

Technical Paper

Analysing funding costs advantages using
European primary market bond yield spreads

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Non-technical summary

The Financial Stability Board (FSB) published recently the final report (FSB, 2021) on its evaluation of the effects of too-big-to-fail (TBTF) reforms for systemically important banks (SIBs). The evaluation examines the extent to which the reforms have reduced the systemic and moral hazard risks associated with SIBs, as well as their broader effects on the financial system. A key component of the TBTF evaluation is to measure the extent to which some financial institutions have potentially benefited from lower funding costs and to assess how such an advantage has changed following reforms implemented at the international and European level following the great financial crisis of 2007/08. Generally, if market participants expect some banks to be bailed out in times of distress, credit risk of these institutions could be perceived to be lower relative to other less systemic banks, resulting in a lower required return on the debt issued by these institutions. Thus, the perception of an institution being TBTF can result in lower funding costs. Furthermore, creditors who believe they benefit from an implicit guarantee are likely to be relatively insensitive to the risk of the borrowing bank, which impairs market discipline and creates moral hazard for systemically important banks (SIBs). Consequently, it is reasonable to assume that reforms addressing those TBTF issues will reduce SIBs' funding advantages, i.e. increase their funding costs.

This analysis studies the evolution of funding costs in the primary bond market before and after the great financial crisis of 2007-2009 and the European sovereign debt crisis of 2011-2012. Our contribution to the literature is twofold: we extend previous studies in the time dimension by including a post regulatory reform period, i.e. we analyze a time period from 2000 to 2019, and we extend the cross-sectional dimension by examining funding costs using a comparatively large sample of bond issuances for 28 European countries (EU28).

Our main findings can be summarized as follows. The funding costs for SIBs and non-SIBs displays similar dynamics during the sample period. For both of these two groups, funding costs were comparatively low between 2003 and 2006, increased significantly between 2007 and 2011, and then gradually decreased after 2011, albeit to a higher level than before the crisis. The increase in funding costs during the crisis was larger for the SIBs than for the non-SIBs, while after the crisis, these dynamics have reversed: funding costs have decreased more quickly for SIBs than for non-SIBs. But, all in all we find no evidence to support the hypothesis that SIBs have a funding advantage, nor that the observed increase in funding costs is due to TBTF reforms.

Nichttechnische Zusammenfassung

Das Financial Stability Board (FSB) hat kürzlich den Abschlussbericht (FSB, 2021) zu seiner Evaluierung der Auswirkungen der Too-big-to-fail-Reformen (TBTF) für systemrelevante Banken (SIBs) veröffentlicht. In der Evaluierung wird untersucht, inwieweit die Reformen die mit SIBs verbundenen systemischen und Moral-Hazard-Risiken verringert haben, sowie ihre weitergehenden Auswirkungen auf das Finanzsystem. Kernelement der Evaluierung der TBTF Problematik besteht darin, zu messen, inwieweit einige Finanzinstitute möglicherweise von niedrigeren Finanzierungskosten profitiert haben, und, wie sich ein solcher Vorteil nach den auf internationaler und europäischer Ebene durchgeführten Reformen im Nachgang der global Finanzkrise 2007/08 verändert hat. Wenn die Marktteilnehmer erwarten, dass einige Banken in Notzeiten gerettet werden, könnte das Kreditrisiko dieser Institute im Vergleich zu anderen, weniger systemisch relevanten, Banken als geringer eingeschätzt werden. Das wiederum führt dazu, dass der Markt eine geringere Rendite für die von diesen Instituten ausgegebenen Schuldtitel verlangt. Daher kann die Wahrnehmung einer Institution als TBTF zu niedrigeren Finanzierungskosten führen. Darüber hinaus sind Gläubiger, die glauben, von einer impliziten Garantie zu profitieren, wahrscheinlich relativ unempfindlich gegenüber dem Risiko der kreditgebenden Bank, was die Marktdisziplin beeinträchtigt und ein Moral Hazard Problem für systemrelevante Banken (SIBs) darstellt. Folglich kann man davon ausgehen, dass Reformen, die diese TBTF-Problematik adressieren, die Finanzierungsvorteile von SIBs verringern, d.h. ihre Finanzierungskosten erhöhen.

Diese Analyse untersucht die Finanzierungskosten auf dem Primäranleihenmarkt vor und nach der Finanzkrise 2007-2009 und der europäischen Staatsschuldenkrise 2011-2012. Wir machen zwei Beiträge zur Literatur: Wir erweitern frühere Studien in der Zeitdimension um eine Post-Reformperiode, d.h. wir analysieren ein Zeitfenster von 2000 bis 2019, und erweitern die Querschnittsdimension, indem wir die Finanzierungskosten anhand einer vergleichsweise großen Stichprobe von Anleiheemissionen für 28 europäische Länder (EU28) untersuchen.

Unsere wichtigsten Ergebnisse lassen sich wie folgt zusammenfassen. Die Finanzierungskosten für SIBs und Nicht-SIBs zeigen während des Stichprobenzeitraums eine ähnliche Dynamik. Für beide Gruppen waren die Finanzierungskosten zwischen 2003 und 2006 sehr niedrig, stiegen zwischen 2007 und 2011 erheblich an und gingen nach 2011 allmählich zurück, wenn auch auf ein höheres Niveau als vor der Krise. Der Anstieg der Finanzierungskosten während der Krise war für die SIBs größer als für die Nicht-SIBs, während sich diese Dynamik nach der Krise umkehrte: Die Finanzierungskosten sind für SIBs schneller gesunken als für Nicht-SIBs. Aber zusammenfassend finden wir weder Evidenz für die Hypothese, dass SIBs einen Finanzierungsvorteil haben noch, dass der beobachtete Anstieg der Refinanzierungskosten auf die TBTF-Reformen zurückgeht.

Analysing funding costs advantages using European primary market bond yield spreads[§]

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Abstract

This analysis studies the evolution of funding costs of banks from 28 European countries (EU28) in the primary bond market before and after the great financial crisis of 2007-2009 and the European sovereign debt crisis of 2011-2012. Based on the Centralised Securities Data Base (CSDB) our main findings can be summarized as follows. The funding costs for systemically important banks (SIBs) and non-SIBs displays similar dynamics during the sample period from 2000 to 2019. For both of these two groups, funding costs were comparatively low between 2003 and 2006, albeit higher for SIBs than for non-SIBs, increased significantly between 2007 and 2011, and then gradually decreased after 2011, even tough to a higher level than before the crisis. The increase in funding costs during the crisis was larger for the SIBs than for the non-SIBs, while after the crisis, these dynamics have reversed: funding costs have decreased more quickly for SIBs than for non-SIBs.

Keywords: too-big-to-fail, funding costs (advantages), primary market bond market (yield spreads), (global) systemically important banks, great financial crisis, European sovereign debt crisis, Bank Recovery and Resolution Directive

JEL-Classification: G01, G12, G21, G28, L51

[§] Technical Papers represent the authors' personal opinions and do not necessarily reflect the views of the Deutsche Bundesbank or the Eurosystem.

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1. Introduction

A key component of the too-big-to-fail (TBTF) evaluation is to measure the extent to which some financial institutions have potentially benefited from lower funding costs and to assess how such an advantage has changed following reforms implemented at the international and European level; most notably changes to Basel III or the implementation of the Bank Recovery and Resolution Directive (BRRD) by the European Union. For more detailed information on the time line of the implementation of distinct reforms in recent years, see Table I. Generally, if market participants expect some banks, especially systemically important ones, to be bailed out in times of distress, credit risk of these institutions could be perceived to be lower relative to other less systemically important banks. Potentially, this could result in a lower required return on the debt issued by former institutions. Thus, the perception of an institution being TBTF can result in lower funding costs. Furthermore, creditors who believe they benefit from an implicit guarantee are likely to be relatively insensitive to the risk of the borrowing bank, which impairs market discipline and creates moral hazard for systemically important banks (SIBs), whose importance can be global (G-SIB) or domestic (D-SIB) in nature. Vice versa, it is reasonable to assume that reforms addressing those TBTF issues will reduce SIBs' funding advantages, i.e. increase their funding costs.

This analysis studies the evolution of funding costs in the primary bond market before and after the financial crisis of 2007-2009 and the European sovereign debt crisis of 2011-2012. Our contribution to the literature is twofold: we extend previous studies in the time dimension by including a post regulatory reform period, i.e. we analyze a time period from 2000 to 2019, and we extend the cross-sectional dimension by examining funding costs using a large sample of bond issuances for 28 European countries (EU28).

Our main findings can be summarized as follows. The funding costs for SIBs and non-SIBs display similar dynamics during the sample period. For both of these two groups, funding costs were comparatively low between 2003 and 2006, albeit higher for SIBs than for non-SIBs, increased significantly between 2007 and 2011, and then gradually decreased after 2011, even though to a higher level than before the crisis. The increase in funding costs during the crisis was larger for the SIBs than for the non-SIBs, while after the crisis, these dynamics have reversed: funding costs have decreased more quickly for SIBs than for non-SIBs.

To control for confounding factors, we conduct regression analyses which take into account bank-specific measures of credit risks as well as unobserved macroeconomic factors. Overall, we obtain mixed evidence regarding the funding advantage of SIBs relative to non-SIBs. That is, relative to non-SIBs, average funding costs of SIBs have not increased statistically significant in the reform period after 2012 nor after 2014. But funding costs were higher for SIBs than for non-SIBs to begin with. If we allow for a gradual implementation of specific reform measures instead of using a simple post-reform dummy, we observe a relative increase in funding costs for the G-SIBs as resolution reform measures were consecutively implemented during this time. We obtain similar results when we use a collapsed difference-in-difference approach trying to reduce endogeneity concerns. But, all in all we find no evidence to support the hypothesis that SIBs have a funding advantage, nor that the observed increase in funding costs is due to TBTF reforms.

Table I Reform timeline (not conclusive)

4 November 2011	First list of G-SIBs published
11 October 2012	Publication of BIS framework for dealing with domestic systemically important banks (D-SIB)
15 October 2014	Publication of FSB Key Attributes of Effective Resolution Regimes for Financial Institutions
12 June 2014	Publication of the Bank Recovery and Resolution Directive
1 January 2015	Final date for transposition of Bank Recovery and Resolution Directive into national law
2 November 2015	Publication of future KWG change w.r.t. statutory subordination
9 November 2015	Publication of Principles on Loss-absorbing and Recapitalisation Capacity of G-SIBs in Resolution (TLAC Term Sheet)
1 January 2016	Start of the Single Resolution Mechanism (SRM) & activation of the bail-in tool
1 June 2016	First publication of O-SII list in Germany
1 January 2017	Change to the subordination status of unsecured senior bank bonds in German banking law (KWG) coming into effect (statutory subordination)
June 2017	First cases within the resolution framework in IT and ES

2. Data and summary statistics

Our data on primary market bond pricing comes from the Centralised Securities Data Base (CSDB), for issuers from the EU28. The CSDB aims to cover all securities relevant for the statistical purposes of the European System of Central Banks (ESCB), including various kinds of debt instruments, equities or options. We describe all data filters to identify the relevant sample in the appendix. The final sample has 74,980 securities, with issues between the years 2000 and 2019 including issues by 9 G-SIBs. In the following discussion, we divide the reporting banks into the SIBs (G-SIBs or D-SIBs) and the control group, which comprises the remaining banks.

