

Real Effects of the Sovereign Debt Crisis in Europe: Evidence from Syndicated Loans[☆]

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Abstract

Using a hand matched sample of loan information from Dealscan and accounting information from Amadeus, this paper shows that firms with a higher exposure to banks affected by the sovereign debt crisis become financially constrained during the crisis. As a result, these firms have significantly lower employment growth, capital expenditures, and sales growth rates. We then show that these negative real effects are mainly caused by the hit on banks' balance sheet resulting from their large holdings of impaired sovereign debt and their incentive to engage in risk-shifting behavior by buying risky sovereign bonds.

Keywords: European sovereign debt crisis, financing constraints, real effects, credit contraction

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1. Introduction

Beginning in 2009, countries in the periphery of the Eurozone drifted into a severe sovereign debt crisis as the anxiety about excessive sovereign debt made it difficult for the affected countries to refinance and service existing debt. Starting with Greece, the crisis quickly spilled over to Ireland, Italy, Portugal, and Spain (the so-called GIIPS countries). The resulting deterioration in the sovereigns' creditworthiness feeds back into the financial sector (Acharya *et al.* (forthcoming)) by reducing the value of the banks' large domestic government bond holdings. For example, in mid-2011 the holdings of domestic sovereign bonds of two major Italian banks (UniCredit and Intesa) amounted to 121 percent and 175 of their core capital, respectively. Similarly striking numbers can be found for Spanish banks where the holdings amounted to 193 percent and 76 percent of core capital for BBVA and Santander.¹

During the sovereign debt crisis, bank lending contracted substantially in the GIIPS countries. In the cases of Ireland, Spain, and Portugal the overall lending volume of newly issued loans fell by 82%, 66%, and 45% over the period 2008-2013, respectively.² This credit crunch leads to a sharp increase in the uncertainty of borrowing firms as to whether they will be able to access bank funding in the future. As Pietro Fattorini, the owner and manager of a 23-year old Italian company puts it:

“It’s like starting to drive on the motorway without knowing if you’ll find gas stations on the way.”³

This paper makes two main contributions: First, it shows that the sovereign debt crisis and the resulting credit crunch lead to negative real effects for borrowing firms. Second, the paper documents that these negative real effects are mainly caused by the banks' need to deleverage as a result of the increased risk of their sovereign debt holdings and their incentive to engage in risk-shifting behavior by buying risky sovereign bonds, thereby crowding-out corporate lending.

¹“Europe’s Banks Struggle With Weak Bonds” by Landon Thomas Jr., NYTimes.com, August 3, 2011.

²“SMEs in peripheral Eurozone face far steeper borrowing rates” by Patrick Jenkins, Financial Times, October 10, 2013

³“Italian Banks’ Woes Hurt Small Firms” by Giovanni Legorano, Wall Street Journal, December 1, 2013

According to many observers, the most serious threat to the growth prospects of the Eurozone stems from the strong three-way interdependence between the vulnerabilities of public finances, the banking sector, and the real economy. As a result of the ongoing crisis, GIIPS countries face severe economic downturns, resulting in lower growth, lower tax revenues, and high fiscal deficits, which ultimately lead to a further increase in sovereign credit risk (IMF (2011)). This again puts pressure on banks, thereby closing a negative feedback loop between the real economy, the banking sector, and sovereign risk. However, it is still unclear through which channels the sovereign debt crisis has a negative effect on the European real economy. On the one hand, the crisis could be purely driven by a negative macroeconomic shock, that is, it has directly decreased confidence, demand, and production. On the other hand, the crisis could negatively affect the real economy through the bank lending channel. While it has been documented by previous work that a contraction in the lending volume occurred during the sovereign debt crisis (e.g., Popov and Van Horen (forthcoming)), it remains unclear whether this credit crunch has real effects for the borrowing firms in Europe since firms facing a withdrawal of credit from one financing source may be able to get funding from a different source (Becker and Ivashina (2014a); Adrian *et al.* (2013)). Therefore, potentially, there is no overall real effect that can be attributed to the lending behavior of banks.

