisory independence, which equals -5.592 and is statistically significant at the one percent level, shows that the regulator is more likely to bail out G-SIBs in countries where the supervisory authority is less independent.

However, regulators are likely to treat even more harshly large, systemically important banks in countries with a lower independence of supervisory authorities. Our findings show that in these countries, ceteris paribus, regulators tend to bailout G-SIBs at lower capital ratios than non-G-SIBs, hence when their financial health has more significantly deteriorated!

This differential is also economically very meaningful as reflected in the odds ratio which is calculated for a one standard deviation change in the independence of supervisory authority index and reported in the bottom rows.

Thus, regulators in countries where supervisory authorities are less independent wait longer until G-SIBs are in more dire financial distress before bailing them out.

In Table 9 columns (1)-(2), we report the effect of the supervisory framework on the harshness of restrictions applied by the regulator. The OLS results for both harshness indices suggest that the regulator is penalizing G-SIBs more than non-G-SIBs, and that the restrictions are stronger in countries with a lower degree of supervisory independence. The effect is again economically relevant, as assessed for a change in the independence of supervisory authority index by one standard deviation and the outcome compared to a standard deviation of the harshness index. It is also similar for both bailout methods, as indicated by the joint test on the sum of coefficients (both results are reported at the bottom of Table 9).

These findings vividly suggest that there may be pressure from politicians acting through supervisory authorities to be tougher on large, systemically important banks in countries where supervisory authorities have less independence.

For the release phase, results from Table 10 columns (1)-(2) do not show a significant difference in the probability of releasing G-SIBs from bailouts across countries with different degrees of supervisory powers.

4.3. Political connections

A large strand of literature highlights that politically connected banks are more

likely to receive bailouts. Most of these studies focus on the U.S. TARP program (e.g., Bayazitova and Shivdasani, 2012; Li, 2013; Duchin and Sosyura, 2014; Berger and Roman, 2015). Yet, little is known about the political interference in European bailouts and the harshness of restrictions imposed on politically connected banks.[22]

To construct the variable of political connectedness, we hand-collect data on the politically connected members of banks' boards from BoardEx. We first access the entire set of banks' network reports, retrieving information on the size and composition of boards. Then, we access the dataset on directors' network reports and match the two databases. Following the strategy from De Marco and Macchiavelli (2016), we further select members of the board with previous government roles during the pre-crisis period 1990-2006, excluding those whose tenure ended before 2000. This time span permits us to alleviate potential endogeneity issues and to exclude board members who have been involved in decision-making for too long. Out of these cases, we identify all national and local politicians that sit on the board from any bank in our sample.[23]

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[22] Dam and Koetter (2012) shows that regional political factors such as state parliament election, political competition at the municipality level, and political similarity, influence the likelihood of capital injections in Germany. In contrast, De Marco and Macchiavelli (2016), finds that political connections are not significantly correlated with capital injections provided to European banks that participated in the European Banking Authority (EBA) regulatory exercises.

[23] The BoardEx database includes data on many roles of the connected board members, but we restrict our sample to members within the government sector with roles that involve political experience. Specifically, our definition of a politician includes: minister, prime minister, member of parliament, secretary of state, and chief of staff – at the national level; and respectively, mayor, deputy mayor, and council member – at the local level. While a large part of the literature focusses on the link between bailouts and political connections at the central

Based on this data, we compute an indicator that reflects the intensity of political connectedness on banks' boards. Specifically, we calculate the share of former politicians who sat on a bank's board during 1990-2006. Appendix 4 shows the structure of the board of directors with respect to the members with previous government roles during 1990-2006.[24] The share of politicians on board across banks from our sample ranges from 0 to 36 percent. Intervened banks have a higher share of politicians on the board of directors than non-intervened banks, i.e., 6.33 percent versus 2.85 percent. The degree of political connections is also higher for those G-SIBs that the regulators bailed out through injected capital (i.e., 7.80 percent) compared to the G-SIBs bailed out through debt guarantees (i.e., 5.97 percent).

In Table 8 columns (3)-(4), we interact the dummy G-SIBs with our political connection measure. Results reveal an increased propensity that regulators provide debt guarantees to all politically connected banks, when there is a higher share of former politicians on board. The effect is diminished for G-SIBs, as depicted by the negative, statistically significant, and economically relevant coefficient on the interaction between Dummy G-SIB and the share of politicians on the board of directors.

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level, local politicians can also interact with the central government through their lobbying activities, and thus influence the decisions towards the bailing-out and the regulating of financial institutions (Dinç and Gupta, 2011; Dam and Koetter, 2012).

[24] In total, our selection procedure identifies 41 former politicians that sat on the banks' boards prior the crisis. Out of 110 banks from our sample, 24 banks have at least one former politician on the board of directors or supervisory board.

The triple interaction between Equity/Total assets, Dummy G-SIB, and the political variable (which is needed to assess whether the political variable affects the level of the equity ratio at which regulators bail out G-SIBs compared to non-G-SIBs), is positive, and highly significant and relevant. This finding suggests that the regulator is more likely to provide such bailouts at higher capital ratios to more politically connected G-SIBs than less politically connected G-SIBs. This result is consistent with a harsher treatment of large, systemically important banks during the initial phase of the bailout process, which for politically connected G-SIBs is substantially softened. As depicted in Appendix 4, the average share of politicians on board is higher for bailed-out G-SIBs than for bailed-out non-G-SIBs. Therefore, more former politicians on banks' boards may lobby the government to provide bailouts at earlier stages of financial distress, and thus soften the harsher treatment of G-SIBs compared to non-G-SIBs.

Further, results from Table 9 columns (3)-(4), indicate that the regulators' proclivity to be tougher towards G-SIBs during the restrictions phase of the bailout process is mitigated for those intervened G-SIBs that have a higher fraction of politically connected board members compared to less politically connected intervened G-SIBs. Especially in the case of capital injections.

Finally, in the release phase, results from Table 10 columns (3)-(4) show that regulators are likely to withdraw capital injection support for politically connected banks sooner, at lower capital ratios, than for less politically linked

institutions.

4.4. National cultures

In this section, we present the empirical evidence on how the national cultures of the EU countries affect the bailout process of large, systemically important banks. An extended number of studies explore the role of national culture in the banking industry.[25] However, the literature is silent on how culture could influence the bailout process.

We collect information on culture from the cross-country psychological survey of Hofstede (2001) and Hofstede, Hofstede, and Minkov (2010). They focus on four dimensions: individualism, masculinity, power distance, and uncertainty avoidance.[26] Appendix 5 offers an overview of the questions related to each of these cultural attributes.

In Table 8 columns (7)-(14), we examine the effects of the national culture proxies on the relation between G-SIB designation and bailout probability. We find that regulators are more likely to bail out G-SIBs with both types of bailouts in more individualistic societies, whereas they are more prone to bail out G-

[25] For example, individualism is associated with aggressive risk-taking behavior by banks (Kanagaretnam, Lim and Lobo, 2011) and a higher probability of failure (Berger, Li, Morris and Roman, 2021). Male assertiveness beliefs are also linked with a higher likelihood to fail, as regulators in masculine countries are less restrictive regarding the capital and liquidity buffers held by banks (Berger, Li, Morris and Roman, 2021). The immobility between social classes encourages banks to report smoother earnings, while a low tolerance for uncertainty discourages them to engage in risky activities (Kanagaretnam, Lim and Lobo, 2011).

[26] Initially, the survey was conducted between 1967-1973 on 88,000 employees of IBM in 72 countries. Later on, the survey was extended to more than 100 countries (https://www.hofstede-insights.com/). These cultural dimensions are relatively stable within a nation over time, as confirmed by other studies (Hoppe, 1990; Newman and Nollen, 1996).

SIBs by capital injections in low power distance and low uncertainty avoidance societies. A possible explanation for this differential effect across the bailout methods could be that in cultures characterized by lower immobility between social classes or less tolerance for uncertainty, governments bail out G-SIBs through methods that provide a quick boost to banks' financial health, like capital injections. Further, results show evidence against any favoritism towards G-SIBs when bailing them out with capital injections in more individualistic and less uncertainty-avoidant cultures. Regulators are more likely to inject capital in G-SIBs at later stages of distress, i.e., at lower capital ratios, than non-G-SIBs in these cultures. In the case of debt guarantees, the regulator is harsher with large, systemically important banks in countries with higher individualism and lower power distance and provides them to G-SIBs at lower capital ratios than to non-G-SIBs.

Some possible explanations for our findings could be that supervisors are harsher towards G-SIBs in cultures characterized by stronger individualism, as large banks are deemed to be responsible for themselves. In societies with low power distance, regulators treat G-SIBs harsher as a top-down approach, and more favorable treatment is less accepted. In less risk-averse cultures, the government is less lenient towards G-SIBs and waits longer for bailouts until their capital ratios have more significantly deteriorated.

Overall, our findings can be linked with the study of Mihet (2013) who shows that greater individualism, lower power distance, and lower uncertainty

avoidance are associated with higher corporate risk-taking. Kanagaretnam, Lim and Lobo (2011), also find aggressive risk-taking behavior of financial institutions in individualistic societies. Besides, Berger, Li, Morris and Roman (2021) demonstrate a positive association between individualism and banks' probability of failure. Therefore, the regulators might punish large, systemically important banks more than the other banks to avoid moral hazard incentives in these types of cultures. At the same time, the regulators in such environments are willing to act in a "riskier" ("for them") and harsher (for the G-SIB) manner.

Related to the restrictions phase, results from Table 9 columns (7) - (14) indicate that the regulator's tendency to apply harsher restrictions on G-SIBs is attenuated in countries with higher power distance, especially in the case of capital injections. These cultures value stratification and authority centralization, therefore regulators from high power-distance countries are more likely to be less harsh with G-SIBs compared to regulators from low power-distance countries. Results also indicate an incrementally harsher treatment for G-SIBs in countries with higher individualism and uncertainty avoidance.

Finally, the government's decision to withdraw bailout support varies across different national cultures, as reflected in Table 10 columns (7) - (14). The regulator is more likely to release banks from capital injection bailouts sooner, when their financial conditions are less rehabilitated, in jurisdictions with lower individualism and power distance. Also, the regulator is more inclined to reverse debt guarantee bailouts in states with stronger individualism,

lower masculinity, and lower uncertainty avoidance.[27]

The results indicate the release capital trigger at which the regulator terminates the bailout for G-SIBs also varies across different national cultures. The probability that government withdraws debt guarantee bailouts at lower capital ratios, for G-SIBs than for non-G-SIBs is higher in countries with greater individualism and masculine scores. This finding indicates that the regulator's behavior is not favoring G-SIBs in more individualistic and masculine societies, and withdraws the financial support at a lower capital ratio when their financial conditions are less rehabilitated (compared to bailed-out non-G-SIBs). This harsher regulatory behavior towards G-SIBs is also observed in countries with greater power distance and uncertainty avoidance, suggesting that the regulator is penalizing large, systemically important banks in these cultures.