Figures 1 and **2** present the aggregate number of bond issues over time and the aggregate issue volume (in billions of euro). The number of observations are not uniformly distributed over time with relatively few observations for SIBs before 2008.

The CSDB reports the country in which the issuer of a security is domiciled, and **Figure 3** shows the issuance volume by country for the entire sample period 2000-2019. Among the SIBs, German banks dominate, while in the control group, the majority of issues stems from German and Italian banks.

Figure 4 presents the median yield spread over time. The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. Roughly speaking, the evolution of the average spread can be broken down into three periods. Before the crisis, the average spread was close to zero, while it sharply increased during the great financial crisis and the European sovereign debt crisis, peaking at over 200 bp in 2012. After 2012, the spread has decreased considerably, but has not reached pre-crisis levels. These dynamics are very similar for the SIBs and the control group.

Figure 5 presents the median yield spread over time similar to **Figure 4**, but separating the banks according to whether the bank as an issuer exhibits a prime-grade rating which is de-

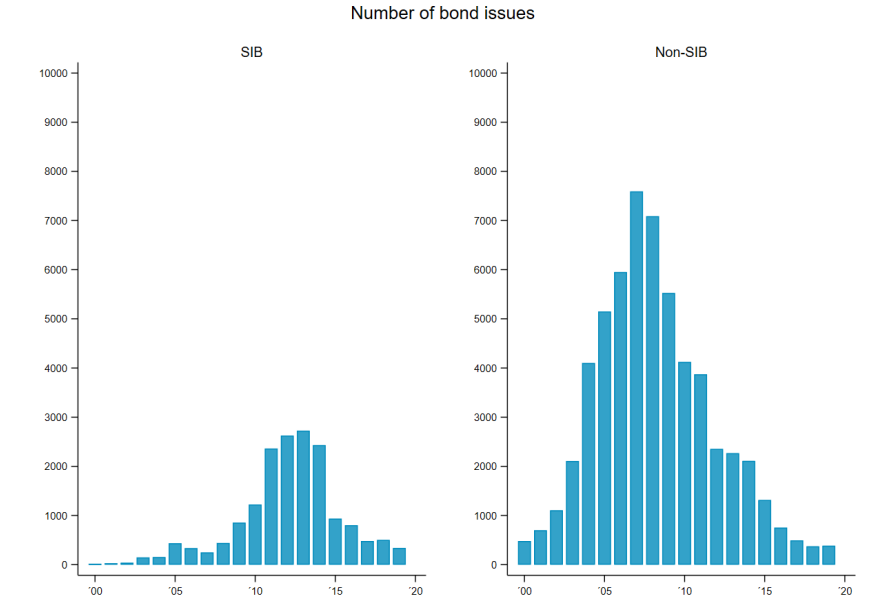
financed as AAA or AA+ according to S&P (or the corresponding ratings of Moody's, Fitch or DBRS). The figure highlights that the sharp increase in the yield spread during the crises periods is mostly driven by non-prime rated banks. For non-SIBs the difference is most pronounced as yield spreads for prime-rated non-SIBs are even lower than for prime rated SIBs.

Figure 6 displays the evolution of the average maturity (in years). If creditors become more risk-sensitive during times of stress, they could not only require a higher return for providing funding, but they could also decide to reduce the maturity. We observe a decline of average maturities for the SIBs during the great financial crisis and relatively stable maturities since 2010.

Tables IIa and Tables IIb report summary statistics. For the entire sample 2000-2019, the median yield spread was about 133 bp for SIBs and about 67 bp for the control group. While the maturity of the bonds are very similar for both groups with a median maturity of 4 to 5 years, the groups naturally differ in terms of the issuance volume. The average volume is about EUR 28 mn for SIBs, while it is EUR 4 mn for the control group.

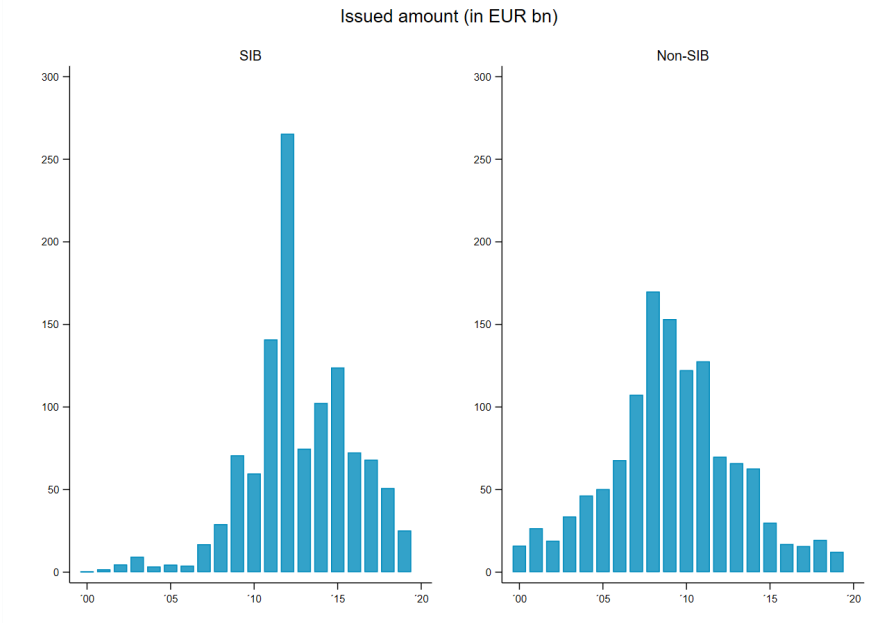
Table III breaks the median yield spread down by the year of issue. The median spread differs significantly between the two groups for most of the sample period (see the last column in **Table III**). This table also reveals that the difference in the average yield spread changes in 2012: While the spread was larger for the SIBs before 2012, the reverse is true after 2012. It seems that the average spread of the SIBs has shrunk faster after the crisis relative to the control group.

Figure 1 The number of bond issues in the primary market (European sample, 2000-2019)



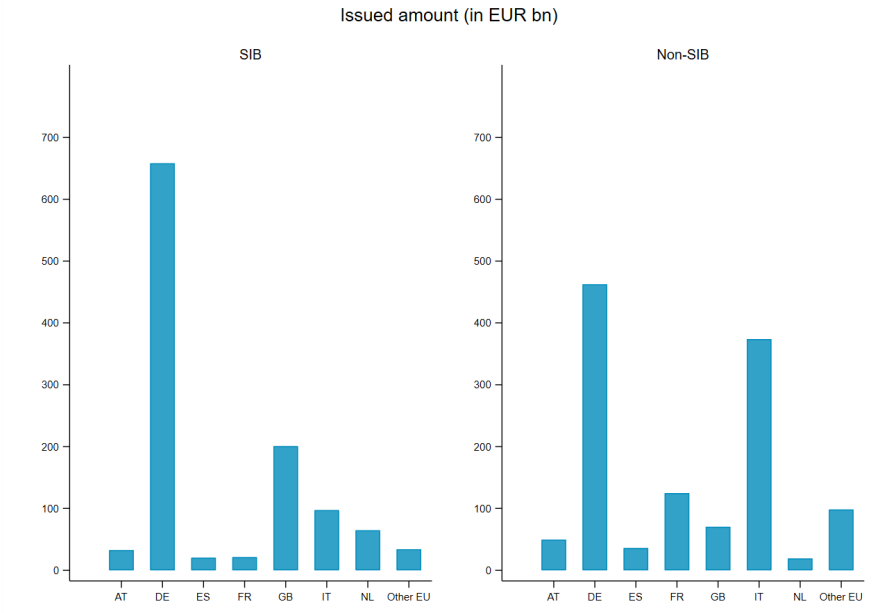
Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010.

Figure 2 Issue size in the primary market (European sample, in billions of euro, 2000-2019)



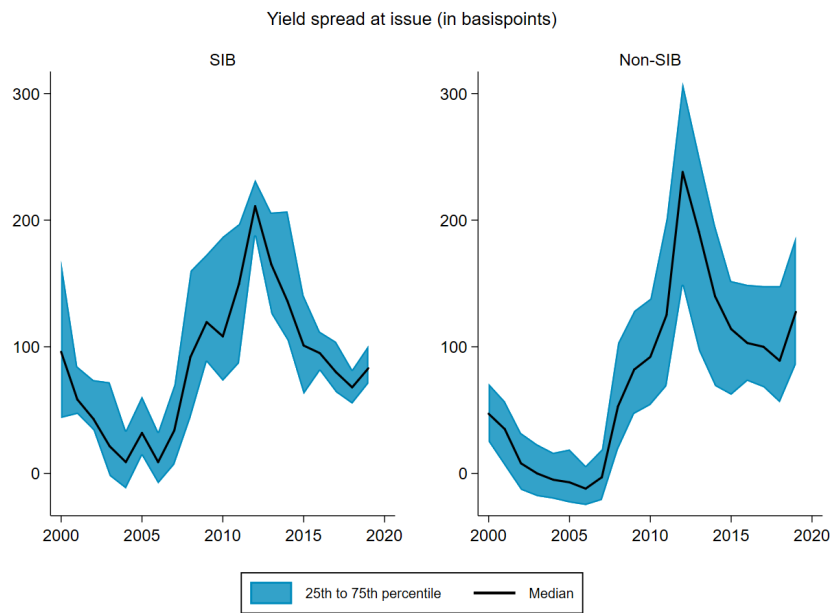
Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010.

Figure 3 Issue size by the country of the issuers (in billions of euro, 2000-2019)



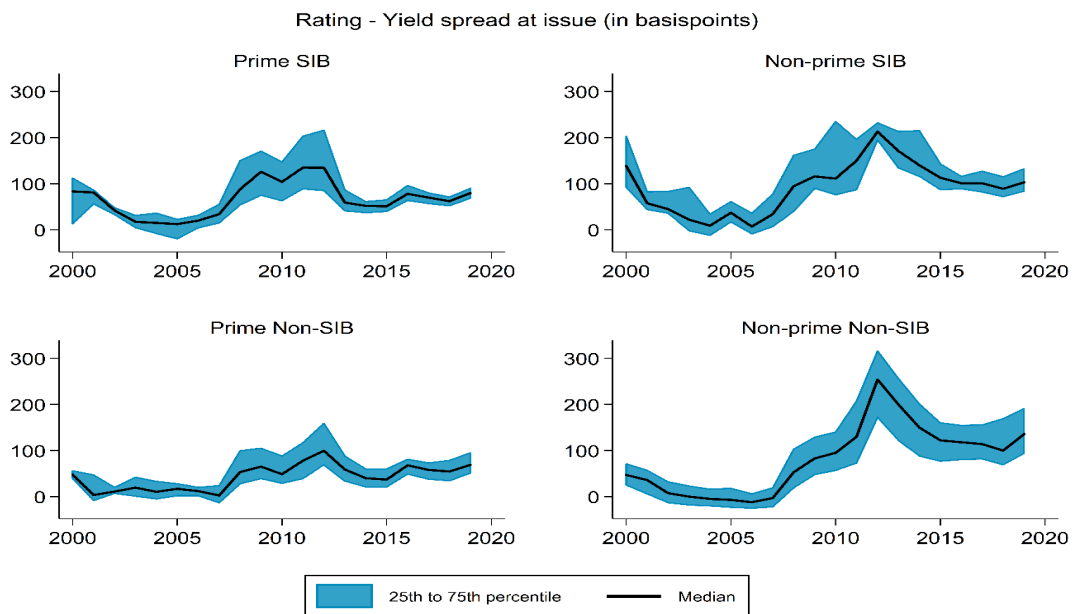
Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010. The category *Other EU* comprises issuers of 18 other European countries.