This study, to the best of our knowledge, is the first to document for a cross-country sample of European firms that the contraction in the lending volume of affected banks during the sovereign debt crisis is transmitted into the real sector and leads to significant financial and real effects for the borrowing firms. Our empirical tests make use of a diff-in-diff framework which exploits the heterogeneity of how the sovereign debt crisis affects banks in Europe. Our findings imply that firms with a higher dependence on banks affected by the sovereign debt crisis have a higher cash flow sensitivity of cash, suggesting that these borrowers are financially constrained during the crisis and thus increase the precautionary holdings of cash. These financing problems then result in lower employment growth rates, lower investment, and lower sales growth rates for these firms.

Furthermore, given that the European sovereign debt crisis negatively affects the real economy through the bank lending channel, it remains unclear how exactly banks are affected by the sovereign debt crisis and as a result how this ultimately leads to lower growth. The potential bank lending channels are (i) hit on banks' balance sheet, (ii) risk-shifting, and (iii) financial repression.

The first channel suggests that the increase in the risk of GIIPS sovereign debt directly translates into losses for banks due to their large sovereign holdings, as shown by the recent EBA EU-wide stress tests and capital exercises. To cope with these losses, GIIPS banks have to deleverage and thus might have reduced lending to the private sector. The risk-shifting motive arises since weakly-capitalized banks may have an incentive to increase their domestic sovereign debt holdings because of the high correlation with their other sources of revenue (Crosignani (2014)). While banks are protected by limited liability in case of a sovereign default, these bonds offer a relatively high return in the good state of the world (when the sovereign is not in default). This risk-shifting mechanism leads to a crowding-out of lending to the private sector and thus might negatively impact the real economy. According to the financial repression hypothesis, a government may pressure domestic banks to increase their domestic sovereign bond holdings in case it finds it difficult to refinance its debt (Becker and Ivashina (2014b)), which also might crowd-out lending to the real sector. Our second main contribution is that we disentangle these channels and provide evidence that the risk-shifting and the balance sheet hit channel are of first-order importance while financial repression does not seem to significantly impact the corporate policy of borrowers in our sample period.

Our sample is based on loan information data obtained from Thomson Reuters LPC's Dealscan, which we hand match to firm specific information from Bureau Van Dijk's Amadeus database. The sample includes firms from France, Germany, Greece, Italy, Ireland, Portugal, Spain, and the UK and thus includes data on cross-country bank lending. This allows to exploit the fact that the dataset includes information on firms that are affected by a bank credit supply shock but less exposed to a macroeconomic shock. For our analysis it is thus crucial to focus on large firms with access to the syndicated loan market since for small and medium sized firms most lending occurs domestically. Focusing on these large companies should if anything work against finding an effect of bank lending on borrowers' corporate policies since these firms should be best able to substitute bank financing with other funding sources. Our estimates thus serve as a lower bound on the real effects of the bank lending behavior during the sovereign debt crisis. Moreover the syndicated loan market plays an important role as source of funding in Europe.

In a first step, we document that the credit crunch observed as an economy wide phenomenon is also present in our sample. To broadly assess whether the sovereign debt crisis affects the real

economy through the bank lending channel, we first take into account all potential bank lending channels (i.e., balance sheet hit, risk-shifting, and financial repression) by using a bank's country of incorporation as proxy for how affected a bank is by the crisis. This is motivated by (i) the banks' large direct holdings of domestic government debt (balance sheet hit), (ii) the potential incentive of GIIPS banks to buy additional risky domestic debt (risk-shifting), and (iii) the potential pressure from GIIPS governments to increase domestic sovereign holdings (financial repression).

Using balance sheet information obtained from Amadeus, we first show that firms with a high dependence on GIIPS banks significantly decrease their net debt and that these firms have a significantly positive cash flow sensitivity of cash. This result is in line with the predictions of Almeida *et al.* (2004), who show that firms that expect to be financially constrained in the future respond by saving more cash out of their cash flow today, whereas financially unconstrained firms should have no significant link between their cash flow and the change in cash holdings. Our results thus show that GIIPS bank dependent firms are financially constrained during the sovereign debt crisis.