4.5. Robustness

To assess the robustness of our results, we change the definition of systemically important banks and re-estimate our empirical specifications using a different measure to identify large banks. We construct a dummy variable that takes the value one when the bank's total assets are higher than the 75th percentile total assets of the sample, and zero otherwise. The output presented in Table 11 shows that the results are consistent with our main findings for the intervention and release phases of the bailout process and both bailout methods. The only

[27] Due to the limited number of observations on the release events we cannot assess the effect separately for G-SIBs and non-G-SIBs.

exception is for the restrictions phase. Results from column (4) suggest that regulators are more lenient when they bail out large banks through capital injections, but harsher when large banks receive debt guarantees.

5. Policy implications

Our findings have important policy implications in terms of capital surcharges for G-SIBs, the allocation of supervisory powers, the restrictions on political connections, and the design of country-specific bailout policies aligned with fairly immutable differences in national cultures.

Take the almost entirely overlooked tradeoff between the supervisors committing to tighter restrictions during the restrict phase (and expedited exits from bailout) and the ex-ante capital surcharges on G-SIBs (to the extent these surcharges are intended to avoid getting in the bailout state). Expecting tougher restrictions, bank management will tread more carefully. This restriction-surcharge tradeoff may be more relevant when supervisory authorities have less independence. This is surprising. To put it differently, in countries with less independent supervisors, restrictions will be tougher and hence in expectation capital surcharges less needed. Making supervisors more independent from politicians will soften restrictions, either by regulatory capture by the banks of the supervisors and/or by the buffering of popular resistance to bailout and their pushing for harsher restrictions.

Cutting in the other direction is political representation on the boards of directors. In this case, restrictions will be softer as they affect the politicians

themselves, in which case and to make up for this conflict of interest, capital surcharges should be set higher.

Finally, recall that in societies characterized by stronger individualism and less uncertainty avoidance, supervisors exhibit significantly more harshness towards G-SIBs. In these societies, in principle, G-SIB capital surcharges could be set lower as restrictions will be harsher and disincentivize bank management to get into trouble in the first place.

6. Conclusions

Are regulators across countries "in the pockets" of large banks? Do supervisors provide favorable treatment when bailing out large, global systemically important banks? To answer these questions, we study the bailouts in the EU during the period of 2008-2014.

Our findings soundly reject implications of unfair preferential treatment concept. Regulators tend to provide lower amounts of funding, wait longer, and bail out G-SIBs at lower capital ratios than other banks. Moreover, regulators impose harsher activity restrictions on G-SIBs during bailouts than other banks and withdraw the support earlier in these banks' recovery processes when their financial conditions are less rehabilitated. While supervisors surprisingly forebear bailing out G-SIBs, when they provide financial assistance to them, they impose harsher restrictions and release them more expeditiously.

We also find that regulators treat G-SIBs harshly in countries where supervisory authorities have less independence and in countries with fewer

political connections and a culture of high individualism and low uncertainty avoidance.

So, in sum, in a “Scandinavian” supervisory structure and culture the restrict phase, when it arrives, will be harsher and shorter, and capital ratios could be set lower and still yield the same banking stability outcomes.

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Diagram 1. Summary of Empirical Findings

G-SIBs vs Other	Characteristics	**Bail out**	**Restrict**	**Release**
Likelihood of		***Higher***		
Amount Spent		***Lower***		
Timing/Severity		***Later***	***More***	***Earlier***
Supervisor	Independent	Later	Less	-
Country Politics	Fewer Political Connections	Later	More	-
Country Culture	More Individualistic	Later	-	-
	More Masculine	-	-	Earlier
	Low Power Distance	Later	More	Later
	Low Uncertainty Avoidance	Later	More	Later
Modus Operandus	***In "Scandinavian" Country and Culture***	***"Avoid dealing with the (unavoidable) problem"***	***"But deal with it more harshly"***	***"And get rid of the problem as soon as possible"***

Notes. '-' indicates the situation in which the findings are either insignificant and/or different for capital injections and debt guarantees.

Table 1. Summary of bailouts provided to European banks during 2008-2014

Bank	Country	Capital injections			Debt guarantees		
		Rounds	Total bailout amount (bil. Eur)	Average bailout amount (% Total Assets)	Rounds	Total bailout amount (bil. Eur)	Average bailout ammount (% Total Assets)
G-SIBs							
BNP Paribas	France	1	5.10	0.25%	5	12.80	0.12%
Commerzbank AG	Germany	2	18.20	1.20%	1	15.00	1.65%
Crédit Agricole S.A.	France	1	3.00	0.18%	9	61.00	0.41%
ING Groep NV	Netherlands	1	10.00	0.75%	1	12.00	0.94%
Lloyds Banking Group Plc	United Kingdom	2	25.25	2.35%	1	60.00	5.20%
Royal Bank of Scotland Group Plc	United Kingdom	2	50.90	1.19%	2	61.70	1.36%
Société Générale SA	France	1	1.66	0.16%	5	13.60	0.25%
Non-G-SIBs							
Allied Irish Banks plc	Ireland	3	22.00	5.39%	3	15.70	3.37%
Banca Piccolo Credito Valtelline	Italy	1	0.20	0.80%			
Banca Popolare di Milano SCaRL	Italy	1	0.50	1.13%	1	1.50	2.89%
Banco BPI SA	Portugal	1	1.50	3.36%			
Banco Comercial Português, SA-Mi	Portugal	1	3.00	3.23%	4	6.40	1.70%
Banco de Sabadell SA	Spain	2	2.69	0.81%	2	5.31	3.28%
Banco Espirito Santo SA	Portugal				4	6.25	1.95%
Bank of Cyprus Public Company Li	Cyprus				2	12.40	37.78%
Bank of Ireland	Ireland	2	8.70	2.57%	2	3.25	0.82%
Caixabank, S.A.	Spain	2	5.48	0.79%			
Danske Bank A/S	Denmark	1	3.49	0.80%	1	4.70	1.06%
Erste Group Bank AG	Austria	2	1.22	0.31%	1	4.05	1.98%
First Investment Bank AD	Bulgaria				2	1.06	23.00%
Intesa Sanpaolo	Italy				1	12.00	1.88%
KBC Groep NV	Belgium	2	7.00	1.00%			
Mediobanca SpA	Italy				1	3.50	4.80%
Natixis SA	France	3	5.95	0.43%	2	4.68	0.46%
OTP Bank Plc	Hungary				1	1.40	4.30%
Raiffeisen Bank International AG	Austria	1	1.75	2.25%	2	4.25	2.68%
Spar Nord Bank	Denmark	1	0.17	1.98%			
Swedbank AB	Sweden				4	31.38	4.70%
Unione di Banche Italiane Scpa-U	Italy				1	6.00	4.56%
Volksbank International AG	Austria	2	1.25	1.31%	3	3.10	2.16%
	Totals						
	G-SIBs	10	114.114	1.08%	24	236.100	0.67%
	Non-G-SIBs	25	64.907	1.78%	37	126.929	3.97%
	All banks	35	179.021	1.58%	61	363.029	2.67%
Difference in means of average bailout amount (% Total Assets) between G-SIBs and Non-G-SIBs				-0.70%			-3.30%***
	t-statistic			(0.245)			(0.002)

Note: This table presents the summary of the bailouts provided to European banks from our sample during 2008-2014. Bank-quarter data on bailouts are extracted from the State Aid Register of European Commission and banks' annual reports, financial statements, websites.

Table 2. Comparative statistics for bail out and release capital triggers

	Bailout capital ratio (%)						Release capital ratio (%)					
	N	Mean	St Dev	Median	Min	Max	N	Mean	St Dev	Median	Min	Max
Capital injections												
G-SIBs	10	3.04	1.07	2.82	1.85	5.32	7	3.39	0.65	3.27	2.22	4.09
Non-G-SIBs	25	5.38	1.67	5.41	2.63	8.71	12	6.11	1.75	6.42	4.05	9.02
All banks	35	4.71	1.85	4.77	1.85	8.71	19	5.11	1.95	4.19	2.22	9.02
G-SIBs vs. Non-G-SIBs												
Difference in means		-2.34	***					-2.71	***			
t-statistic		(4.09)						(3.90)				
Debt guarantees												
G-SIBs	24	3.29	0.68	3.27	1.85	5.32	12	4.35	0.79	4.45	2.62	5.37
Non-G-SIBs	37	5.99	2.25	5.80	1.08	11.2	25	6.94	2.53	7.12	3.38	12.22
All banks	61	4.92	2.24	4.03	1.08	11.2	37	6.10	2.44	5.17	2.62	12.22
G-SIBs vs. Non-G-SIBs												
Difference in means		-2.70	***					-2.60	***			
t-statistic		(5.69)						(3.90)				

Note: This table presents descriptive statistics for the bailout capital ratios observed one quarter prior to intervention for a sample of 30 banks that received bailouts during 2008-2014, and release capital ratios observed one quarter prior to the bailouts' release for a sample of 28 banks that were released from bailouts during 2008-2014.