Figure 4 The yield spread in the primary market (European sample, 2000-2019)



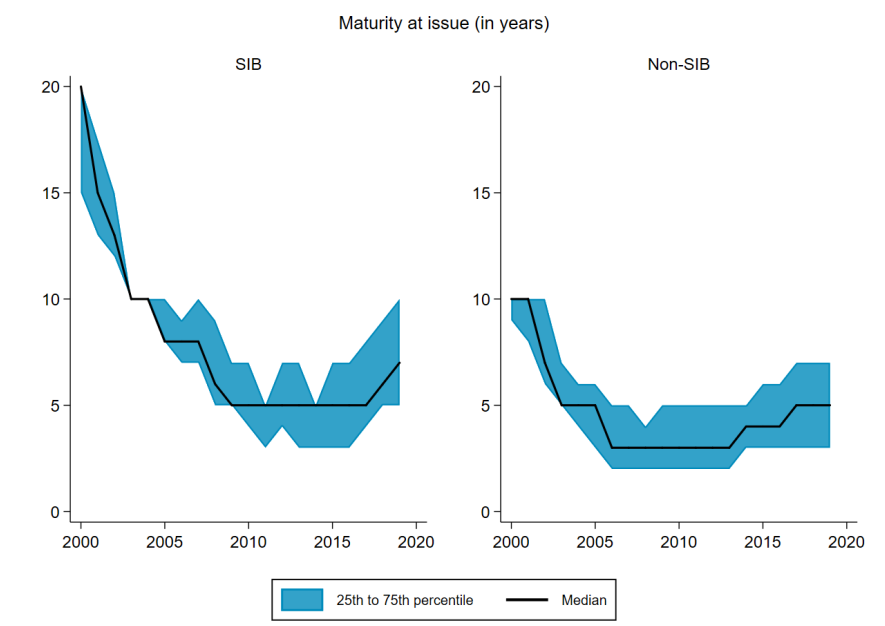
Note: The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010.

Figure 5 The yield spread and issuers' credit ratings (European sample, 2000-2019)



Note: The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010. An institutions is denoted as *Prime* if it has an AAA or AA+ according to S&P (or the corresponding ratings of Moody's, Fitch or DBRS).

Figure 6 Maturities of issues in the primary market (European sample, 2000-2019)



Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010.

Table II: Summary statistics (European sample, 2000-2019)**Panel A: Overall**

Variable	Number of observations	Mean	Std. Dev.	Percentile				
				5th	25th	50th	75th	95th
Yield Spread (basis points)	17128	145.0	89.0	15	78	133	203	321
Maturity at issue (years)	17128	5.8	2.7	2	4	5	7	10
Issue size (millions of euro)	6962	162.1	788.1	1.6	10.0	27.5	100.0	500.0

Panel B: Prime

Variable	Number of observations	Mean	Std. Dev.	Percentiles				
				5th	25th	50th	75th	95th
Yield Spread (in bp)	3465	94,9	73,7	11	52	74	120	257
Maturity at issue (years)	3465	6,4	3,2	2	4	6	9	11
Issue size (EUR mn)	3407	92,4	210,4	2	10	45	100	250

Panel C: Non-Prime

Variable	Number of observations	Mean	Std. Dev.	Percentiles				
				5th	25th	50th	75th	95th
Yield Spread (in bp)	13663	157,7	88,1	18	96	148	213	327
Maturity at issue (years)	13663	5,6	2,6	3	4	5	7	10
Issue size (EUR mn)	3555	228,9	1079,3	1	10	20	87	1000

Note: This table presents summary statistics for SIB in the European sample. These statistics cover the number of observations at the bond level, mean, standard deviation (Std. Dev.), and the 5th, 25th, 50th, 75th and 95th percentiles. The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. An institutions is denoted as *Prime* if it has an AAA or AA+ according to S&P (or the corresponding ratings of Moody's, Fitch or DBRS). For details on the construction of the sample, see the Appendix.

Table IIb: Summary statistics for the Non-SIB (European sample, 2000-2019)

Panel A: Overall

Variable	Number of observations	Mean	Std. Dev.	Percentile				
				5th	25th	50th	75th	95th
Yield Spread (basis points)	57852	65.0	91.4	-33	-5	37	110	262
Maturity at issue (years)	57852	4.3	2.5	1	3	4	5	10
Issue size (millions of euro)	49875	24.7	134.4	0.3	1.5	4.0	10.0	75.0

Panel B: Prime

Variable	Number of observations	Mean	Std. Dev.	Percentiles				
				5th	25th	50th	75th	95th
Yield Spread (in bp)	2187	68,7	63,6	-4	28	55	90	197
Maturity at issue (years)	2187	6,0	3,4	2	4	5	8	11
Issue size (EUR mn)	2132	80,3	339,1	1	2	5	20	500

Panel C: Non-Prime

Variable	Number of observations	Mean	Std. Dev.	Percentiles				
				5th	25th	50th	75th	95th
Yield Spread (in bp)	55665	64,862763	92,3610958	-33	-6	36	111	265
Maturity at issue (years)	55665	4,2582233	2,48506714	1	3	4	5	10
Issue size (EUR mn)	47743	22,2562115	116,538789	0	2	4	10	70

Note: This table presents summary statistics for the European sample. These statistics cover the number of observations at the bond level, mean, standard deviation (Std. Dev.), and the 5th, 25th, 50th, 75th and 95th percentiles. The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. An institutions is denoted as *Prime* if it has an AAA or AA+ according to S&P (or the corresponding ratings of Moody's, Fitch or DBRS) For details on the construction of the sample, see the Appendix.

Table III: Yield Spread (in basis points) by banking group and by year

Year	Number of observations		Yield Spread (Median)			
	SIB	Non-SIB	SIB	Non-SIB	Difference	<i>p</i> -value
Overall	17128	57839	134	37	97	0,000
2000	12	481	100	47	53	0,000
2001	28	699	59	35	24	0,008
2002	39	1104	43	8	35	0,000
2003	147	2109	21	0	21	0,001
2004	154	4101	9	-5	14	0,060
2005	435	5150	32	-7	39	0,000
2006	335	5951	9	-12	21	0,004
2007	248	7589	34	-3	37	0,000
2008	441	7082	92	53	39	0,000
2009	854	5526	120	82	38	0,000
2010	1224	4123	109	92	17	0,008
2011	2362	3872	150	125	25	0,001
2012	2627	2353	211	238	-27	0,012
2013	2726	2267	165	191	-26	0,080
2014	2432	2111	136	140	-4	0,710
2015	936	1314	101	114	-13	0,493
2016	803	753	95	103	-8	0,495
2017	482	495	80	100	-20	0,069
2018	502	373	68	89	-21	0,012
2019	341	386	83	128	-45	0,007

Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010. The number of observations indicate the number of bond issuances for each year. The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. The table reports the median yield spread in each of the two groups by year and the difference in medians between the two groups. The last column reports *p*-values for the null hypothesis that the difference in medians is equal to zero. These tests are based on a quantile regression with standard errors clustered at the issuer (i.e. bank) level (Parente and Santos Silva, 2016).

Table IV: Yield Spread (in basis points) by banking group, rating and year

Year	Number of observations				Prime: SIB vs. Non-SIB		Non-Prime: SIB vs. Non-SIB	
	SIB Prime	SIB Non-Prime	Non-SIB Prime	Non-SIB Non-Prime	Difference in Medians	<i>p</i> -value	Difference in Medians	<i>p</i> -value
Overall	3465	13663	55652	55652	19	0,000	112	0,000
2000	6	6	2	479	18	0,687	53	0,010
2001	9	19	8	691	75	0,012	22	0,000
2002	13	26	6	1098	30	0,000	37	0,000
2003	22	125	18	2091	-2	0,810	22	0,020
2004	25	129	26	4075	2	0,929	14	0,062
2005	56	379	45	5105	-4	0,587	44	0,000
2006	41	294	27	5924	8	0,141	19	0,001
2007	78	170	64	7525	31	0,000	37	0,000
2008	161	280	120	6962	34	0,000	42	0,004
2009	284	570	209	5317	61	0,000	33	0,001
2010	278	946	250	3873	55	0,000	16	0,025
2011	327	2035	253	3619	57	0,000	20	0,009
2012	312	2315	238	2115	35	0,038	-41	0,000
2013	268	2458	188	2079	0	1,000	-29	0,012
2014	241	2191	205	1906	12	0,034	-10	0,279
2015	225	711	157	1157	14	0,208	-9	0,582
2016	265	538	125	628	10	0,090	-17	0,228
2017	257	225	107	388	12	0,047	-13	0,181
2018	341	161	96	277	7	0,425	-11	0,436
2019	256	85	43	343	11	0,208	-33	0,203

Note: SIB refers to a Global or Domestic Systemically Important Bank (G-SIB or D-SIB). The designation applies to the whole sample period, i.e. if an institution is a SIB at some point after 2010, it is also treated as a SIB before 2010. The number of observations indicate the number of bond issuances for each year. The yield spread is the difference between the yield-to-maturity of a given bank bond at the date of issue and the yield on German bunds with the same maturity on that date. An institutions is denoted as *Prime* if it has an AAA or AA+ according to S&P (or the corresponding ratings of Moody's, Fitch or DBRS). The table reports the differences in the median yield spread between SIB and Non-SIB, conditional on the rating status. The table also reports *p*-values for the null hypothesis that the respective differences in medians are equal to zero. These tests are based on a quantile regression with standard errors clustered at the issuer (i.e. bank) level (Parente and Santos Silva, 2016).

3. Quantitative analyses

Based on the final dataset of bonds issued by European banks we run two types of quantitative analyses. First, we examine potential refinancing advantages of SIBs by using a fixed effects (FE) regression framework where we control for instrument and bank-specific factors as well as unobserved macroeconomic factors. Second, we implement a collapsed difference-in-difference (DD) estimation. We run both types of analytical frameworks first, for robustness reasons and second, because one could argue that the TBTF reforms implemented constitute an exogenous shock at least to some extent. If true a DD approach would be the adequate methodology to establish not only correlation, but causation also.