Second, we document that a higher GIIPS bank dependence leads to negative real effects for the respective firms. In particular, we show that financially constrained firms have lower levels of investment, lower sales growth and lower employment growth compared to firms with lower GIIPS bank dependence, that is, compared to less financially constrained firms. These results are robust to controlling for unobserved, time-constant firm heterogeneity, time trends, and time-varying firm characteristics. Results continue to hold if we interact year and country dummies to capture unobserved heterogeneity in country specific macroeconomic shocks.

Perhaps the biggest challenge to our empirical analysis is the concern that GIIPS countries went through a severe recession during the sovereign debt crisis. As a result of this crisis, firms do not only face a financing shock resulting from the contraction in bank lending, but are also directly exposed to the macroeconomic downturn in their respective countries. Hence, it is difficult to disentangle the effect of bank lending behavior on corporate policies from the overall macroeconomic conditions. Especially, since a firm's dependency on GIIPS and non-GIIPS banks might be driven by whether this firm has business in the respective countries. Ideally, we want firms to be affected by the sovereign debt crisis only through the bank lending channel, but not through the overall macroeconomic environment. To address this concern, we collect information on all

foreign and domestic subsidiaries of the borrowing firms in our sample. We use this information to first, confirm that our results continue to hold if we restrict the sample to GIIPS firms that have a substantial part of their revenues generated by non-GIIPS subsidiaries. For these firms it is plausible to assume that they have a larger part of their business in non-GIIPS countries and as a result face a lower overall macroeconomic shock compared to firms that operate primarily in affected countries. Second, we show that for our sample of non-GIIPS firms all results continue to hold if we restrict the analysis to firms without GIIPS subsidiaries. Hence, the paper shows that there exist not only significant spillovers from high-spread euro area sovereigns to the local real economy, but also cross-border spillovers from the sovereign debt crisis in GIIPS countries to firms in non-GIIPS countries that are transmitted through the bank lending channel. Therefore, the paper is the first that is able to document that, while the Euro greatly benefits its members by deepening the degree of financial integration, the extensive cross-border bank lending facilitates the transmission of shocks across the Eurozone.

Finally, we track the effects of the sovereign debt crisis and the resulting credit crunch on the real economy and provide evidence about the different bank lending channels (i.e., hit on banks' balance sheet, risk-shifting, and financial repression) through which firms are affected by the sovereign debt crisis. To collect evidence for the balance sheet hit channel, we use data from the EBA EU-wide stress tests and capital exercises and calculate each bank's exposure to the sovereign debt crisis directly from the disclosed data on sovereign debt holdings of these banks. Furthermore, we obtain information about the banks' health from SNL Financial (leverage) and Bloomberg (ratings) to analyze whether GIIPS banks with low capital buffers engaged in risk-shifting by buying additional domestic sovereign debt and cutting corporate lending. Finally, we use data about government interventions, compiled from information disclosed on the official EU state-aid websites, to measure the influence of regulators over their domestic banks and test whether real effects can also be attributed to the financial repression channel. Our results show that risk-shifting incentives and the banks' need to deleverage resulting from large losses incurred due to the sovereign crisis are the main drivers for the banks' cutback in lending and the resulting real effects for firms.

Our paper thus provides, first, important evidence that the European sovereign debt crisis affects the real economy through the bank lending channel and, second, shows that the risk-shifting

and the balance sheet hit channel are of first-order importance while financial repression does not seem to significantly impact the corporate policy of borrowers. Third, the paper documents that there also exist significant cross-border spillovers from the crisis in high-spread euro area sovereigns to firms in other countries, thereby facilitating the transmission of shocks across the Eurozone.