Table 3. Summary statistics of variables

Variable	Units	N	Mean	St Dev	Median	Min	Max
Dependent variables							
Bailout variables							
Dummy capital injection bailout	0/1	3080	0.01	0.00	0	0	1
Dummy debt guarantee bailout	0/1	3080	0.02	0.00	0	0	1
Dummy capital injection release	0/1	868	0.02	0.15	0	0	1
Dummy debt guarantee release	0/1	868	0.03	0.16	0	0	1
Bailout amount both bailout types	%	3080	0.07	0.83	0.00	0.00	34.59
Bailout amount capital injections	%	3080	0.02	0.27	0.00	0.00	11.67
Bailout amount debt guarantees	%	3080	0.05	0.77	0.00	0.00	34.59
Harshness variables							
Harshness Index (Unequal weights)	units	85	0.00	1.58	-0.79	-1.66	2.99
Harshness Index (Equal weights)	units	85	2.56	1.31	2.00	0.00	5.00
Explanatory variables							
Size							
Dummy G-SIB	0/1	3080	0.12	0.32	0	0	1
Dummy large bank	0/1	3080	0.22	0.41	0	0	1
Bank characteristics							
Size (Natural logarithm of TA)	log(bil. €)	2290	23.84	2.49	23.75	19.12	28.31
Equity/Total assets	%	2320	8.44	4.02	7.58	2.40	22.25
Loans/Deposits	%	2274	137.90	70.48	118.79	33.87	437.45
Credit risk ratio	%	2263	1.14	1.18	0.81	-0.65	6.44
ROA	%	2299	0.46	0.89	0.46	-3.39	3.26
Standard deviation of ROA	%	2679	0.28	0.45	0.12	0.01	2.87
Country characteristics							
Regulatory quality	units	3080	1.28	0.40	1.21	0.54	1.92
Inflation	%	3080	2.03	1.48	2.00	-0.84	7.85
GDP growth	%	3068	0.02	2.74	0.33	-5.99	9.36
Supervisory power index	units	3080	10.41	1.71	11	7	14
Lerner index	units	2556	0.21	0.10	0.22	-0.05	0.37
Supervisory powers							
Supervisory authority independence	units	2912	2.12	0.66	2	1	3
Political connections							
Share of politicians on the board of directors	%	1232	4.73	6.71	0.00	0.00	36.36
National culture							
Individualism	units	2996	65.14	13.73	71	27	89
Masculinity	units	2996	48.36	24.10	43	5	100
Power distance	units	2996	48.45	23.32	50	11	100
Uncertainty avoidance	units	2996	66.11	26.16	75	23	99

Note: This table provides descriptive statistics for the variables employed in the empirical models corresponding to a sample of 110 banks, out of which 30 banks received public bailouts during 2008-2014, and 28 banks were released from public bailouts during 2008-2014.

Table 4. Summary statistics of variables by sub-samples

	A. All banks						B. Bailed-out banks					
	Non-Bailed-out banks			Bailed-out banks			G-SIBs			Non-G-SIBs		
Variable	N	Mean	St Dev	N	Mean	St Dev	N	Mean	St Dev	N	Mean	St Dev
Dependent variables												
Bailout variables												
Dummy capital injection bailout				35	1.00	0.00	10	1.00	0.00	25	1.00	0.00
Dummy debt guarantee bailout				61	1.00	0.00	24	1.00	0.00	37	1.00	0.00
Dummy capital injection release				21	1.00	0.00	7	1.00	0.00	14	1.00	0.00
Dummy debt guarantee release				24	1.00	0.00	7	1.00	0.00	17	1.00	0.00
Bailout amount both bailout types				85	2.57	4.31	27	1.00	1.38	58	3.30	4.98
Bailout amount capital injections				35	1.58	2.04	10	1.08	1.18	25	1.78	2.29
Bailout amount debt guarantees				61	2.67	4.85	24	0.67	1.06	37	3.97	5.84
Harshness variables												
Harshness Index (Unequal weights)				85	0.00	1.58	27	-0.19	1.60	58	0.09	1.58
Harshness Index (Equal weights)				85	2.56	1.31	27	2.70	1.17	58	2.50	1.38
Dummy regulatory fees				85	0.80	0.40	27	0.89	0.32	58	0.76	0.43
Dummy dividend bans				85	0.41	0.50	27	0.22	0.42	58	0.50	0.50
Dummy board intrusions				85	0.28	0.45	27	0.30	0.47	58	0.28	0.45
Dummy executive pay limits				85	0.67	0.47	27	1.00	0.00	58	0.52	0.50
Dummy operating restrictions				85	0.40	0.49	27	0.30	0.47	58	0.45	0.50
Explanatory variables												
Size												
Dummy G-SIB	2212	0.08	0.26	868	0.23	0.42	196	1.00	0.00	672	0.00	0.00
Dummy large bank	2212	0.11	0.32	868	0.55	0.50	196	1.00	0.00	672	0.33	0.47
Bank characteristics												
Size (Natural logarithm of TA)	1546	22.99	2.31	744	25.62	1.86	169	27.85	0.36	575	24.96	1.58
Equity/Total assets	1546	9.41	4.23	774	6.50	2.68	179	4.10	0.95	595	7.22	2.60
Loans/Deposits	1534	134.64	77.24	740	144.64	53.25	166	114.96	22.31	574	153.22	56.43
Credit risk ratio	1524	1.17	1.27	739	1.08	0.95	167	0.81	0.48	572	1.17	1.04
ROA	1543	0.54	0.94	756	0.30	0.75	177	0.15	0.31	579	0.34	0.83
Standard deviation of ROA	1832	0.27	0.44	847	0.29	0.47	196	0.18	0.22	651	0.33	0.52
Country characteristics												
Regulatory quality	2212	1.29	0.40	868	1.27	0.40	196	1.47	0.26	672	1.21	0.42
Inflation	2212	2.10	1.49	868	1.86	1.45	196	1.92	1.07	672	1.84	1.54
GDP growth	2200	0.27	2.81	868	-0.62	2.42	196	-0.03	2.07	672	-0.79	2.49
Supervisory power index	2212	10.29	1.63	868	10.72	1.87	196	9.78	0.88	672	10.99	1.99
Lerner index	1836	0.21	0.10	720	0.21	0.09	168	0.19	0.06	552	0.21	0.10
Supervisory powers												
Supervisory authority independence	2156	2.06	0.63	756	2.27	0.72	140	2.06	0.68	616	2.32	0.72
Political connections												
Share of politicians on the board of directors	568	2.85	5.92	664	6.33	6.92	132	7.80	4.97	532	5.97	7.28
National culture												
Individualism	2156	65.13	12.02	840	65.17	17.36	196	76.86	8.51	644	61.61	17.80
Masculinity	2156	47.47	24.51	840	50.63	22.88	196	48.71	17.77	644	51.22	24.20
Power distance	2156	50.14	24.47	840	44.10	19.40	196	49.57	16.03	644	42.43	20.03
Uncertainty avoidance	2156	65.70	26.68	840	67.17	24.79	196	63.71	21.62	644	68.22	25.60

Note: This table provides descriptive statistics for the explanatory variables employed in the empirical models. In Panel A, the output corresponds to a sample of 110 banks, out of which 30 banks received bailouts during 2008-2014. In Panel B, the output corresponds to a panel of 30 banks intervened public bailouts, out of which 7 banks are G-SIBs.

Table 5. Panel A. Main results: Bail out probability

Column	(1)	(2)	(3)	(4)
Model	Logit	Logit	MLN	MLN
Dependent variable	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)
Main determinants				
Dummy G-SIB	6.903**	7.635***	15.718***	8.674***
	(2.150)	(3.657)	(2.705)	(6.310)
Equity/Total assets	-0.482*	-0.174*	-0.528*	-0.131
	(-1.877)	(-1.659)	(-1.906)	(-1.016)
Dummy G-SIB × Equity/Total assets	-2.314***	-1.776***	-6.275***	-2.038***
	(-2.960)	(-4.255)	(-2.639)	(-6.876)
Controls				
Size (Natural logarithm of TA)	0.400	0.683***	0.342	0.629***
	(1.564)	(2.874)	(1.314)	(2.663)
Loans/Deposits	0.011	0.007***	0.011	0.008***
	(1.425)	(2.590)	(1.468)	(3.039)
Credit risk ratio	0.021	0.031	0.027	-0.150
	(0.099)	(0.129)	(0.118)	(-0.490)
ROA	0.147	-0.595**	0.109	-0.859**
	(0.524)	(-2.055)	(0.325)	(-2.215)
Standard deviation of ROA	0.594	0.408	0.445	0.198
	(0.901)	(0.919)	(0.659)	(0.415)
Regulatory quality	-1.139	-6.202***	-0.875	-6.080***
	(-0.301)	(-2.679)	(-0.220)	(-2.768)
Inflation	-0.432*	-0.223	-0.401	-0.042
	(-1.680)	(-0.836)	(-1.572)	(-0.153)
GDP growth	0.004	0.056	-0.150	0.001
	(0.017)	(0.372)	(-0.678)	(0.008)
Supervisory power index	-1.422***	-0.156	-1.192***	-0.130
	(-3.672)	(-0.756)	(-3.173)	(-0.701)
Lerner index	-6.379	-9.325*	-5.738	-8.409
	(-1.526)	(-1.742)	(-1.468)	(-1.552)
Constant	6.414	-8.539	-9.677	-8.934
	(0.776)	(-1.248)	(-1.114)	(-1.279)
Year fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Cluster	Country×Year	Country×Year	Country×Year	Country×Year
Observations	1,216	1,669	2,039	2,039
Pseudo R-squared	0.402	0.389	0.432	0.432
Log-likelihood	-75.13	-115.4	-164.4	-164.4
Economic relevancy				
Odds ratios for Dummy G-SIB × Equity/Total assets	0.099***	0.169***		
Marginal effects for Dummy G-SIB × Equity/Total assets (dy/dx)			-0.050	-0.023

Note: This table reports the coefficients of the main regressions associated with the regulator's probability to provide bailout to G-SIBs versus non-G-SIBs. Columns (1) and (2) reflect the impact of explanatory variables on the probability of choosing a bailout type using a Logit model, corresponding to eq. (1). The dependent variables represent the choice by the government of different types of bailouts. The base category is no bailout for bank i in a given quarter. In columns (3) and (4) the method used is Multinomial Logit (MLN) and the dependent variables represent the choice by the government of different types of bailouts. The base category is no bailout for bank i in a given quarter. The sample includes 110 banks, and the estimation period is 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Panel B. Main results: Bailout amount

Column	(1)	(2)	(3)
Model	OLS	OLS	OLS
Dependent variable	Bailout amount (% TA)	Bailout amount (% TA)	Bailout amount (% TA)
Bailout type	Both bailout types	Capital injections	Debt guarantees
Main determinant			
Dummy G-SIB	-0.260**	-0.137**	-0.153*
	(-2.375)	(-2.236)	(-1.697)
Controls			
Equity/Total assets	-0.114**	-0.094**	-0.021
	(-2.202)	(-2.080)	(-0.877)
Loans/Deposits	0.001	0.000	0.001
	(1.116)	(1.174)	(0.759)
Credit risk ratio	0.325**	0.249	0.086*
	(2.039)	(1.642)	(1.889)
ROA	0.283	0.316	-0.010
	(1.339)	(1.281)	(-0.137)
Standard deviation of ROA	0.436	0.306	0.153
	(1.346)	(1.113)	(0.802)
Regulatory quality	-0.301*	-0.041	-0.224
	(-1.943)	(-0.547)	(-1.492)
Inflation	-0.030	-0.014	-0.012
	(-0.457)	(-0.448)	(-0.206)
GDP growth	0.057**	0.014	0.048**
	(2.238)	(0.961)	(1.983)
Supervisory power index	-0.034*	-0.014	-0.025
	(-1.887)	(-1.335)	(-1.326)
Lerner index	-0.796	0.041	-0.760
	(-1.527)	(0.237)	(-1.641)
Constant	1.251**	0.443*	0.814
	(2.059)	(1.923)	(1.383)
Cluster	Bank	Bank	Bank
Observations	691	691	691
R-squared	0.104	0.180	0.037