The FE models we estimate are as follows:

Included in the main analysis:

$$Y_{bc,t} = \alpha_{c,t} + \beta * SIB_{bc} + \gamma * \ln(issue\ size_{bc,t}) + \delta * \ln(maturity_{bc,t}) + \theta * rating_{bc,t} + \epsilon_{bc,t} \quad (1.1)$$

$$Y_{bc,t} = \alpha_{c,t} + \beta * SIB_{bc} + \gamma * \ln(issue\ size_{bc,t}) + \delta * \ln(maturity_{bc,t}) + \theta * rating_{bc,t} + \vartheta * bank\ controls_{bc,t-1} + \epsilon_{bc,t} \quad (1.2)$$

$$Y_{bc,t} = \alpha_{c,t} + \rho_b + \beta * SIB_{bc} + \gamma * \ln(issue\ size_{bc,t}) + \delta * \ln(maturity_{bc,t}) + \theta * rating_{bc,t} + \vartheta * bank\ controls_{bc,t-1} + \pi * policy_t + \mu * \begin{pmatrix} policy_t \\ SIB_{bc} * bank\ controls_{bc,t-1} \\ macro_{c,t} \end{pmatrix} + \epsilon_{bc,t} \quad (1.3)$$

Not included in the main analyses, but readily available on request:

$$Y_{bc,t} = \alpha_{c,t} + \rho_b + \beta * SIB_{bc} + \gamma * \ln(issue\ size_{bc,t}) + \delta * \ln(maturity_{bc,t}) + \theta * rating_{bc,t} + \vartheta * bank\ controls_{bc,t} + \pi * policy_t + \mu * \begin{pmatrix} policy_t \\ SIB_b * bank\ controls_{bc,t-1} \\ rating_{bc,t} \\ \ln(maturity_{bc,t}) \end{pmatrix} + \varphi * \begin{pmatrix} bank\ controls_{bc,t-1} \\ policy_t * rating_{bc,t} \\ \ln(maturity_{bc,t}) \end{pmatrix} + \sigma * \begin{pmatrix} bank\ controls_{bc,t-1} \\ SIB_{bc} * policy_t * rating_{bc,t} \\ \ln(maturity_{bc,t}) \end{pmatrix} + \epsilon_{bc,t} \quad (1.4)$$

The dependent variable in all models is *Yield spread* $Y_{b,c,t}$ of bank b from country c in year t . In the Appendix section we provide results when *Maturity* (in ln years) is the dependent variable in the analysis. The main regressor is *SIB* which is either a single or a vector of dummy variables taking the value one if the bank has been designated as a global systemically important (G-SIB) or a domestic systemically important bank (D-SIB) once and zero otherwise. Based on the CSDB data, we use issue size (log of issue size in billions euro) and maturity (log of maturity in years) as instrument (i.e. bond) level controls. The CSDB dataset has information on ratings, too. We calculate a dummy variable *rating* taking the value one if an issuer exhibits a long-term prime grade rating of AAA or AA+ by either Moody's, S&P, Fitch or DBRS and zero otherwise. This variable is time invariant and represents our issuer level controls. Further, we supplement the CSDB data with information on bank balance sheets which come at yearly frequency from SNL Financials and utilize the following *bank controls*: size (log of total assets), solvency (Common Equity Tier 1 relative to risk-weighted assets [CET1 ratio]), profitability (return on average equity), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Data points are available for a maximum

of 416 banks only. We fill in missing values with country-year or country averages.³ Moreover, to ease endogeneity concerns we use *bank controls* with a one-year lag. The variable *policy* is a set of several dummy variables which are defined as follows:

- I. “Simple” crisis definition:
 - i. Pre-crisis dummy equals 1 if year \leq 2006
 - ii. Crisis dummy equals 1 if year = 2007 to 2012
 - iii. Post-crisis dummy equals 1 if year \geq 2013

- II. Period definition based on CDS analysis of SG1:
 - i. Pre-crisis dummy equals 1 if year \leq 2007
 - ii. Crisis dummy equals 1 if year = 2008 or 2009
 - iii. Pre reform dummy equals 1 if year = 2010 or 2011
 - iv. Reform dummy equals 1 if year \geq 2012

- III. Year dummy variables equalling 1 for the years 2010, 2012 and 2014

As an alternative to dummy variables, we use a continuous variable as a policy measure, as well. That is, we use the RRI indexes provided by the FSB Secretariat, which range between one and zero depending on the degree of the implementation of specific TBTF reforms in each country.⁴ Moreover, we interact our main variable(s) of interest – the SIB coefficient(s) – with the following set of *macro* control variables: S-Risk, Engle’s crisis probability data, S-Risk capacity, VIX, Debt-to-GDP and the 10-year government bond yields. Finally, we include in all models country-quarter-time fixed effects α_{ct} , which absorb for instance differences regarding the implementation of TBTF reforms in each country, and in the interaction models (1.3) and (1.4) issuer (i.e. bank) fixed effects ρ_b . Results for model (1.4) are not included in the report but are readily available on request.

Table 1.1 presents descriptive statistics on the variables above. Estimation results concerning SIB on aggregate are presented in Table 1.2 whereas the results for G-SIBs and D-SIBs separately are presented in Table 1.3. Table 1.4 presents the outcome of the interaction between SIB variable(s) and the RRI indexes. Tables 1.5 and 1.6 decompose the post-reform/crisis period and Tables 1.7 and 1.8 present the results of the macro interaction term models.⁵

The coefficient on the SIB dummy, either all SIBs (Table 1.2 column (1)) or G-SIBs and D-SIBs separately (Table 1.3 column (1)), is significant and positive, indicating higher yield spreads for SIBs relative to non-SIBs on average.⁶ When interacted with various sets of crises, pre- and post-crises/reform periods yield spreads increase significantly in the crises periods but

³ Size is reported for 416 banks, solvency for 378 banks, profitability for 198 banks, liquidity for 335 banks and non-performing loans for 363 banks.

⁴ The overall index is the average of sub-indexes 1 to 3. Sub-index 1 includes powers to transfer or sell assets and liabilities, powers to establish a temporary bridge institution, power to impose temporary stay on early termination rights, recovery planning for systemic firms, resolution planning for systemic firms, powers to require changes to firms’ structure and operations to improve resolvability and minimum external TLAC requirements for G-SIBs. Sub-index 2 includes public disclosure of bank resolution planning and resolvability assessments, cross-border enforceability of bail-in, early termination of financial contracts (cross-border), operational continuity, funding in resolution, continuity of access to Financial Market Infrastructure (FMIs), valuation capabilities, TLAC Holdings, TLAC Disclosure. Sub-index 3 includes external LAC requirements for SIBs and powers to write down and convert liabilities (bail-in).

⁵ In addition to the results presented here, we also conducted a regression analysis to produce the results shown in Table 2 (Estimated funding cost advantages of G-SIBs) of Chapter 5. We do not report details here. Estimation results are available on request.

⁶ This result is robust to model specifications with macro control variables instead of country-quarter-time FE. Moreover, when we split the sample and compare G-SIBs and D-SIBs with the control group separately G-SIBs and D-SIBs exhibit higher yield spreads. And, when we compare G-SIBs with D-SIBs, with latter being the sole control group we see that G-SIBs do not exhibit significantly lower yield spreads compared to D-SIBs.

decrease in the post-reform and post-crises periods (Table 1.2), suggesting an increase in the funding advantage of SIBs during these periods. However, the decrease is a bit lower than the previous increase during the crises period; though small the difference is statistically different from zero. This is in line with descriptive results that funding costs for SIBs are significantly higher after 2006.

The above results continue to hold true when we split up SIBs into G-SIBs and D-SIBs (Table 1.3). When we decompose the post-reform period for each year separately (Tables 1.5 and 1.6) we see significant negative coefficients for each of those years. However, results for G-SIBs are to some extent inconclusive. Table 1.4 confirms a negative relationship of SIBs and the RRI indexes. But when considering G-SIBs and D-SIBs separately, we see that D-SIBs are driving this result (see columns (1) to (4)). Results for G-SIBs are consistent with the idea that increased implementation of resolution reforms decrease the funding advantage of SIBs.

Finally, results in Table 1.7 indicate a positive correlation of SIB yield spreads with S-Risk, Engle's crisis probability, S-Risk capacity, the VIX, Debt-to-GDP and 10-year Government bonds yields. Table 1.8 shows that these positive correlations are driven by D-SIBs, as G-SIBs show significant negative coefficients.

To validate the main result of insignificant positive effects of the reforms analysed we implement another methodological approach, namely a DD estimation similar to Agarwal (2019) where we estimate the following set of models:

Included in the main analysis:

$$\begin{aligned}\Delta Y_{bc,t} &= \bar{Y}_{bc,t+x} - \bar{Y}_{bc,t-z} \\ &= \alpha_c + \beta * SIB_{bc} + \gamma * \ln(\overline{issue\ size}_{bc,t-z}) + \delta * \ln(\overline{maturity}_{bc,t-z}) + \theta * \overline{rating}_{bc,t-z} \\ &\quad + \epsilon_{bc}\end{aligned}\quad (2.1)$$

$$\begin{aligned}\Delta Y_{bc,t} &= \bar{Y}_{bc,t+x} - \bar{Y}_{bc,t-z} \\ &= \alpha_c + \beta * SIB_{bc} + \gamma * \ln(\overline{issue\ size}_{bc,t-z}) + \delta * \ln(\overline{maturity}_{bc,t-z}) + \theta * \overline{rating}_{bc,t-z} \\ &\quad + \vartheta * \overline{bank\ controls}_{bc,t-z} + \epsilon_{bc}\end{aligned}\quad (2.2)$$

Not included in the main analyses, but readily available on request:

$$\begin{aligned}\Delta Y_{bc,t} &= \bar{Y}_{bc,t+x} - \bar{Y}_{bc,t-z} \\ &= \alpha_c + \beta * SIB_{bc} + \gamma * \ln(\overline{issue\ size}_{bc,t-z}) + \delta * \ln(\overline{maturity}_{bc,t-z}) + \theta * \overline{rating}_{bc,t-z} \\ &\quad + \vartheta * \overline{bank\ controls}_{bc,t-z} + \mu * \left(\frac{\overline{rating}_{bc,t-z}}{\overline{bank\ controls}_{bc,t-z}} * SIB_{bc} * \overline{maturity}_{bc,t-z} \right) + \epsilon_{bc}\end{aligned}\quad (2.3)$$

The dependent variable in all models is the difference in yield spreads of a pre- and post-event period. In the Appendix section we provide results on *Maturity* (in ln years), also. In detail, we estimate various DD models with the event date t being either 2010, 2011, 2012, 2013, 2014, 2015 or 2016 and pre- and post-event windows with x being either 2, 3, 4, 5, 6, 7, 8 or 9 and z being either 1, 2, 3, 4, 5, 6, 7 or 8. We subsequently show results only for the event dates of 2012 and 2014, and as a placebo test for 2010. We define the event date as a two-year window, because pinning down reforms to one year may be deceptive. Most notably, the BRRD was published on 12 June 2014, but was transposed into national law, i.e. came into effect on 1 January 2015. Moreover, it can take some time for markets to adjust to comprehensive reforms like these. Results are robust across all specifications including a one-year event window. Due to the feature of the DD approach in lacking a time dimension we utilize country fixed effects α_c , only. Again, results for model 2.3 are not included in the report but are readily available on request.

Similar to the previous analysis, Table 2.1 presents descriptive statistics. Results concerning Systemically Important Banks (SIB) on aggregate are presented in Table 2.2 and results for G-SIBs and D-SIBs separately are presented in Table 2.3.