Note: This table reports the coefficients of the main regressions associated with the bailout amounts. The dependent variables reflect the total bailout amount that the regulator provides to bank i in quarter t as share in bank's total assets (column (1)), the capital injections as share in bank's total assets (column (2)), and, respectively, the fraction of debt that the regulator guarantees measured as share in bank's total assets (column (3)). The sample includes 28 banks intervened with public bailouts, and the estimation period is 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 6. Main results: Harshness of restrictions

Column	(1)	(2)	(3)	(4)
Model	OLS	OLS	OLS	NBM
Dependent variable	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)
Main determinants				
Dummy G-SIB	1.608***	1.343**	1.696**	0.382***
	(2.795)	(2.492)	(2.268)	(2.882)
Dummy debt guarantee	-1.405***	-0.865***	-0.771	-0.344***
	(-4.089)	(-3.271)	(-1.342)	(-4.093)
Dummy G-SIB × Dummy debt guarantee	-0.486	0.199	0.439	0.173
	(-0.739)	(0.324)	(0.544)	(1.002)
Controls				
Equity/Total assets	-0.116	-0.187**	-0.041	-0.112***
	(-1.415)	(-2.246)	(-0.290)	(-3.835)
Size (Natural logarithm of TA)	-0.514***	-0.504***	-0.463**	-0.205***
	(-5.150)	(-4.544)	(-2.397)	(-6.691)
Loans/Deposits	-0.005*	0.001	0.001	-0.000
	(-1.797)	(0.362)	(0.256)	(-0.154)
Credit risk ratio	-0.011	0.083	-0.413**	0.022
	(-0.082)	(0.871)	(-2.053)	(0.767)
ROA	-0.334***	-0.344***	-0.400**	-0.118***
	(-3.027)	(-2.938)	(-2.081)	(-3.657)
Standard deviation of ROA	0.847***	0.669**	1.210**	0.277***
	(2.935)	(2.708)	(2.213)	(4.078)
Regulatory quality	1.398**	1.025*	-0.893	0.392**
	(2.348)	(1.978)	(-1.066)	(2.220)
Inflation	-0.119	-0.015	-0.064	-0.011
	(-0.984)	(-0.149)	(-0.603)	(-0.277)
GDP growth	0.013	-0.047	-0.047	-0.035*
	(0.117)	(-0.729)	(-0.517)	(-1.733)
Supervisory power index	0.097	0.008	-0.170	-0.020
	(0.756)	(0.103)	(-1.599)	(-0.519)
Lerner index	0.258	-1.296	0.113	-0.775
	(0.092)	(-0.801)	(0.037)	(-1.191)
Constant	12.553***	15.146***	16.222***	6.581***
	(4.013)	(5.274)	(3.383)	(6.499)
Country fixed effects	NO	NO	YES	NO
Cluster	Bank	Bank	Bank	Bank
Observations	61	61	61	61
R-squared	0.746	0.723	0.503	0.147
Test of the sum of coefficients				
Dummy G-SIB + Dummy G-SIB × Dummy debt guarantee	1.122**	1.542**	2.135**	0.555**
F-statistic	(4.040)	(3.770)	(8.890)	(8.420)
Dummy G-SIB + Dummy G-SIB × Dummy capital injection	1.617	1.516**	1.903**	0.444***
F-statistic	(2.410)	(4.150)	(7.750)	(9.260)

Note: This table reports the coefficients of the main regressions associated with the restriction phase of public bailouts provided to G-SIBs versus non-G-SIBs, corresponding to eq. (2). Columns (1)-(3) show the impact of explanatory variables on the harshness of restrictions using OLS, while column (4) present the results for a Negative binomial model. The dependent variables represent the harshness of restrictions applied by the regulator for bank i during the bailout period using unequal weights (the Principal Component Analysis method) and equal weights, based on the following dimensions: regulatory fees, dividend bans, board intrusions, executive pay limits, and other operating restrictions. Higher values are associated with harsher restrictions. The sample includes 28 banks intervened with public bailouts and subject to restrictions during the duration of the bailouts. Estimation period is 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 7. Main results: Release probability

Column	(1)	(2)	(3)	(4)
Model	Logit	Logit	MLN	MLN
Dependent variable	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)
Main determinants				
Dummy G-SIB	-2.074	2.008	-2.636	1.968
	(-0.358)	(0.953)	(-0.571)	(0.935)
Equity/Total assets	-0.536	1.017**	-0.528	1.013**
	(-1.312)	(2.352)	(-1.283)	(2.331)
Dummy G-SIB × Equity/Total assets	0.468	-1.245**	0.440	-1.243**
	(0.385)	(-2.071)	(0.368)	(-2.061)
Controls				
Size (Natural logarithm of TA)	-0.038	1.474***	-0.008	1.482***
	(-0.165)	(2.776)	(-0.037)	(2.783)
Loans/Deposits	-0.017	-0.005	-0.018	-0.006
	(-1.597)	(-0.828)	(-1.619)	(-0.900)
Credit risk ratio	-0.130	0.468	-0.145	0.462
	(-0.104)	(0.776)	(-0.114)	(0.768)
ROA	1.117	1.737***	1.195	1.811***
	(1.501)	(2.630)	(1.594)	(2.745)
Standard deviation of ROA	0.467	-0.908	0.493	-0.873
	(0.334)	(-0.948)	(0.354)	(-0.896)
Regulatory quality	-5.962	-0.207	-5.924	-0.541
	(-1.585)	(-0.047)	(-1.578)	(-0.125)
Inflation	-0.078	-0.335	-0.085	-0.333
	(-0.194)	(-0.927)	(-0.212)	(-0.920)
GDP growth	0.054	0.274	0.063	0.279
	(0.280)	(1.449)	(0.326)	(1.466)
Supervisory power index	0.090	1.254**	0.123	1.251**
	(0.434)	(2.198)	(0.608)	(2.257)
Lerner index	9.013*	-7.714*	8.828*	-7.223*
	(1.801)	(-1.859)	(1.759)	(-1.790)
Constant	10.437	-62.363***	9.384	-62.001***
	(1.103)	(-2.614)	(1.023)	(-2.608)
Year fixed effects	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES
Cluster	Country×Year	Country×Year	Country×Year	Country×Year
Observations	323	389	419	419
Pseudo R-squared	0.110	0.219	0.205	0.205
Log-likelihood	-51.30	-63.79	-114.4	-114.4
Economic relevancy				
Odds ratios for Dummy G-SIB × Equity/Total assets	1.596	0.288**		
Marginal effects for Dummy G-SIB × Equity/Total assets (dy/dx)			0.015	-0.052

Note: This table reports the coefficients of the main regressions associated with the release process of public bailouts provided to G-SIBs versus non-G-SIBs, corresponding to eq. (3). Columns (1) and (2) show the impact of explanatory variables on the probability of releasing a bailout type using a Logit model. The dependent variables represent the release of different types of bailouts. The base category is no release for bank i in a given quarter. In columns (3) and (4) the method used is Multinomial Logit (MLN) and the dependent variables represent the release of different types of bailouts. The base category is no release for bank i in a given quarter. The sample includes 30 banks intervened with public bailouts. The estimation period is represented by the quarters between the first intervention event and the last release event for each bailed out bank within 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 8. Test results for probability to bail out banks

	A. Supervisory powers		B. Political connections		C. National culture							
	Supervisory authority independence		Share of politicians on the board of directors		Individualism		Masculinity		Power distance		Uncertainty avoidance	
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Dependent variable	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)
Main determinants												
Dummy G-SIB	4.796	41.113***	12.900	21.144***	-31.942*	-62.649	20.981**	0.815	51.615**	20.145*	67.575***	18.814
	(1.188)	(5.437)	(1.463)	(5.087)	(-1.853)	(-1.541)	(2.401)	(0.131)	(2.078)	(1.750)	(3.719)	(0.968)
Equity/Total assets	0.857	-0.282	-0.400	0.591***	-0.469	-0.030	0.018	0.439	-1.553**	-0.558	-0.744	-0.838
	(1.088)	(-0.666)	(-0.934)	(3.005)	(-0.920)	(-0.098)	(0.030)	(1.530)	(-1.982)	(-0.730)	(-1.046)	(-0.659)
Channel	-1.485	-6.578**	-0.115	0.464***	1.776*	2.549***	-0.232	-0.357***	-0.188*	-0.121	0.276	0.394***
	(-0.748)	(-2.222)	(-0.722)	(2.865)	(1.692)	(3.957)	(-1.459)	(-3.460)	(-1.715)	(-1.470)	(1.603)	(3.397)
Dummy G-SIB × Equity/Total assets	-1.835**	-9.334***	-4.517*	-4.362***	9.556***	9.054	-7.595**	-0.725	-13.535*	-11.785***	-15.323***	-8.700*
	(-2.516)	(-6.552)	(-1.746)	(-5.839)	(2.694)	(1.498)	(-2.308)	(-0.475)	(-1.677)	(-3.279)	(-4.741)	(-1.818)
Dummy G-SIB × Channel	-5.592***	-10.934***	0.336	-0.942***	0.612**	1.002*	-0.098	0.259	-0.951*	-0.140	-0.893***	-0.100
	(-2.896)	(-4.016)	(0.347)	(-3.005)	(2.367)	(1.750)	(-0.488)	(1.637)	(-1.811)	(-0.808)	(-3.112)	(-0.439)
Equity/Total assets × Channel	-0.551	0.063	0.030	-0.053**	-0.001	-0.003	-0.011	-0.015**	0.019	0.006	0.003	0.008
	(-1.639)	(0.412)	(1.129)	(-2.178)	(-0.097)	(-0.545)	(-0.771)	(-2.260)	(1.558)	(0.492)	(0.337)	(0.521)
Dummy G-SIB × Equity/Total assets × Channel	0.882***	2.863***	-0.083	0.180***	-0.201***	-0.156*	0.022	-0.042	0.223	0.157***	0.185***	0.079
	(2.639)	(5.396)	(-0.305)	(3.139)	(-3.255)	(-1.785)	(0.264)	(-1.268)	(1.423)	(2.829)	(4.441)	(1.393)
Controls												
Size (Natural logarithm of TA)	0.455**	0.666**	0.173	0.222	0.343	0.563**	0.432	0.665***	0.444	0.549**	0.318	0.474*
	(1.979)	(2.348)	(0.478)	(0.890)	(1.307)	(2.259)	(1.236)	(2.712)	(1.433)	(2.217)	(1.188)	(1.941)
Loans/Deposits	0.007	0.012***	0.013	0.005	0.011	0.007***	0.012	0.011***	0.010	0.010***	0.010	0.009***
	(1.246)	(3.347)	(1.391)	(1.633)	(1.329)	(2.644)	(1.318)	(3.276)	(1.196)	(3.474)	(1.304)	(3.032)
Credit risk ratio	-0.415	-0.857	-0.015	-0.695*	-0.017	0.087	0.021	0.025	0.052	0.106	-0.004	0.015
	(-0.926)	(-1.274)	(-0.046)	(-1.828)	(-0.077)	(0.289)	(0.109)	(0.077)	(0.219)	(0.340)	(-0.019)	(0.044)
ROA	-0.581	-0.519	-0.556	-1.982***	0.191	-0.387	0.291	-0.396	0.280	-0.412	0.206	-0.468
	(-0.799)	(-1.248)	(-0.855)	(-3.328)	(0.531)	(-0.931)	(0.740)	(-1.010)	(0.667)	(-1.005)	(0.515)	(-1.074)
Standard deviation of ROA	-0.027	0.715	-0.463	0.273	0.521	-0.350	0.410	-0.491	0.577	-0.272	0.524	-0.214
	(-0.029)	(1.059)	(-0.421)	(0.342)	(0.804)	(-0.582)	(0.631)	(-0.919)	(0.760)	(-0.460)	(0.722)	(-0.386)
Regulatory quality	-26.401*	-6.506**	-0.480	-10.269***	-0.771	-6.512**	-1.738	-7.308***	-1.106	-6.827***	-0.778	-6.431**
	(-1.871)	(-1.977)	(-0.120)	(-3.125)	(-0.195)	(-2.465)	(-0.433)	(-2.602)	(-0.286)	(-2.599)	(-0.197)	(-2.424)
Inflation	6.726**	-0.682*	-0.415	1.024	-0.363	-0.270	-0.339	-0.300	-0.319	-0.329	-0.362	-0.267
	(2.236)	(-1.823)	(-1.285)	(1.638)	(-1.416)	(-1.070)	(-1.317)	(-1.133)	(-1.144)	(-1.224)	(-1.389)	(-0.955)
GDP growth	1.976**	0.735	-0.121	0.584**	-0.162	-0.055	-0.227	-0.067	-0.269	-0.024	-0.183	-0.044
	(2.380)	(1.100)	(-0.398)	(2.135)	(-0.693)	(-0.367)	(-0.900)	(-0.455)	(-1.036)	(-0.157)	(-0.714)	(-0.303)
Supervisory power index	-3.179***	-1.351*	-1.518***	-0.057	-1.184***	-0.124	-1.130***	-0.175	-1.093***	-0.129	-1.163***	-0.153
	(-2.989)	(-1.833)	(-3.692)	(-0.271)	(-3.082)	(-0.621)	(-2.816)	(-0.787)	(-2.832)	(-0.658)	(-3.002)	(-0.727)
Lerner index	12.344	-15.366	-7.655	-12.774***	-5.349	-9.745*	-4.842	-9.988*	-5.896	-9.692*	-5.471	-9.403*
	(1.503)	(-1.495)	(-1.600)	(-2.672)	(-1.378)	(-1.924)	(-1.301)	(-1.848)	(-1.573)	(-1.818)	(-1.413)	(-1.898)
Constant	53.221*	26.765	12.178	0.248	-96.806*	-145.369***	19.266	25.592*	5.504	-1.389	-17.879**	-29.876***
	(1.896)	(1.069)	(1.133)	(0.033)	(-1.897)	(-4.720)	(0.950)	(1.873)	(0.625)	(-0.145)	(-2.575)	(-3.623)
Observations	1,726	1,726	726	838	1,980	1,980	1,980	1,980	1,980	1,980	1,980	1,980
Year fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year
Pseudo R-squared	0.485	0.506	0.356	0.430	0.455	0.415	0.455	0.435	0.463	0.445	0.457	0.434
Log-likelihood	-41.87	-72.73	-65.70	-82.92	-63.46	-100.5	-63.39	-97.05	-62.51	-95.43	-63.20	-97.33
Economic relevancy												
Odds ratios for Dummy G-SIB × Channel (Δ = St Dev)	0.004***	0.000***	1.400	0.390***	1.845**	2.723*	0.907	1.296	0.386*	0.869	0.410***	0.905
Odds ratios for Dummy G-SIB × Equity/Total assets × Channel (Δ = St Dev)	2.416***	17.512***	0.920	1.197***	0.818***	0.856*	1.022	0.958	1.250	1.170***	1.203***	1.082

Note: This table shows the effects of potential mitigating factors (Channel) on the relation between G-SIB status and the likelihood of bailouts. In Panel A we consider the supervisory powers (Supervisory authority independence index), in Panel B the political connections (Share of politicians on the board of directors), and in Panel C the national culture (Individualism, Masculinity, Power distance, and Uncertainty avoidance). The method used is Logit and corresponds to eq. (1). The dependent variables represent the choice by the government of different types of bailouts. The base category is no bailout for bank i in a given quarter. The sample includes 110 banks, and the estimation period is 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 9. Test results for harshness of restrictions

	A. Supervisory powers		B. Political connections		C. National culture							
	Supervisory authority independence		Share of politicians on the board of directors		Individualism		Masculinity		Power distance		Uncertainty avoidance	
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Dependent variable	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)
Main determinants												
Dummy G-SIB	5.597***	2.682**	3.121***	1.618**	3.218	-5.258	-0.264	0.598	5.412***	4.024***	2.500*	3.691***
	(5.188)	(2.758)	(3.483)	(2.742)	(0.569)	(-1.605)	(-0.164)	(0.522)	(3.701)	(3.784)	(1.908)	(4.803)
Dummy debt guarantee	-1.723	-0.402	-0.851*	-0.284	-3.493***	-2.665**	-2.450***	-0.830	-0.429	-0.387	-0.201	-0.257
	(-1.697)	(-0.475)	(-1.809)	(-0.873)	(-5.241)	(-2.594)	(-2.797)	(-1.174)	(-0.535)	(-0.866)	(-0.204)	(-0.355)
Channel	-0.112	0.424	0.041	0.085*	-0.036**	-0.022	-0.017	0.004	0.002	-0.026*	-0.009	-0.018*
	(-0.296)	(1.195)	(0.842)	(1.875)	(-2.665)	(-1.204)	(-1.094)	(0.326)	(0.162)	(-1.814)	(-0.625)	(-1.972)
Dummy G-SIB × Dummy debt guarantee												
Channel × Dummy debt guarantee	0.327	-0.143	-0.048	-0.084**	0.037***	0.029	0.023	0.001	-0.020	-0.014	-0.017	-0.013
	(0.715)	(-0.330)	(-1.006)	(-2.428)	(3.206)	(1.693)	(1.553)	(0.071)	(-1.211)	(-1.211)	(-1.444)	(-1.240)
Dummy G-SIB × Channel	-2.269***	-1.092***	-0.367**	-0.287***	-0.009	0.086**	0.036	0.013	-0.093**	-0.067**	-0.010	-0.051**
	(-3.457)	(-2.931)	(-2.576)	(-3.076)	(-0.139)	(2.239)	(1.183)	(0.676)	(-2.619)	(-2.190)	(-0.473)	(-2.724)
Dummy G-SIB × Channel × Dummy debt guarantee	-0.413	0.155	0.106	0.195**	-0.018*	0.003	-0.005	0.004	0.024	0.036**	-0.010	0.022*
	(-1.638)	(0.569)	(1.168)	(2.207)	(-1.760)	(0.350)	(-0.342)	(0.342)	(1.439)	(2.531)	(-1.125)	(1.897)
Controls												
Equity/Total assets	-0.148*	-0.172*	-0.176	-0.266**	0.097	-0.193***	-0.029	-0.235**	-0.108	-0.247***	-0.021	-0.203***
	(-1.826)	(-1.934)	(-1.648)	(-2.717)	(0.749)	(-2.955)	(-0.360)	(-2.420)	(-1.214)	(-4.080)	(-0.206)	(-3.212)
Size (Natural logarithm of TA)	-0.439***	-0.389***	-0.452***	-0.536***	-0.484***	-0.501***	-0.524***	-0.474***	-0.464***	-0.359***	-0.399***	-0.391***
	(-3.251)	(-3.426)	(-2.963)	(-4.963)	(-5.506)	(-5.125)	(-4.622)	(-4.034)	(-3.274)	(-2.906)	(-3.063)	(-3.329)
Loans/Deposits ratio	-0.006***	-0.000	-0.008***	-0.003	-0.005*	0.000	-0.006**	0.001	-0.006**	0.002	-0.008***	-0.001
	(-3.342)	(-0.101)	(-3.221)	(-1.498)	(-1.786)	(0.209)	(-2.084)	(0.359)	(-2.634)	(0.863)	(-3.348)	(-0.826)
Credit risk ratio	-0.281	-0.254	-0.069	-0.028	-0.338	0.118	-0.246	0.069	-0.066	0.058	-0.195	0.138
	(-1.282)	(-1.237)	(-0.426)	(-0.151)	(-1.427)	(0.869)	(-1.370)	(0.425)	(-0.401)	(0.335)	(-1.078)	(0.968)
ROAA	-0.314**	-0.368*	-0.179	-0.192	-0.708***	-0.342*	-0.539***	-0.293	-0.306**	-0.230	-0.470***	-0.233
	(-2.649)	(-1.929)	(-1.096)	(-1.030)	(-2.986)	(-1.923)	(-3.317)	(-1.308)	(-2.639)	(-1.381)	(-3.195)	(-1.481)
Standard deviation of ROAA	1.036***	0.932***	0.618**	0.967***	1.813***	0.499	1.447***	0.594	0.885***	0.514	1.248***	0.214
	(3.498)	(2.937)	(2.232)	(4.656)	(2.912)	(1.011)	(3.445)	(1.008)	(2.789)	(0.886)	(3.929)	(0.441)
Regulatory quality	0.702	0.561	1.113**	0.557	2.335**	0.974*	1.878***	0.908*	0.740	-0.795	0.629	-0.443
	(1.189)	(1.054)	(2.179)	(1.266)	(2.469)	(2.019)	(3.031)	(1.774)	(0.863)	(-1.167)	(0.703)	(-0.764)
Inflation	-0.028	0.042	-0.199*	-0.132**	-0.239*	-0.100	-0.211*	-0.026	-0.207*	-0.060	-0.226*	-0.075
	(-0.319)	(0.456)	(-2.047)	(-2.205)	(-1.738)	(-1.070)	(-1.800)	(-0.286)	(-1.925)	(-1.044)	(-1.916)	(-1.110)
GDP growth	0.014	-0.020	-0.100	-0.030	-0.081	-0.028	-0.029	-0.038	-0.066	-0.068	-0.062	-0.009
	(0.174)	(-0.234)	(-1.379)	(-0.379)	(-0.659)	(-0.373)	(-0.251)	(-0.722)	(-0.612)	(-1.123)	(-0.471)	(-0.133)
Supervisory power index	-0.024	-0.149	0.144	-0.083	0.076	-0.043	0.081	0.018	0.106	0.092	0.064	0.001
	(-0.279)	(-1.680)	(1.283)	(-0.970)	(0.642)	(-0.541)	(0.745)	(0.238)	(0.995)	(1.078)	(0.478)	(0.010)
Lerner index	-0.608	-2.914*	2.850	-1.449	-0.379	-2.768	-0.282	-1.072	0.598	0.004	-2.851	-4.234***
	(-0.303)	(-1.808)	(1.161)	(-0.918)	(-0.176)	(-1.617)	(-0.115)	(-0.588)	(0.281)	(0.002)	(-0.893)	(-2.963)
Constant	13.202***	13.835***	11.226**	18.565***	12.442***	17.633***	13.453***	14.478***	12.235***	14.207***	12.569***	16.869***
	(3.386)	(3.796)	(2.766)	(5.952)	(5.776)	(8.459)	(4.032)	(4.803)	(4.224)	(5.995)	(3.853)	(6.163)
Observations	55	55	54	54	60	60	60	60	60	60	60	60
R-squared	0.829	0.741	0.838	0.799	0.780	0.766	0.786	0.719	0.851	0.823	0.804	0.810
Cluster	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Economic relevancy												
Dummy G-SIB × Channel (Δ = St Dev) / St Dev Y	-1.328***	-0.788***	-1.128**	-1.119***	-0.193	2.247**	0.495	0.217	-1.517**	-1.359**	-0.214	-1.343**
Test of the sum of coefficients												
Dummy G-SIB × Channel + Dummy G-SIB × Channel × Dummy debt guarantee	-2.682***	-0.937**	-0.261***	-0.092***	-0.027	0.089*	0.031	0.017	-0.069**	-0.031*	-0.020	-0.029**
F-statistic	(20.630)	(4.450)	(6.490)	(6.580)	(1.930)	(2.520)	(0.880)	(0.230)	(4.050)	(3.210)	(1.840)	(4.170)
Dummy G-SIB × Channel + Dummy G-SIB × Channel × Dummy capital injection	-1.828*	-1.091*	-0.304***	-0.176***	-0.026	0.080*	0.015	-0.001	-0.082***	-0.045***	-0.014	-0.037***
F-statistic	(3.100)	(3.090)	(11.250)	(6.550)	(1.800)	(2.760)	(1.460)	(0.680)	(6.930)	(7.900)	(0.980)	(9.060)