In line with the previous regressions results we cannot confirm a significant decrease in funding cost advantages of Systemically Important Banks. The placebo analysis shows insignificant coefficients whereas the event dates show significantly negative ones. Again, the coefficients for G-SIBs are larger in magnitude compared to those of D-SIBs.

4. Conclusion

In summary, our results are as follows. We do not find reliable evidence that SIBs have a funding cost advantage relative to non-SIBs. SIB funding costs are typically higher than that of non-SIBs even prior to the crisis and we do not find conclusive evidence of a further increase in their relative funding costs since the implementation of reforms.

Table 1.1 Summary statistics

Variable	Unit	No. observations	Mean	Std. Dev.	25th	50th	75th	Definition	Source
Dependent									
Instrument level									
Yield spread	%	74,980	83.28	96.90	5.00	60.00	140.00	Spread between the yield of the bond and the yield of Bunds with equal maturity	CSDB
Maturity	In	74,980	1.63	0.44	1.39	1.61	1.95	Maturity of the instrument in years	CSDB
Independent									
Instrument level									
Issue size	In	56,836	15.40	2.23	14.43	15.42	16.52	Size of the instrument	CSDB
Issuer level									
Rating	0/1	74,980	0.08	0.26	0.00	0.00	0.00	Variable is one if issuer has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS and zero otherwise	CSDB
Bank level									
Size	In	51,579	25.78	1.06	25.60	26.02	26.27	Total assets of the bank	SNL
Solvency	%	51,579	11.65	3.23	9.68	11.21	14.42	Tier 1 Common Capital (CET1) ratio	SNL
Profitability	%	51,579	3.16	7.33	2.17	3.30	4.74	Return on average equity	SNL
Liquidity	%	51,579	36.63	12.22	26.00	40.74	46.35	Liquid assets (Reported B) to total assets	SNL
Non-performing loans	%	51,579	7.05	5.02	3.75	3.75	11.96	Problem loans to gross customer loans	SNL
Reform level									
RRI overall	0/1	19,502	0.30	0.23	0.11	0.22	0.48	Too-big-to-fail reform index (overall)	FSB
RRI subindex 1	0/1	19,502	0.58	0.29	0.33	0.44	0.94	Too-big-to-fail reform index (sub-index 1)	FSB
RRI subindex 2	0/1	19,502	0.10	0.17	0.00	0.04	0.11	Too-big-to-fail reform index (sub-index 2)	FSB
RRI subindex 3	0/1	19,502	0.23	0.27	0.00	0.17	0.33	Too-big-to-fail reform index (sub-index 3)	FSB

Note: This table reports descriptive statistics of the baseline variables. Data for the yield of the bond, its maturity and size as well as the issuer rating come from the Centralised Securities Database (CSDB). Bank level data come from SNL. Reform level data are provided by the FSB Secretariat: The overall index is the average of sub-indexes 1 to 3. In detail, sub-index 1 includes powers to transfer or sell assets and liabilities, powers to establish a temporary bridge institution, power to impose temporary stay on early termination rights, recovery planning for systemic firms, resolution planning for systemic firms, powers to require changes to firms' structure and operations to improve resolvability and minimum external TLAC requirements for G-SIBs. Sub-index 2 includes public disclosure of bank resolution planning and resolvability assessments, cross-border enforceability of bail-in, early termination of financial contracts (cross-border), operational continuity, funding in resolution, continuity of access to Financial Market Infrastructure (FMIs), valuation capabilities, TLAC Holdings, TLAC Disclosure. Sub-index 3 includes external LAC requirements for SIBs and powers to write down and convert liabilities (bail-in).

Table 1.2 Baseline SIB - Yield spreads

	(1)	(2)	(3)	(4)	(5)
<i>Dependent variable</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>
SIB	24.996*** (0.90)	24.714*** (1.00)	0.000 (.)	0.000 (.)	0.000 (.)
SIB * Year ₂₀₁₀	-	-	2.100 (2.41)	-	-
SIB * Year ₂₀₁₂	-	-	-7.135*** (2.57)	-	-
SIB * Year ₂₀₁₄	-	-	-14.509*** (2.74)	-	-
SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	12.086*** (2.94)	-
SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	-11.728*** (3.24)	-
SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	14.588*** (2.79)
SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	8.535*** (2.83)
SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-15.351*** (2.78)
Instrument controls					
Issue size	2.830*** (0.11)	2.959*** (0.12)	-0.155 (0.13)	-0.179 (0.13)	-0.135 (0.13)
Maturity	-3.477*** (0.61)	-6.051*** (0.64)	-2.780*** (0.70)	-2.990*** (0.70)	-2.796*** (0.70)
Issuer controls					
Rating	-8.183*** (0.99)	-6.124*** (1.07)	0.000 (.)	0.000 (.)	0.000 (.)
Bank controls					
Size _{t-1}	-	-2.786*** (0.45)	-2.154* (1.19)	-1.641 (1.19)	-0.574 (1.20)
Solvency _{t-1}	-	-0.327** (0.13)	-0.906*** (0.27)	-0.929*** (0.26)	-0.571** (0.27)
Profitability _{t-1}	-	-0.231*** (0.03)	-0.105*** (0.03)	-0.112*** (0.03)	-0.117*** (0.03)
Liquidity _{t-1}	-	-0.005 (0.05)	0.244* (0.14)	0.333** (0.14)	0.275** (0.14)
Non-performing loans _{t-1}	-	0.800*** (0.11)	-0.111 (0.19)	0.010 (0.19)	-0.017 (0.19)
Constant	30.579*** (2.00)	105.333*** (11.66)	138.651*** (29.25)	122.120*** (29.19)	92.445*** (29.65)
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes
Issuer FE	No	No	Yes	Yes	Yes
No. observations	56629	51027	50701	50701	50701
Adjusted R-squared	0.676	0.676	0.770	0.771	0.771
No. SIB obs	6890	6735	6733	6733	6733
No. Non-SIB obs	49739	44292	43968	43968	43968

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.3 Baseline G-SIB & D-SIB - Yield spreads

	(1)	(2)	(3)	(4)	(5)
<i>Dependent variable</i>	Y	Y	Y	Y	Y
G-SIB	26.712*** (2.30)	33.801*** (2.51)	0.000 (.)	0.000 (.)	0.000 (.)
D-SIB	24.784*** (0.94)	23.681*** (1.03)	0.000 (.)	0.000 (.)	0.000 (.)
G-SIB * Year ₂₀₁₀	-	-	-19.267*** (7.42)	-	-
G-SIB * Year ₂₀₁₂	-	-	-22.998*** (6.28)	-	-
G-SIB * Year ₂₀₁₄	-	-	-36.016*** (7.68)	-	-
G-SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	-33.165*** (10.11)	-
G-SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	-32.239*** (10.46)	-
G-SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	-25.078*** (9.54)
G-SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	-43.927*** (9.57)
G-SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-40.429*** (8.84)
D-SIB * Year ₂₀₁₀	-	-	4.009 (2.48)	-	-
D-SIB * Year ₂₀₁₂	-	-	-4.973* (2.71)	-	-
D-SIB * Year ₂₀₁₄	-	-	-12.451*** (2.82)	-	-
D-SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	16.487*** (3.07)	-
D-SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	-9.702*** (3.36)	-
D-SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	18.122*** (2.91)
D-SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	13.139*** (2.93)
D-SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-13.214*** (2.88)
Constant	30.616*** (2.00)	112.997*** (11.82)	135.267*** (29.26)	133.848*** (29.23)	100.620*** (29.71)
Instrument controls	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes
Bank controls	No	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes
Issuer FE	No	No	Yes	Yes	Yes
No. observations	56629	51027	50701	50701	50701
Adjusted R-squared	0.676	0.676	0.770	0.771	0.772
No. G-SIB obs	675	662	662	662	662
No. D-SIB obs	6215	6073	6071	6071	6071
No. Non-SIB obs	49739	44292	43968	43968	43968

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.4 FSB RRI index - Yield spreads

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Dependent variable</i>	Y	Y	Y	Y	Y	Y	Y	Y
SIB * RRI overall	-48.109*** (5.29)	-	-	-	-	-	-	-
SIB * RRI 1	-	-35.621*** (4.23)	-	-	-	-	-	-
SIB * RRI 2	-	-	-55.161*** (6.96)	-	-	-	-	-
SIB * RRI 3	-	-	-	-41.823*** (4.55)	-	-	-	-
G-SIB * RRI overall	-	-	-	-	35.397*** (13.72)	-	-	-
G-SIB * RRI 1	-	-	-	-	-	15.019 (10.11)	-	-
G-SIB * RRI 2	-	-	-	-	-	-	85.275*** (20.57)	-
G-SIB * RRI 3	-	-	-	-	-	-	-	31.157*** (11.82)
D-SIB * RRI overall	-	-	-	-	-55.156*** (5.39)	-	-	-
D-SIB * RRI 1	-	-	-	-	-	-41.635*** (4.36)	-	-
D-SIB * RRI 2	-	-	-	-	-	-	-61.565*** (7.00)	-
D-SIB * RRI 3	-	-	-	-	-	-	-	-48.093*** (4.64)
Constant	141.144*** (49.19)	137.451*** (49.21)	146.711*** (49.22)	141.313*** (49.18)	141.171*** (49.13)	138.951*** (49.16)	140.849*** (49.15)	141.940*** (49.12)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	18168	18168	18168	18168	18168	18168	18168	18168
Adjusted R-squared	0.707	0.707	0.707	0.707	0.708	0.708	0.708	0.708
No. G-SIB obs	505	505	505	505	505	505	505	505
No. D-SIB obs	4286	4286	4286	4286	4286	4286	4286	4286
No. Non-SIB obs	13377	13377	13377	13377	13377	13377	13377	13377

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressors are the set of dummy variables SIB, G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.5 Baseline SIB: Decomposition of Post-Reform period - Yield spreads

(1)	
<i>Dependent variable</i>	<i>Y</i>
SIB * Year ₂₀₁₂	-18.731*** (2.67)
SIB * Year ₂₀₁₃	-26.400*** (2.83)
SIB * Year ₂₀₁₄	-26.030*** (2.86)
SIB * Year ₂₀₁₅	-18.073*** (3.31)
SIB * Year ₂₀₁₆	-21.549*** (3.83)
SIB * Year ₂₀₁₇	-36.161*** (4.10)
SIB * Year ₂₀₁₈	-32.989*** (4.61)
SIB * Year ₂₀₁₉	-40.330*** (5.66)
Constant	83.012*** (29.72)
Main effects	Yes
Instrument controls	Yes
Issuer controls	Yes
Bank controls	Yes
Country-quarter-time FE	Yes
Issuer FE	Yes
No. observations	50701
Adjusted R-squared	0.771
No. SIB obs	6733
No. Non-SIB obs	43968

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.6 Baseline G-SIB & D-SIB: Decomposition of Post-Reform period - Yield spreads

(1)	
<i>Dependent variable</i>	<i>Y</i>
G-SIB * Year ₂₀₁₂	-23.889*** (6.52)
G-SIB * Year ₂₀₁₃	-14.988* (7.74)
G-SIB * Year ₂₀₁₄	-35.585*** (8.05)
G-SIB * Year ₂₀₁₅	-21.690*** (8.02)
G-SIB * Year ₂₀₁₆	18.237** (8.19)
G-SIB * Year ₂₀₁₇	-1.140 (8.53)
G-SIB * Year ₂₀₁₈	9.837 (10.49)
G-SIB * Year ₂₀₁₉	117.246*** (44.98)
D-SIB * Year ₂₀₁₂	-18.111*** (2.81)
D-SIB * Year ₂₀₁₃	-27.623*** (2.92)
D-SIB * Year ₂₀₁₄	-25.105*** (2.94)
D-SIB * Year ₂₀₁₅	-17.110*** (3.40)
D-SIB * Year ₂₀₁₆	-25.332*** (3.90)
D-SIB * Year ₂₀₁₇	-39.535*** (4.18)
D-SIB * Year ₂₀₁₈	-35.607*** (4.65)
D-SIB * Year ₂₀₁₉	-41.614*** (5.66)
Constant	81.243*** (29.78)
Main effects	Yes
Instrument controls	Yes
Issuer controls	Yes
Bank controls	Yes
Country-quarter-time FE	Yes
Issuer FE	Yes
No. observations	50701
Adjusted R-squared	0.772
No. G-SIB obs	662
No. D-SIB obs	6071
No. Non-SIB obs	43968

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.7 Baseline SIB: Interaction with macro variables - Yield spreads

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Y	Y	Y	Y	Y	Y
SIB * SRisk	0.000*** (0.00)	-	-	-	-	-
SIB * Crisis probability	-	0.258*** (0.04)	-	-	-	-
SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
SIB * VIX	-	-	-	1.767*** (0.12)	-	-
SIB * Debt-to-GDP	-	-	-	-	0.187* (0.11)	-
SIB * Gov. bonds 10y	-	-	-	-	-	6.972*** (0.73)
Constant	152.078*** (31.58)	141.662*** (31.57)	133.921*** (31.57)	77.247*** (29.64)	139.618*** (31.97)	116.288*** (31.87)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	46741	46741	46741	50977	45661	47237
Adjusted R-squared	0.781	0.780	0.780	0.772	0.782	0.777
No. SIB obs	5919	5919	5919	6836	5877	6039
No. Non-SIB obs	40849	40849	40849	44157	39784	41213

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. We interact this variable with a varying set of macroeconomic variables. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 1.8 Baseline G-SIB & D-SIB: Interaction with macro variables - Yield spreads

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Y	Y	Y	Y	Y	Y
G-SIB * SRisk	-0.000*** (0.00)	-	-	-	-	-
G-SIB * Crisis probability	-	-0.248** (0.10)	-	-	-	-
G-SIB * SRisk capacity	-	-	-0.000*** (0.00)	-	-	-
G-SIB * VIX	-	-	-	0.454 (0.32)	-	-
G-SIB * Debt-to-GDP	-	-	-	-	-2.428*** (0.27)	-
G-SIB * Gov. bonds 10y	-	-	-	-	-	1.124 (1.84)
D-SIB * SRisk	0.000*** (0.00)	-	-	-	-	-
D-SIB * Crisis probability	-	0.317*** (0.04)	-	-	-	-
D-SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
D-SIB * VIX	-	-	-	1.906*** (0.12)	-	-
D-SIB * Debt-to-GDP	-	-	-	-	0.544*** (0.12)	-
D-SIB * Gov. bonds 10y	-	-	-	-	-	7.477*** (0.74)
Constant	158.302*** (31.55)	144.339*** (31.56)	128.749*** (31.54)	87.389*** (29.72)	131.002*** (31.94)	121.267*** (31.90)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	46741	46741	46741	50977	45661	47237
Adjusted R-squared	0.781	0.781	0.781	0.772	0.782	0.777
No. G-SIB obs	555	555	555	663	548	660
No. D-SIB obs	5364	5364	5364	6173	5329	5379
No. Non-SIB obs	40849	40849	40849	44157	39784	41213

Note: The dependent variable is the spread between the yield of the bond and the yield of Bunds with equal maturity. The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global sistemically important (G-SIB) or domestic sistemically important (D-SIB) bank, respectively. We interact these variables with a varying set of macroeconomic variables. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 2.1 Descriptive statistics

Variable	Unit	No. observations	Mean	Std. Dev.	25th	50th	75th	Description	Source
Dependent									
Δ Yield spread ₂₀₁₂	%	416	7.81	69.94	-30.38	5.83	46.03	Difference of the yield spread of the instrument over Bund yields from 2008-2011 to 2014-2017	CSDB
Δ Yield spread ₂₀₁₄	%	266	-21.85	67.78	-59.12	-19.19	12.02	Difference of the yield spread of the instrument over Bund yields from 2010-2013 to 2016-2019	CSDB
Independent									
Yield spread ₂₀₁₂	%	2,167	86.10	65.54	39.80	70.33	120.40	Spread between the yield of the bond and the yield of Bunds with equal maturity; average over 2008-2011	CSDB
Yield spread ₂₀₁₄	%	1,399	133.51	87.66	59.33	120.00	197.50	Spread between the yield of the bond and the yield of Bunds with equal maturity; average over 2010-2013	CSDB
Issue size ₂₀₁₂	ln	1,361	49.70	187.21	1.67	4.39	14.11	Size of the instrument; average over 2008-2011	CSDB
Issue size ₂₀₁₄	ln	1,361	49.70	187.21	1.67	4.39	14.11	Size of the instrument; average over 2010-2013	CSDB
Maturity ₂₀₁₂	ln	2,167	3.71	1.89	2.50	3.13	4.56	Maturity of the instrument in years; average over 2008-2011	CSDB
Maturity ₂₀₁₄	ln	1,399	3.74	2.03	2.33	3.28	4.65	Maturity of the instrument in years; average over 2010-2013	CSDB
Rating ₂₀₁₂	0/1	1,399	0.08	0.27	0.00	0.00	0.00	Variable is one if issuer has a prime grade rating (AAA or AA+) and zero otherwise; average over 2008-2011	CSDB
Rating ₂₀₁₄	0/1	1,399	0.08	0.27	0.00	0.00	0.00	Variable is one if issuer has a prime grade rating (AAA or AA+) and zero otherwise; average over 2010-2013	CSDB
Size ₂₀₁₂	ln	2,091	26.03	0.94	25.49	26.20	27.09	Total assets of the bank; average over 2008-2011	SNL
Size ₂₀₁₄	ln	1,343	25.48	1.07	24.68	25.89	26.02	Total assets of the bank; average over 2010-2013	SNL
Solvency ₂₀₁₂	%	2,091	7.48	1.31	6.61	7.18	7.88	Tier 1 Common Capital (CET1) ratio; average over 2008-2011	SNL
Solvency ₂₀₁₄	%	1,343	9.25	2.08	7.94	8.96	9.95	Tier 1 Common Capital (CET1) ratio; average over 2010-2013	SNL
Profitability ₂₀₁₂	%	2,091	5.36	2.32	4.31	5.68	5.97	Return on average equity; average over 2008-2011	SNL
Profitability ₂₀₁₄	%	1,343	4.67	3.28	3.13	5.18	6.20	Return on average equity; average over 2010-2013	SNL
Liquidity ₂₀₁₂	%	2,091	33.53	12.81	21.20	38.11	41.92	Liquid assets (Reported B) to total assets; average over 2008-2011	SNL
Liquidity ₂₀₁₄	%	1,343	28.47	12.77	18.09	27.84	36.20	Liquid assets (Reported B) to total assets; average over 2010-2013	SNL
Non-performing loans ₂₀₁₂	%	2,091	5.62	3.86	3.44	4.49	7.02	Problem loans to gross customer loans; average over 2008-2011	SNL
Non-performing loans ₂₀₁₄	%	1,343	7.98	3.62	5.52	6.53	9.64	Problem loans to gross customer loans; average over 2010-2013	SNL

Note: This table reports descriptive statistics of the baseline variables. Data for the yield of the bond, its maturity and size as well as the issuer rating come from the Centralised Securities Database (CSDB). Bank level data come from SNL.

Table 2.2 Baseline SIB - Yield spreads

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	ΔY_{2010}	ΔY_{2010}	ΔY_{2012}	ΔY_{2012}	ΔY_{2014}	ΔY_{2014}
SIB	-16.869 (10.34)	-8.471 (10.45)	-27.127*** (9.32)	-34.340*** (10.67)	-30.960*** (11.16)	-33.460*** (12.06)
Instrument controls						
Issue size	-0.017 (0.02)	-0.021 (0.01)	-0.040* (0.02)	-0.044* (0.02)	0.006 (0.01)	-0.009 (0.01)
Maturity	-3.890 (2.38)	-5.304** (2.29)	3.586 (3.72)	3.262 (3.85)	-0.017 (2.19)	-0.352 (2.06)
Issuer controls						
Rating	-15.803* (8.10)	-9.986 (7.43)	3.700 (7.92)	4.994 (8.08)	-17.401* (10.27)	-20.076** (9.62)
Bank controls						
Size	-	7.672 (8.16)	-	10.612 (11.13)	-	20.316** (8.60)
Solvency	-	22.072*** (5.53)	-	0.985 (5.90)	-	-10.013*** (3.84)
Profitability	-	5.085** (2.50)	-	-0.279 (1.48)	-	0.775 (1.48)
Liquidity	-	-2.691* (1.56)	-	0.309 (1.37)	-	-0.338 (1.26)
Non-performing loans	-	1.250 (1.64)	-	-1.491 (2.16)	-	-7.641** (3.32)
Constant	111.451*** (13.25)	-193.258 (205.92)	-4.007 (16.45)	-279.495 (281.19)	-15.630 (10.98)	-362.549* (195.41)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	471	463	399	392	252	248
R-squared	0.557	0.600	0.276	0.287	0.217	0.316
No. SIB	45	39	46	42	29	27
No. Non-SIB	426	424	353	350	223	221

Note: The dependent variable is the difference between the spread between the yield of the bond and the yield of Bunds with equal maturity in the pre and post event period. The event period is a two year window of 2010, 2012 and 2014 and the subsequent year, respectively. The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). All control variables are averages over the respective pre event periods of the corresponding event window. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table 2.3 Baseline G-SIB & D-SIB - Yield spreads

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	ΔY_{2010}	ΔY_{2010}	ΔY_{2012}	ΔY_{2012}	ΔY_{2014}	ΔY_{2014}
G-SIB	-16.072 (22.78)	-11.000 (23.34)	-51.431* (26.94)	-69.748** (30.04)	-63.726* (35.47)	-94.790*** (33.75)
D-SIB	-17.024 (11.16)	-7.986 (11.10)	-22.061** (9.42)	-26.998*** (10.23)	-26.019** (10.96)	-24.047** (10.31)
Constant	111.449*** (13.27)	-197.205 (204.52)	-3.018 (16.17)	-362.924 (300.66)	-15.667 (10.90)	-496.620** (207.21)
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	No	Yes	No	Yes	No	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	471	463	399	392	252	248
R-squared	0.557	0.600	0.278	0.291	0.221	0.329
No. G-SIB	6	6	7	7	5	5
No. D-SIB	39	33	39	35	24	22
No. Non-SIB	426	424	353	350	223	221

Note: The dependent variable is the difference between the spread between the yield of the bond and the yield of Bunds with equal maturity in the pre and post event period. The event period is a two year window of 2010, 2012 and 2014 and the supsequent year, respectively. The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and maturity (ln of maturity in years). Further, we add country fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). All control variables are averages over the respective pre event periode of the corresponding event window. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

5. Literature

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6. Appendix

I. Construction of the European sample

We obtain bond yields for European banks from the Centralised Securities Database (CSDB). The CSDB aims to cover all securities relevant for the statistical purposes of the European System of Central Banks (ESCB).⁷ We focus on bonds that are denominated in Euro and that are issued by banks that are domiciled in one of the member states of the European Union, including Great Britain. We restrict the sample period to issuances between 2000 and 2019. This results in a sample of 857,147 bonds, which are identified by their International Securities Identification Number (ISIN).