Note: This table shows the effects of potential mitigating factors (Channel) on the relation between G-SIB status and the harshness of restrictions. In Panel A we consider the supervisory powers (Supervisory authority independence index), in Panel B the political connections (Share of politicians on the board of directors), and in Panel C the national culture (Individualism, Masculinity, Power distance, and Uncertainty avoidance). The method used is OLS and corresponds to eq. (2). The dependent variables represent the harshness of restrictions applied by the regulator for bank i during the bailout period using unequal weights (the Principal Component Analysis method) and equal weights, based on the following dimensions: regulatory fees, dividend bans, board intrusions, executive pay limits, and other operating restrictions. Higher values are associated with harsher restrictions. The sample includes 28 banks intervened with public bailouts and subject to restrictions during the duration of the bailouts. Estimation period is 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10. Test results for probability to release banks

	A. Supervisory powers		B. Political connections		C. National culture							
	Supervisory authority independence		Share of politicians on the board of directors		Individualism		Masculinity		Power distance		Uncertainty avoidance	
Column	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Model	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit	Logit
Dependent variable	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)	Capital injections (Dummy)	Debt guarantees (Dummy)
Main determinants												
Dummy G-SIB	-1.402	-6.748	3.593	-4.884	2.616	1.124	-9.608	1.464	103.594**	0.716	17.616**	0.978
	(-0.148)	(-1.024)	(0.527)	(-0.612)	(0.566)	(0.583)	(-1.017)	(0.697)	(2.111)	(0.273)	(2.048)	(0.339)
Equity/Total assets	-0.677	1.595***	-0.489	0.611	-0.789	-0.354	-0.485	-0.862**	-0.090	-0.908*	-0.433	-1.207
	(-1.285)	(2.998)	(-1.164)	(0.766)	(-0.683)	(-0.892)	(-0.925)	(-2.383)	(-0.090)	(-1.732)	(-0.380)	(-1.426)
Channel	1.704	0.104	0.030	0.014	-0.378*	0.784***	0.109	-0.490***	-0.295*	0.216	0.177	-0.530**
	(0.786)	(0.104)	(0.139)	(0.057)	(-1.717)	(3.924)	(1.466)	(-4.489)	(-1.903)	(1.616)	(1.615)	(-2.538)
Dummy G-SIB × Equity/Total assets	1.425	-2.254	2.282	0.185	-13.410	5.951*	-2.944*	2.333	47.986*	-1.648	10.746*	-1.677
	(0.435)	(-1.359)	(0.961)	(0.091)	(-1.560)	(1.750)	(-1.800)	(1.607)	(1.933)	(-1.461)	(1.901)	(-1.374)
Dummy G-SIB × Channel	2.931	2.135	0.156	0.311								
	(0.634)	(0.901)	(0.135)	(0.584)								
Equity/Total assets × Channel	-0.023	-0.362**	-0.005	0.010	0.003	0.022*	-0.002	0.042***	-0.013	0.033*	-0.003	0.031
	(-0.176)	(-2.320)	(-0.165)	(0.336)	(0.140)	(1.825)	(-0.230)	(3.756)	(-0.553)	(1.697)	(-0.235)	(1.543)
Dummy G-SIB × Equity/Total assets × Channel	-1.466	0.668	-0.404	-0.050	0.174	-0.100**	0.119	-0.081**	-1.283*	0.012	-0.197*	0.008
	(-0.851)	(1.162)	(-1.090)	(-0.366)	(1.535)	(-2.093)	(1.506)	(-2.332)	(-1.949)	(0.580)	(-1.926)	(0.448)
Controls												
Size (Natural logarithm of TA)	-0.112	1.257***	0.057	1.107**	-0.051	1.790***	-0.059	1.422***	-0.114	0.613***	-0.049	0.887**
	(-0.441)	(3.391)	(0.101)	(2.235)	(-0.153)	(3.010)	(-0.232)	(3.612)	(-0.545)	(3.051)	(-0.135)	(2.016)
Loans/Deposits	-0.011	-0.010	-0.012	-0.006	-0.015	-0.006	-0.012	-0.019**	-0.009	-0.016**	-0.013	-0.019*
	(-0.965)	(-1.107)	(-1.033)	(-0.726)	(-1.273)	(-0.846)	(-0.967)	(-2.544)	(-0.890)	(-1.965)	(-1.018)	(-1.645)
Credit risk ratio	0.730	0.307	0.709	0.499	0.076	0.509	0.204	0.197	-0.088	0.417	0.197	0.609
	(0.829)	(0.499)	(0.627)	(0.689)	(0.061)	(0.839)	(0.199)	(0.360)	(-0.064)	(0.820)	(0.154)	(1.014)
ROA	1.560*	0.895	1.689	1.838**	1.248	1.803**	1.269	1.871**	1.030	1.342**	1.317	1.996**
	(1.674)	(1.333)	(1.532)	(1.961)	(1.214)	(2.545)	(1.631)	(2.502)	(1.171)	(2.253)	(1.362)	(2.479)
Standard deviation of ROA	-0.461	1.039*	0.466	0.267	0.295	-1.356	0.167	-1.178	0.199	-0.799	0.047	-0.971
	(-0.258)	(1.698)	(0.273)	(0.212)	(0.205)	(-1.268)	(0.105)	(-1.029)	(0.144)	(-0.838)	(0.029)	(-0.916)
Regulatory quality	-7.165	-2.819	-10.917	-4.096	-6.066	-0.054	-8.188**	-2.693	-7.009*	0.206	-6.633	-0.802
	(-1.191)	(-0.557)	(-1.603)	(-0.778)	(-1.428)	(-0.013)	(-2.051)	(-0.644)	(-1.904)	(0.063)	(-1.522)	(-0.214)
Inflation	-0.106	-0.320	0.104	-0.995**	-0.091	-0.311	0.040	-0.251	0.046	-0.167	-0.063	-0.219
	(-0.215)	(-0.839)	(0.150)	(-2.543)	(-0.227)	(-0.864)	(0.096)	(-0.660)	(0.119)	(-0.538)	(-0.159)	(-0.588)
GDP growth	-0.012	0.400**	-0.060	0.459**	0.088	0.293	-0.084	0.399*	-0.038	0.169	0.075	0.259
	(-0.054)	(2.101)	(-0.194)	(2.061)	(0.438)	(1.571)	(-0.427)	(1.895)	(-0.205)	(1.097)	(0.363)	(1.316)
Supervisory power index	0.446	0.624	-0.026	1.296*	0.154	1.287**	0.063	1.232***	0.051	0.819***	0.167	1.244**
	(0.597)	(1.386)	(-0.082)	(1.909)	(0.671)	(2.124)	(0.243)	(2.743)	(0.243)	(2.689)	(0.689)	(2.154)
Lerner index	10.589	-8.968**	5.441	-12.501**	10.364*	-8.505**	12.119*	-6.542	12.301*	-4.407	11.521*	-4.986
	(1.205)	(-2.540)	(0.870)	(-2.552)	(1.827)	(-2.017)	(1.782)	(-1.585)	(1.929)	(-1.346)	(1.837)	(-1.250)
Constant	4.565	-41.483**	13.157	-43.038*	30.851**	-113.016***	5.381	-28.239*	13.838	-25.124***	-1.883	-8.119
	(0.184)	(-2.223)	(0.604)	(-1.648)	(2.132)	(-3.574)	(0.534)	(-1.823)	(1.123)	(-2.716)	(-0.103)	(-0.528)
Observations	370	370	249	300	413	413	413	413	413	413	413	413
Country fixed effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Cluster	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year	Country×Year
Pseudo R-squared	0.197	0.299	0.159	0.245	0.175	0.221	0.202	0.259	0.197	0.217	0.190	0.239
Log-likelihood	-45.18	-50.45	-35.27	-44.97	-50.43	-62.35	-48.81	-59.30	-49.10	-62.73	-49.53	-60.90
Economic relevancy												
Odds ratios for Dummy G-SIB × Channel (Δ = St Dev)	18.741	8.457	1.169	1.364								
Odds ratios for Dummy G-SIB × Equity/Total assets × Channel (Δ = St Dev)	0.231	1.951	0.668	0.951	1.190	0.905**	1.126	0.922**	0.277*	1.012	0.822*	1.008