To analyse funding conditions of banks in the bond market, we focus on issues of medium- to long-term straight bonds, which are the simplest form of wholesale debt financing. The CSDB has a much larger scope, however, and comprises various kinds of debt instruments, as well as equities or options.

Therefore, we apply a series of data filters to exclude convertible bonds, structured products and other instruments that exhibit option-like features. This step requires care, as it is not straightforward to separate the textbook, plain vanilla fixed income security from other, more complex instruments in the data. We proceed as follows:

- We use two instrument classification systems that are provided in the CSDB, the so-called Primary Asset Classification and the Classification of Financial Instruments Codes (CFI). Using these systems, we restrict attention to instruments that are designated as straight bonds with a fixed coupon, zero-coupon bonds or medium-term notes. We also restrict the sample to unsecured bonds and bonds that have a fixed maturity and no embedded redemption options. Moreover, we discard securities with short-term maturities of less than one year or very long maturities of over 30 years. We also do not include TLAC instruments in the sample. These filters are in line with

⁷ See also <https://www.ecb.europa.eu/pub/pdf/other/centralisedsecuritiesdatabase201002en.pdf> for more information on the CSDB.

related literature (see Acharya et al. (2016) or Santos (2014)) and reduce the sample to 126,481 securities.

- Next, we exclude securities with erroneous or inconsistent information or bonds with certain special features: We discard bonds that are designated as a fixed-income security according to the classification systems mentioned above, but for which the coupon rate is missing. We also exclude bonds with a price of less than 1 (in currency or in percent quotation) at issue. This step reduces the number of securities to 115,874.
- By inspecting the short name of the security, we observe that there remain some specialised structured products (certificates) or other types of instruments with derivative- or option-like features in the dataset (e.g. credit linked notes or reverse convertible bonds). This can happen as the bond classification systems mentioned in the first step can be too coarse in some cases, such that a convertible bond, say, is simply classified as a bond and may therefore enter the sample. To exclude these instruments, we manually search for keywords or abbreviations in the short name of the instrument that indicate these characteristics. In some cases, the short name is not informative about the characteristics of the instrument. We therefore also set quantitative thresholds to exclude reverse convertible bonds, which are known to have very high coupon rates, see Szymanowska et al (2009), and Batten et al. (2014). We discard securities with coupon rates above 6.5 % and a maturity at issue of less than 2.5 years. After applying these rules, we are left with 87,439 securities.

We then turn to compute the yield to maturity at the date of the issue of the bond. For coupon bonds that are issued and redeemed at par value, the yield is equal to the coupon rate. For coupon bonds that are issued below par value, we use a spreadsheet routine to compute the yield.

Finally, we compute the spread between the yield of the bond and the yield of Bunds with equal maturity. To ensure that the analysis of the spread is not driven by outliers, we exclude observations in the left (5th percentile) and right (95th percentile) tail of the spread distribution. We therefore obtain a final sample of 74,980 securities. The summary statistics and the regression analysis is based on this sample.

- II. **Replication of the analyses above with the independent variable being maturity (in ln years)**

Table A.1.2 Baseline SIB - Maturity

	(1)	(2)	(3)	(4)	(5)
<i>Dependent variable</i>	Y	Y	Y	Y	Y
SIB	0.247*** (0.01)	0.272*** (0.01)	0.000 (.)	0.000 (.)	0.000 (.)
SIB * Year ₂₀₁₀	-	-	0.017 (0.02)	-	-
SIB * Year ₂₀₁₂	-	-	0.101*** (0.02)	-	-
SIB * Year ₂₀₁₄	-	-	0.067*** (0.02)	-	-
SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	0.054*** (0.02)	-
SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	0.028 (0.02)	-
SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	0.005 (0.02)
SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	-0.075*** (0.02)
SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-0.017 (0.02)
Instrument controls					
Issue size	-0.018*** (0.00)	-0.017*** (0.00)	-0.018*** (0.00)	-0.018*** (0.00)	-0.018*** (0.00)
Yield spread	-0.000*** (0.00)	-0.000*** (0.00)	-0.000*** (0.00)	-0.000*** (0.00)	-0.000*** (0.00)
Issuer controls					
Rating	0.206*** (0.01)	0.187*** (0.01)	0.000 (.)	0.000 (.)	0.000 (.)
Bank controls					
Size _{t-1}	-	-0.026*** (0.00)	-0.032*** (0.01)	-0.029*** (0.01)	-0.025*** (0.01)
Solvency _{t-1}	-	-0.003*** (0.00)	-0.003 (0.00)	-0.002 (0.00)	-0.001 (0.00)
Profitability _{t-1}	-	-0.001*** (0.00)	0.000 (0.00)	0.000 (0.00)	0.000 (0.00)
Liquidity _{t-1}	-	0.001* (0.00)	-0.004*** (0.00)	-0.004*** (0.00)	-0.004*** (0.00)
Non-performing loans _{t-1}	-	-0.001 (0.00)	-0.000 (0.00)	0.000 (0.00)	-0.000 (0.00)
Constant	1.814*** (0.01)	2.458*** (0.08)	2.856*** (0.19)	2.742*** (0.19)	2.644*** (0.19)
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes
Issuer FE	No	No	Yes	Yes	Yes
No. observations	56629	51027	50701	50701	50701
Adjusted R-squared	0.355	0.332	0.579	0.579	0.579
No. SIB obs	6890	6735	6733	6733	6733
No. Non-SIB obs	49739	44292	43968	43968	43968

Note: The dependent variable is maturity (ln of maturity in years). The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.3 Baseline G-SIB & D-SIB - Maturity

	(1)	(2)	(3)	(4)	(5)
<i>Dependent variable</i>	Y	Y	Y	Y	Y
G-SIB	0.284*** (0.02)	0.331*** (0.02)	0.000 (.)	0.000 (.)	0.000 (.)
D-SIB	0.243*** (0.01)	0.265*** (0.01)	0.000 (.)	0.000 (.)	0.000 (.)
G-SIB * Year ₂₀₁₀	-	-	0.024 (0.05)	-	-
G-SIB * Year ₂₀₁₂	-	-	0.108*** (0.04)	-	-
G-SIB * Year ₂₀₁₄	-	-	0.021 (0.05)	-	-
G-SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	-0.037 (0.07)	-
G-SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	-0.098 (0.07)	-
G-SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	-0.129** (0.06)
G-SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	-0.088 (0.06)
G-SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-0.101* (0.06)
D-SIB * Year ₂₀₁₀	-	-	0.017 (0.02)	-	-
D-SIB * Year ₂₀₁₂	-	-	0.099*** (0.02)	-	-
D-SIB * Year ₂₀₁₄	-	-	0.071*** (0.02)	-	-
D-SIB * Crisis ₂₀₀₇₋₂₀₁₂	-	-	-	0.062*** (0.02)	-
D-SIB * Post-crisis ₂₀₁₃₋₂₀₁₉	-	-	-	0.039* (0.02)	-
D-SIB * Crisis ₂₀₀₈₋₂₀₀₉	-	-	-	-	0.018 (0.02)
D-SIB * Pre-reform ₂₀₁₀₋₂₀₁₁	-	-	-	-	-0.074*** (0.02)
D-SIB * Post-reform ₂₀₁₂₋₂₀₁₉	-	-	-	-	-0.009 (0.02)
Constant	1.815*** (0.01)	2.508*** (0.08)	2.849*** (0.19)	2.733*** (0.19)	2.664*** (0.19)
Instrument controls	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes
Bank controls	No	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes
Issuer FE	No	No	Yes	Yes	Yes
No. observations	56629	51027	50701	50701	50701
Adjusted R-squared	0.355	0.332	0.579	0.579	0.579
No. G-SIB obs	675	662	662	662	662
No. D-SIB obs	6215	6073	6071	6071	6071
No. Non-SIB obs	49739	44292	43968	43968	43968

Note: The dependent variable is maturity (ln of maturity in years). The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.4 FSB RRI index - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Dependent variable</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>
SIB * RRI overall	-0.115*** (0.03)	-	-	-	-	-	-	-
SIB * RRI 1	-	-0.043 (0.03)	-	-	-	-	-	-
SIB * RRI 2	-	-	-0.262*** (0.04)	-	-	-	-	-
SIB * RRI 3	-	-	-	-0.092*** (0.03)	-	-	-	-
G-SIB * RRI overall	-	-	-	-	-0.291*** (0.09)	-	-	-
G-SIB * RRI 1	-	-	-	-	-	-0.140** (0.07)	-	-
G-SIB * RRI 2	-	-	-	-	-	-	-0.559*** (0.13)	-
G-SIB * RRI 3	-	-	-	-	-	-	-	-0.268*** (0.08)
D-SIB * RRI overall	-	-	-	-	-0.100*** (0.04)	-	-	-
D-SIB * RRI 1	-	-	-	-	-	-0.032 (0.03)	-	-
D-SIB * RRI 2	-	-	-	-	-	-	-0.248*** (0.05)	-
D-SIB * RRI 3	-	-	-	-	-	-	-	-0.076** (0.03)
Constant	2.238*** (0.32)	2.234*** (0.32)	2.262*** (0.32)	2.239*** (0.32)	2.237*** (0.32)	2.230*** (0.32)	2.273*** (0.32)	2.235*** (0.32)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	18168	18168	18168	18168	18168	18168	18168	18168
Adjusted R-squared	0.456	0.456	0.457	0.456	0.456	0.456	0.457	0.456
No. G-SIB obs	505	505	505	505	505	505	505	505
No. D-SIB obs	4286	4286	4286	4286	4286	4286	4286	4286
No. Non-SIB obs	13377	13377	13377	13377	13377	13377	13377	13377

Note: The dependent variable is maturity (ln of maturity in years). The main regressors are the set of dummy variables SIB, G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). In columns (3) - (6) we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.5 Baseline SIB: Decomposition of Post-Reform period - Maturity

(1)	
<i>Dependent variable</i>	<i>Y</i>
SIB * Year ₂₀₁₂	0.106*** (0.02)
SIB * Year ₂₀₁₃	0.085*** (0.02)
SIB * Year ₂₀₁₄	0.062*** (0.02)
SIB * Year ₂₀₁₅	0.008 (0.02)
SIB * Year ₂₀₁₆	-0.132*** (0.02)
SIB * Year ₂₀₁₇	-0.122*** (0.03)
SIB * Year ₂₀₁₈	-0.086*** (0.03)
SIB * Year ₂₀₁₉	-0.053 (0.04)
Constant	2.842*** (0.19)
Main effects	Yes
Instrument controls	Yes
Issuer controls	Yes
Bank controls	Yes
Country-quarter-time FE	Yes
Issuer FE	Yes
No. observations	50701
Adjusted R-squared	0.580
No. SIB obs	6733
No. Non-SIB obs	43968