Note: This table shows the effects of potential mitigating factors (Channel) on the relation between G-SIB status and the likelihood of releasing a bailout. In Panel A we consider the supervisory powers (Supervisory authority independence index), in Panel B the political connections (Share of politicians on the board of directors), and in Panel C the national culture (Individualism, Masculinity, Power distance, and Uncertainty avoidance). The method used is Logit and corresponds to eq. (3). The dependent variables represent the release of different types of bailouts. The base category is no release for bank i in a given quarter. The sample includes 30 banks intervened with public bailouts. Estimation period is represented by the quarters between the first intervention event and the last release event for each bailed out bank within 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 11. Test results for large banks

	A. Bailout probability		B. Harshness of restrictions		C. Release probability	
Column	(1)	(2)	(3)	(4)	(5)	(6)
Model	Logit	Logit	OLS	OLS	Logit	Logit
Dependent variable	Capital injections (Dummy)	Debt guarantees (Dummy)	Harshness Index (Unequal weights)	Harshness Index (Equal weights)	Capital injections (Dummy)	Debt guarantees (Dummy)
Main determinants						
Dummy large bank	6.716***	1.385	-0.139	-1.976***	0.399	9.886***
	(4.010)	(1.064)	(-0.207)	(-3.044)	(0.096)	(2.970)
Equity/Total assets	-0.284	-0.191*	-0.061	-0.148**	-0.454	0.851***
	(-0.982)	(-1.828)	(-0.640)	(-2.279)	(-1.135)	(2.655)
Dummy debt guarantee			-1.466**	-2.127***		
			(-2.437)	(-3.795)		
Dummy large bank × Equity/Total assets	-0.894***	-0.317**			-0.124	-1.246***
	(-2.834)	(-1.976)			(-0.206)	(-3.273)
Dummy large bank × Dummy debt guarantee			-0.035	2.114***		
			(-0.047)	(3.190)		
Controls						
Size (Natural logarithm of TA)						
Loans/Deposits	0.014*	0.003	-0.007**	-0.001	-0.017	-0.007
	(1.732)	(0.547)	(-2.387)	(-0.749)	(-1.595)	(-1.243)
Credit risk ratio	-0.035	0.162	-0.097	-0.064	-0.225	0.105
	(-0.155)	(0.718)	(-0.566)	(-0.658)	(-0.182)	(0.194)
ROA	0.372	-0.313	-0.373**	-0.363***	1.054	1.267**
	(1.169)	(-1.123)	(-2.420)	(-2.931)	(1.633)	(1.964)
Standard deviation of ROA	0.678	0.145	1.136***	1.002***	0.467	-0.813
	(1.218)	(0.339)	(3.040)	(5.166)	(0.327)	(-0.954)
Regulatory quality	-1.774	-6.184***	1.350	1.355**	-6.021*	-2.977
	(-0.483)	(-2.944)	(1.672)	(2.346)	(-1.700)	(-0.677)
Inflation	-0.475*	-0.365	-0.144	-0.136	-0.025	-0.418
	(-1.733)	(-1.390)	(-1.026)	(-1.265)	(-0.067)	(-1.023)
GDP growth	-0.065	0.095	0.066	-0.016	0.044	0.166
	(-0.248)	(0.660)	(0.520)	(-0.206)	(0.249)	(0.876)
Supervisory power index	-1.509***	-0.155	0.105	0.057	0.102	1.248*
	(-3.089)	(-0.731)	(0.706)	(0.743)	(0.466)	(1.931)
Lerner index	-4.031	-7.934*	-0.635	-0.804	9.453*	-6.107
	(-0.952)	(-1.814)	(-0.197)	(-0.474)	(1.809)	(-1.321)
Constant	16.038***	8.607**	-0.002	3.259**	8.981	-18.002*
	(2.858)	(2.354)	(-0.001)	(2.375)	(1.572)	(-1.667)
Year fixed effects	YES	YES	NO	NO	YES	YES
Country fixed effects	YES	YES	NO	NO	YES	YES
Cluster	Country×Year	Country×Year	Bank	Bank	Country×Year	Country×Year
Observations	1,216	1,669	61	61	323	389
Pseudo R-squared	0.386	0.328			0.110	0.210
R-squared			0.639	0.721		
Log-likelihood	-77.16	-126.9			-51.27	-64.53
Test of de sum of coefficients						
Dummy large bank + Dummy large bank × Dummy debt guarantee			-0.174	0.138**		
F-statistic			(0.100)	(5.140)		
Dummy large bank + Dummy large bank × Dummy capital injection			-0.084	-1.587**		
F-statistic			(0.190)	(4.090)		

Note: This table reports the coefficients of the main regressions associated with the bailout phases of public bailouts provided to larger versus smaller banks. Dummy large bank is a variable taking the value 1 when bank' s total assets are higher than the 75th percentile total assets of the sample. Panel A reflects the impact of explanatory variables on the probability of choosing a bailout type using a Logit model. The dependent variables represent the choice by the government of different types of bailouts. The base category is no bailout for bank i in a given quarter. The sample includes 110 banks, and the estimation period is 2008-2014. Panel B shows the impact of explanatory variables on the harshness of restrictions using OLS. The dependent variables represent the harshness of restrictions applied by the regulator for bank i during the bailout period using unequal weights (the Principal Component Analysis method) and equal weights, based on the following dimensions: regulatory fees, dividend bans, board intrusions, executive pay limits, and other operating restrictions. Higher values are associated with harsher restrictions. The sample includes 28 banks intervened with public bailouts and subject to restrictions during the duration of the bailouts. Estimation period is 2008-2014. Panel C shows the impact of explanatory variables on the probability of releasing a bailout type using a Logit model. The dependent variables represent the release of different types of bailouts. The base category is no release for bank i in a given quarter. The sample includes 30 banks intervened with public bailouts. Estimation period is represented by the quarters between the first intervention event and the last release event for each bailed out bank within 2008-2014. Explanatory variables are lagged one period. Robust t-statistics are reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Appendix 1. List of banks

Country	Bank
Austria	BKS Bank AG
	Bank für Tirol und Vorarlberg AG-BTV (3 Banken Gruppe)
	Erste Group Bank AG
	Oberbank AG
	Raiffeisen Bank International AG
	Österreichische Volksbanken-AG
Belgium	KBC Groep NV/ KBC Groupe SA
Bulgaria	Bulgarian-American Credit Bank
	First Investment Bank AD
Cyprus	Bank of Cyprus Public Company Limited-Bank of Cyprus Group
	Hellenic Bank Public Company Limited
	USB Bank Plc
Czech Republic	Komercni Banka
Denmark	Danske Bank A/S
	Fynske Bank A/S
	Bank of Greenland-Gronlandsbanken A/S
	Jutlander Bank A/S
	Jyske Bank A/S (Group)
	Kreditbanken A/S
	Laan & Spar Bank A/S
	Lollands Bank A/S
	Moens Bank A/S
	Nordjyske Bank A/S
	Nordfyns Bank A/S
	Oestjydsk Bank A/S
	Ringkjoebing Landbobank
	Salling Bank A/S
	Skjern Bank
	Spar Nord Bank
	Sydbank A/S
	Totalbanken A/S
Finland	Alandsbanken Abp-Bank of Aland Plc
France	Crédit Agricole S.A.
	BNP Paribas
	Caisse Régionale de Crédit Agricole mutuel de Paris et d'Ile-de-France SC
	Caisse Régionale de Crédit Agricole Mutuel Toulouse 31 SC
	Crédit Industriel et Commercial SA - CIC
	Caisse Régionale de Crédit Agricole mutuel de Normandie-Seine
	Caisse Régionale de Crédit Agricole mutuel de l'Ille-et-Vilaine SA
	Caisse Régionale de Crédit Agricole mutuel du Morbihan SC
	Caisse Régionale de Crédit Agricole mutuel Nord de France SC
	Caisse Régionale de Crédit Agricole mutuel d'Alpes-Provence SC
	Caisse Régionale de Crédit Agricole Mutuel Brie Picardie SC
	Caisse Régionale de Crédit Agricole mutuel Loire Haute-Loire SC
	Caisse Régionale de Crédit Agricole mutuel Sud Rhône -Alpes SC
	Caisse Régionale de Crédit Agricole mutuel de la Touraine et du Poitou SC
	Société Générale SA
	Natixis SA
Germany	Commerzbank AG
	Deutsche Bank AG
	Merkur-Bank KGaA
	Oldenburgische Landesbank - OLB
	quirin bank AG
	UmweltBank AG
Hungary	OTP Bank Plc
Ireland	Allied Irish Banks plc
	Bank of Ireland-Governor and Company of the Bank of Ireland
Italy	Banca Popolare dell'Emilia Romagna
	Banco di Sardegna SpA
	Banca Carige SpA
	Banca Piccolo Credito Valtellinese-Credito Valtellinese Soc Coop
	Intesa Sanpaolo
	Mediobanca SpA
	Banca Popolare dell'Etruria e del Lazio Soc. coop.
	Banca Popolare di Milano SCaRL
	Banca Profilo SpA
	Banca Popolare di Spoleto SpA
	Unione di Banche Italiane Scpa-UBI Banca
	UniCredit SpA
Lithuania	Siauliu Bankas
Malta	Bank of Valletta Plc
	FIMBank Plc
	HSBC Bank Malta Plc
Netherlands	ING Groep NV
	Van Lanschot NV
Poland	Bank Handlowy w Warszawie S.A.
	Bank BGZ BNP Paribas SA
	Bank Ochrony Srodowiska SA - BOS
	Bank BPH SA
	Bank Zachodni WBK SA
	Getin Holding SA
	ING Bank Slaski SA - Capital Group
	mBank SA
	Bank Millennium
	Bank Polska Kasa Opieki SA-Bank Pekao SA
	Powszechna Kasa Oszczednosci Bank Polski SA - PKO BP SA
Portugal	Banco Comercial Português SA-Millennium BCP
	Banco Espirito Santo SA
	Banco BPI SA
Romania	Banca Comerciala Carpatica SA
	BRD-Groupe Societe Generale SA
	Transilvania Bank-Banca Transilvania SA
Slovakia	OTP Banka Slovensko a.s.
	Prima Banka Slovensko a.s.
	Tatra Banka a.s.
	Vseobecna Uverova Banka a.s.
Spain	Banco Bilbao Vizcaya Argentaria SA
	Bankinter SA
	Caixabank SA
	Banco Popular Espanol SA
	Banco de Sabadell SA
	Banco Santander SA
Sweden	Nordea Bank AB
	Skandinaviska Enskilda Banken AB
	Svenska Handelsbanken
	Swedbank AB
United Kingdom	European Islamic Investment Bank Plc
	Lloyds Banking Group Plc
	Royal Bank of Scotland Group Plc
	Standard Chartered Plc

Note: This table presents the sample of banks employed in our empirical analysis.

Appendix 2. Definitions of variables

Variable	Definition	Source
Bailout variables		
Dummy capital injection bailout	Dummy variable taking the value 1 if bank i received capital injections in quarter t, and 0 otherwise.	Own calculations[a]
Dummy debt guarantee bailout	Dummy variable taking the value 1 if bank i received debt guarantees in quarter t, and 0 otherwise.	Own calculations[a]
Dummy capital injection release	Dummy variable taking the value 1 if bank i was released from capital injection bailouts in quarter t, and 0 otherwise.	Own calculations[a]
Dummy debt guarantee release	Dummy variable taking the value 1 if bank i was released from debt guarantee bailouts in quarter t, and 0 otherwise.	Own calculations[a]
Harshness variables		
Harshness Index (Unequal weights)	An unweighted average index computed using PCA (Principal Component Analysis) based on the following five indicators: Dummy dividend bans, Dummy regulatory fees, Dummy board intrusions, Dummy executive pay limits, and Dummy operating restrictions. Higher values are associated with tighter restrictions.	Own calculations[a]
Harshness Index (Equal weights)	An equally weighted index computed as the sum the following five indicators: Dummy dividend bans, Dummy regulatory fees, Dummy board intrusions, Dummy executive pay limits, and Dummy operating restrictions. Higher values are associated with tighter restrictions.	Own calculations[a]
Dummy dividend bans	A dummy variable taking the value1 if the bank must suspend any dividend and coupon payments on outstanding instruments, or to suspend the exercise of any call options or other capital management deals (e.g., buy backs), 0 otherwise.	Own calculations[a]
Dummy regulatory fees	A dummy variable taking the value1 if the fee is based on the risk of the financial institution (its CDS) or of a representative benchmark (when the CDS is not available), 0 otherwise.	Own calculations[a]
Dummy board intrusions	A dummy variable taking the value1 if the state aid implies intrusions into supervisory board, 0 otherwise.	Own calculations[a]
Dummy executive pay limits	A dummy variable taking the value1 if the bank must impose limits on executive pay, 0 otherwise.	Own calculations[a]
Dummy operating restrictions	A dummy variable taking the value1 if the bank goes through a profound restructuring process that implies operating restrictions like reducing their market presence in public finance, limiting their acquisitions, divesting some of the business lines, or reducing their balance sheet, 0 otherwise.	Own calculations[a]
Systemic importance		
Dummy G-SIB	A dummy variable taking the value 1 if a bank is included on the list of global systemically important banks (G-SIBs).	Own calculations[b]
Dummy large bank	A dummy variable taking the value 1 when bank' s total assets are higher than the 75th percentile total assets of the sample.	Own calculations[c]
Bank characteristics		
Size (Natural logarithm of TA)	The natural logarithm of Total assets	Orbis, Bankscope
Equity/Total assets	Equity/Total assets ratio (%)	Orbis, Bankscope
Loans/Deposits	Loans to Customer deposits ratio (%)	Orbis, Bankscope
Credit risk ratio	Loan loss provisions to Gross loans ratio (%)	Orbis, Bankscope
ROA	Return on average assets ratio (%)	Orbis, Bankscope
Standard deviation of ROA	Standard deviation of ROA using four quarters rolling window (%)	Own calculations[c]
Country characteristics		
Regulatory quality	An index that captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development.	WGI
Inflation	Inflation measured by the consumer price index, reflecting the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals.	WDI
GDP growth	Gross domestic product at market prices, calculated as % change on previous period, based on 2005=100.	WDI
Supervisory power index	An index that measures the extent to which official supervisory authorities have the authority to take specific actions to prevent and correct problems.	BRSS
Lerner index	A measure of market power in the banking market. It is defined as the difference between output prices and marginal costs (relative to prices). Prices are calculated as total bank revenue over assets, whereas marginal costs are obtained from an estimated translog cost function with respect to output. Higher values of the Lerner index indicate less bank competition. Lerner Index estimations follow the methodology described in Demirgüç-Kunt & Martínez Pería (2010).	GFD
Supervisory powers		
Supervisory authority independence	An index that measures the degree to which the supervisory authority is independent from the government, and protected from lawsuits from banks and others.	BRSS
Political connections		
Share of politicians on the board of directors	The share of bank's board members who were former politicians during 1990-2006	Own calculations[e]
National culture		
Individualism	An index that measures the degree to which a society stresses the role of the individual versus that of the group. Higher scores are associated with associated with autonomy, individual achievements, and egocentrism.	Hofstede (2001)
Masculinity	An index that measures the extent to which “male assertiveness” is promoted as a dominant value in a society. Higher scores are related to competitiveness, decisiveness, firmness, and lower cooperation.	Hofstede (2001)
Power distance	An index that measures the extent to which the less powerful expect and accept that power is distributed unequal. Higher scores indicate that less powerful members expect that power is distributed unequal, and are associated with authoritarianism.	Hofstede (2001)
Uncertainty avoidance	An index that measures the society’s tolerance for uncertain, unknown, or unstructured situations. Higher scores denote an inclination towards conservativism, stability, and predictability.	Hofstede (2001)

Note: Own Calculations[a] are based on data from banks’ financial statements, websites and State Aid Register of European Commission. Own Calculations[b] use data from BIS (Bank of International Settlements). Own Calculations[c] use data from Worldscope and Datastream. Own calculations[d] are based on data from BRSS. Own calculations[e] are based on data from BoardEx. WGI is World Governance Indicators Database, WDI is World Development Indicators Database, GFD is Global Financial Database, BRSS is Bank Regulation and Supervision Survey.

Appendix 3. Supervisory powers

Supervisory authority independence index

Dimension	Questions	Score
Political independence	12.4 To whom is the supervisory agency legally responsible or accountable? c. A legislative body, such as Parliament or Congress (Higher values indicate greater independence.)	Yes = 1; No = 0.
Bank independence	12.9 Can individual supervisory staff be held personally liable for damages to a bank caused by their actions or omissions committed in the good faith exercise of their duties?	Yes = 0; No = 1.
Fixed term independence	12.6 Does the head of the supervisory agency have a fixed term? 12.6.1 If yes, how long (in years) is the term?	A fixed term of 4 years or greater = 1; less than 4 years or no fixed term = 0.
Independence of supervisory authority index - Overall		12.4(c) + 12.9 + 12.6.1 Higher values indicate greater independence.

Note: This table shows the components of the Supervisory authority independence index, provided by the Bank Regulation and Supervision Survey (BRSS) database of World Bank. The index is based on the surveys of Barth, Caprio, and Levine (2013).

Appendix 4. Political connections

	All banks			Bailed-out banks	
Government position	Total	Non-Bailed-out banks	Bailed-out banks	G-SIBs	Non-G-SIBs
Minister, Prime Minister	21	8	13	1	12
Member of Parliament	1	0	1	0	1
Secretary of State	4	1	3	0	3
Chief of Staff	2	0	2	2	0
Mayor, Deputy Mayor	7	1	6	3	3
Council member	6	3	3	1	2
Total number of politically connected board members	41	13	28	7	21
Total number of politically connected banks	24	8	16	4	12
Average share of politicians on the board of directors (%)	4.73	2.85	6.33	7.80	5.97

Note: This table shows the structure of the board of directors in respect with the members with previous government roles during 1990-2006.

Appendix 5. National culture

Dimension	Question	Score	Interpretation
Individualism	"In choosing an ideal job, how important would it be to you to…" 1) Have sufficient time left for your personal or family life. 2) Have good physical working conditions (good ventilation and lighting, adequate work space, etc.). 3) Have security of employment. 4) Have an element of variety and adventure in the job.	1 = of utmost importance;2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.	High individualism is indicated by the following scores: 1) 1 = of utmost importance; 2) 5 = of very little or no importance; 3) 5 = of very little or no importance; 4) 1 = of utmost importance.
Masculinity	"In choosing an ideal job, how important would it be to you to…" 1) Work with people who cooperate well with one another. 2) Have an opportunity for advancement to higher level jobs.	1 = of utmost importance; 2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.	Masculinity is indicated by the following scores: 1) 5 = of very little or no importance; 2) 1 = of utmost importance;
	"How much do you agree or disagree with the following statements?" 3) Most people can be trusted. 4) When people have failed in life it is often their own fault.	1 = strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.	3) 5 = strongly disagree. 4) 1 = strongly agree.
Power distance	"In choosing an ideal job, how important would it be to you to…" 1) Have a good working relationship with your direct superior. 2) Be consulted by your direct superior in his/her decisions.	1 = of utmost importance; 2 = very important; 3 = of moderate importance; 4 = of little importance; 5 = of very little or no importance.	High power distance is indicated by the following scores: 1) 1 = of utmost importance; 2) 5 = of very little or no importance;
	3) How frequently, in your experience, are subordinates afraid to express disagreement with their superiors? 4) An organization structure in which certain subordinates have two bosses should be avoided at all costs.	1 = never; 2 = seldom; 3 = sometimes; 4 = frequently; 5 = very frequently. 1 = strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.	3) 5 = very frequently; 4) 1 = strongly agree.
Uncertainty avoidance	1) How often do you feel nervous or tense at work?	1 = never; 2 = seldom; 3 = sometimes; 4 = usually; 5 = always.	High uncertainty avoidance is indicated by the following scores: 1) 5 = always;
	"How much do you agree or disagree with the following statements?" 2) One can be a good manager without having precise answers to most questions that subordinates may raise about their work. 3) Competition between employees usually does more harm than good. 4) A company's or organization's rules should not be broken – not	1 = strongly agree; 2 = agree; 3 = undecided; 4 = disagree; 5 = strongly disagree.	2) 5 = strongly disagree; 3) 1 = strongly agree; 4) 1 = strongly agree.

Note: This table shows the components of the national culture indices provided by Hofstede (2001) and Hofstede, Hofstede, and Minkov (2010).