Note: The dependent variable is maturity (ln of maturity in years). The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global sistemically important (G-SIB) or domestic sistemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.6 Baseline G-SIB & D-SIB: Decomposition of Post-Reform period - Maturity

(1)	
<i>Dependent variable</i>	<i>Y</i>
G-SIB * Year ₂₀₁₂	0.099** (0.04)
G-SIB * Year ₂₀₁₃	0.071 (0.05)
G-SIB * Year ₂₀₁₄	-0.001 (0.05)
G-SIB * Year ₂₀₁₅	-0.017 (0.05)
G-SIB * Year ₂₀₁₆	-0.236*** (0.05)
G-SIB * Year ₂₀₁₇	-0.109** (0.06)
G-SIB * Year ₂₀₁₈	-0.166** (0.07)
G-SIB * Year ₂₀₁₉	0.368 (0.29)
D-SIB * Year ₂₀₁₂	0.106*** (0.02)
D-SIB * Year ₂₀₁₃	0.087*** (0.02)
D-SIB * Year ₂₀₁₄	0.067*** (0.02)
D-SIB * Year ₂₀₁₅	0.010 (0.02)
D-SIB * Year ₂₀₁₆	-0.121*** (0.03)
D-SIB * Year ₂₀₁₇	-0.125*** (0.03)
D-SIB * Year ₂₀₁₈	-0.081*** (0.03)
D-SIB * Year ₂₀₁₉	-0.052 (0.04)
Constant	2.825*** (0.19)
Main effects	Yes
Instrument controls	Yes
Issuer controls	Yes
Bank controls	Yes
Country-quarter-time FE	Yes
Issuer FE	Yes
No. observations	50701
Adjusted R-squared	0.580
No. G-SIB obs	662
No. D-SIB obs	6071
No. Non-SIB obs	43968

Note: The dependent variable is maturity (ln of maturity in years). The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.7 Baseline SIB: Interaction with macro variables - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Y	Y	Y	Y	Y	Y
SIB * SRisk	0.000*** (0.00)	-	-	-	-	-
SIB * Crisis probability	-	-0.000 (0.00)	-	-	-	-
SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
SIB * VIX	-	-	-	-0.000 (0.00)	-	-
SIB * Debt-to-GDP	-	-	-	-	0.001 (0.00)	-
SIB * Gov. bonds 10y	-	-	-	-	-	0.010** (0.00)
Constant	2.731*** (0.20)	2.682*** (0.20)	2.748*** (0.20)	2.714*** (0.19)	2.699*** (0.21)	2.698*** (0.20)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	46741	46741	46741	50977	45661	47237
Adjusted R-squared	0.567	0.567	0.567	0.582	0.558	0.565
No. SIB obs	5919	5919	5919	6836	5877	6039
No. Non-SIB obs	40849	40849	40849	44157	39784	41213

Note: The dependent variable is maturity (ln of maturity in years). The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. We interact this variable with a varying set of macroeconomic variables. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.8 Baseline G-SIB & D-SIB: Interaction with macro variables - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	Y	Y	Y	Y	Y	Y
G-SIB * SRisk	0.000 (0.00)	-	-	-	-	-
G-SIB * Crisis probability	-	-0.001 (0.00)	-	-	-	-
G-SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
G-SIB * VIX	-	-	-	-0.002 (0.00)	-	-
G-SIB * Debt-to-GDP	-	-	-	-	0.003* (0.00)	-
G-SIB * Gov. bonds 10y	-	-	-	-	-	0.011 (0.01)
D-SIB * SRisk	0.000*** (0.00)	-	-	-	-	-
D-SIB * Crisis probability	-	0.000 (0.00)	-	-	-	-
D-SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
D-SIB * VIX	-	-	-	0.000 (0.00)	-	-
D-SIB * Debt-to-GDP	-	-	-	-	0.001 (0.00)	-
D-SIB * Gov. bonds 10y	-	-	-	-	-	0.010** (0.00)
Constant	2.734*** (0.20)	2.688*** (0.20)	2.750*** (0.20)	2.726*** (0.19)	2.705*** (0.21)	2.698*** (0.20)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	46741	46741	46741	50977	45661	47237
Adjusted R-squared	0.567	0.567	0.567	0.582	0.558	0.565
No. G-SIB obs	555	555	555	663	548	660
No. D-SIB obs	5364	5364	5364	6173	5329	5379
No. Non-SIB obs	40849	40849	40849	44157	39784	41213

Note: The dependent variable is maturity (ln of maturity in years). The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. We interact these variables with a varying set of macroeconomic variables. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.1.8 Baseline G-SIB & D-SIB: Interaction with macro variables - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>	<i>Y</i>
G-SIB * SRisk	0.000 (0.00)	-	-	-	-	-
G-SIB * Crisis probability	-	-0.001 (0.00)	-	-	-	-
G-SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
G-SIB * VIX	-	-	-	-0.002 (0.00)	-	-
G-SIB * Credit-to-GDP Gap	-	-	-	-	-0.003** (0.00)	-
G-SIB * Gov. bonds 10y	-	-	-	-	-	0.010 (0.01)
D-SIB * SRisk	0.000*** (0.00)	-	-	-	-	-
D-SIB * Crisis probability	-	0.000 (0.00)	-	-	-	-
D-SIB * SRisk capacity	-	-	0.000*** (0.00)	-	-	-
D-SIB * VIX	-	-	-	0.000 (0.00)	-	-
D-SIB * Credit-to-GDP Gap	-	-	-	-	-0.004*** (0.00)	-
D-SIB * Gov. bonds 10y	-	-	-	-	-	0.011** (0.00)
Constant	2.743*** (0.20)	2.696*** (0.20)	2.759*** (0.20)	2.735*** (0.19)	2.730*** (0.20)	2.706*** (0.20)
Main effects	Yes	Yes	Yes	Yes	Yes	Yes
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country-quarter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Issuer FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	46768	46768	46768	50993	46768	47252
Adjusted R-squared	0.568	0.568	0.568	0.582	0.568	0.566
No. G-SIB obs	555	555	555	663	555	660
No. D-SIB obs	5364	5364	5364	6173	5364	5379
No. Non-SIB obs	40849	40849	40849	44157	40849	41213

Note: The dependent variable is maturity (ln of maturity in years). The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. We interact these variables with a varying set of macroeconomic variables. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country-quarter-time fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). Finally, we add issuer (i.e. bank) fixed effects. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.2.2 Baseline SIB - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	ΔY_{2010}	ΔY_{2010}	ΔY_{2012}	ΔY_{2012}	ΔY_{2014}	ΔY_{2014}
SIB	0.331 (0.48)	0.144 (0.57)	-0.133 (0.67)	-0.295 (0.71)	0.237 (0.68)	0.404 (0.79)
Instrument controls						
Issue size	0.001 (0.00)	0.001 (0.00)	0.001 (0.00)	0.001 (0.00)	-0.000 (0.00)	-0.001 (0.00)
Yield spread	-0.002 (0.00)	-0.004 (0.00)	0.005 (0.00)	0.004 (0.00)	-0.003 (0.00)	-0.003 (0.01)
Issuer controls						
Rating	-0.090 (0.36)	-0.158 (0.37)	0.076 (0.39)	0.138 (0.40)	-0.083 (0.54)	0.004 (0.56)
Bank controls						
Size	-	0.249 (0.38)	-	-0.208 (0.41)	-	0.783 (0.55)
Solvency	-	-0.458* (0.25)	-	0.358 (0.27)	-	0.090 (0.14)
Profitability	-	-0.003 (0.13)	-	0.012 (0.09)	-	0.182** (0.08)
Liquidity	-	0.045 (0.07)	-	0.022 (0.05)	-	0.034 (0.05)
Non-performing loans	-	-0.106* (0.06)	-	-0.016 (0.06)	-	-0.096 (0.11)
Constant	-1.566*** (0.29)	-5.344 (10.45)	-0.334 (0.50)	1.574 (11.58)	1.454** (0.69)	-20.314 (13.12)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	471	463	399	392	252	248
R-squared	0.096	0.100	0.162	0.150	0.186	0.223
No. SIB	45	39	46	42	29	27
No. Non-SIB	426	424	353	350	223	221

Note: The dependent variable is the difference between the maturity (ln of maturity in years) in the pre and post event period. The event period is a two year window of 2010, 2012 and 2014 and the subsequent year, respectively. The main regressor is the dummy variable SIB, which takes the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). All control variables are averages over the respective pre event periode of the corresponding event window. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A.2.3 Baseline G-SIB & D-SIB - Maturity

	(1)	(2)	(3)	(4)	(5)	(6)
<i>Dependent variable</i>	ΔY_{2010}	ΔY_{2010}	ΔY_{2012}	ΔY_{2012}	ΔY_{2014}	ΔY_{2014}
G-SIB	-0.168 (0.65)	-0.438 (0.67)	2.039 (1.78)	2.365 (1.82)	3.491* (1.85)	3.004* (1.70)
D-SIB	0.427 (0.54)	0.255 (0.63)	-0.557 (0.70)	-0.792 (0.75)	-0.269 (0.71)	0.008 (0.82)
Constant	-1.569*** (0.29)	-6.265 (10.70)	-0.308 (0.49)	7.996 (11.57)	1.387** (0.68)	-14.575 (11.85)
Instrument controls	Yes	Yes	Yes	Yes	Yes	Yes
Issuer controls	Yes	Yes	Yes	Yes	Yes	Yes
Bank controls	No	Yes	No	Yes	No	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	471	463	399	392	252	248
R-squared	0.097	0.600	0.173	0.166	0.205	0.234
No. G-SIB	6	6	7	7	5	5
No. D-SIB	39	33	39	35	24	22
No. Non-SIB	426	424	353	350	223	221

Note: The dependent variable is the difference between the maturity (ln of maturity in years) in the pre and post event period. The event period is a two year window of 2010, 2012 and 2014 and the subsequent year, respectively. The main regressors are the set of dummy variables G-SIB and D-SIB which take the value one if the bank has been designated once as a global systemically important (G-SIB) or domestic systemically important (D-SIB) bank, respectively. Rating is a dummy variable which takes the value one if the issuer (i.e. bank) has a prime grade rating (AAA or AA+) by either Moody's, S&P, Fitch or DBRS. At the instrument level we add issue size (ln of issue size in bn EURO) and yield spread (spread between the yield of the bond and the yield of Bunds with equal maturity). Further, we add country fixed effects and the following bank controls: size (ln of total assets), solvency (CET1 ratio), profitability (ROEA), liquidity (liquid assets to total assets) and non-performing loans (problem loans to gross customer loans). All control variables are averages over the respective pre event period of the corresponding event window. Standard errors are shown in parentheses. *, ** and *** indicate statistical significance at the 10%, 5%, and 1% level, respectively.