2. Related Literature

Our paper contributes to the literature that studies how shocks on banks' liquidity or solvency are transmitted to the real economy. Starting with Bernanke (1983) several papers have taken on this theme.⁴ In particular, our paper adds to the literature that investigates the impact of financial crises on bank behavior by using data from syndicated loans. Evidence from the 2007-09 financial crisis shows that the resulting decline in bank health lead to a significant reduction in bank lending and that banks that incurred larger losses reduced their loan supply more than banks that were less affected by the crisis (e.g., Ivashina and Scharfstein (2010)). Furthermore, Santos (2011) and Bord and Santos (2014) find that, during the financial crisis, loan spreads of credits to corporations increased and that firms had to pay more to be guaranteed access to liquidity. Chodorow-Reich (2014) verifies that less healthy banks reduced lending more than healthy banks during the 2007-09 financial crisis. Furthermore, by combining the Dealscan database and employment data from the U.S. BLS Longitudinal Database, the study documents that firms that had pre-crisis relationships with banks that struggled during the crisis reduced employment by more than firms that had relationships to healthier lenders. To proxy bank health, Chodorow-Reich (2014) uses the quantity of lending at each bank to measure the unobserved internal cost of funds. Since the identification relies on the strong condition that the cross sectional variation in bank lending reflects only supply factors or observed borrower characteristics, Chodorow-Reich (2014) also instruments for this measure using three different proxies for bank health: the fraction of loans where Lehman Brothers had a lead role (see Ivashina and Scharfstein (2010)), the exposure to toxic mortgage-backed securities, and balance sheet and income statement information.

The funding shocks caused by the financial crisis did not only affect domestic borrowers, but were also transmitted across borders through the bank lending channel. Giannetti and Laeven

⁴For a comprehensive overview over the “natural experiment” literature that studies shocks that induce variation in the cross section of credit availability see Chodorow-Reich (2014).

(2012) show that the collapse of the syndicated loans market during the financial crisis was at least partly caused by global banks rebalancing their loan portfolios in favor of domestic borrowers. Similarly, De Haas and Van Horen (2013) find that banks reduced their lending less in regions that were geographically close and in regions where they had more business activity prior to the crisis.

Furthermore, our paper also adds to the literature that analyzes the effect of sovereign debt crisis on bank lending to the real sector. By aggregating micro-level data of foreign bond issuance and foreign syndicated bank loan contracts on the sector-country-month level, Arteta and Hale (2008) analyze emerging markets' private sector access to international debt financing during several sovereign debt crises between 1980 and 2002. This study shows that sovereign debt crises lead to a decline in foreign credit to private firms in the affected countries.

Regarding the consequences of the European sovereign debt crisis, Popov and Van Horen (forthcoming) find that after the outbreak of the European sovereign crisis, non-GIIPS European banks that had significant exposures to GIIPS sovereign bonds reduced lending to the real economy more than non-exposed banks. Similar to our study, Popov and Van Horen (forthcoming) also use data on syndicated lending. In line with Giannetti and Laeven (2012) and De Haas and Van Horen (2013), Popov and Van Horen (forthcoming) show that the decline in lending is accompanied by rebalancing the credit supply from foreign regions to core European ones.

In addition to the bank distress caused by impaired European sovereign debt, Correa *et al.* (2012) document that European banks also suffered from a severe decline in their access to dollar funding from U.S. money market funds in 2011. The study finds that this liquidity shock was proportional with the increase in the sovereign risk of the bank's country of origin and that branches of affected European banks reduced their lending to U.S. entities. Another channel through which the lending of European banks to the U.S is negatively affected is highlighted by Ivashina *et al.* (2012). The study shows that the fact that U.S. money-market funds reduced funding for European banks after the start of the European sovereign crisis, lead to violations of the covered interest parity, which, in turn, incentivized banks to cut their dollar lending. Furthermore, the study finds that European banks that were more reliant on money funds experienced bigger declines in dollar lending. Finally, Becker and Ivashina (2014b) indicate that the cutback in bank lending to the real economy is aggravated by financial repression of European governments that induces European banks to take on more sovereign debt, which crowds out corporate lending.

By using loan-level data and the resulting bank-firm matches from the Bank of Italy's Credit Register data, several Bank of Italy working papers investigate the negative effects of the financial and sovereign debt crisis on bank lending in Italy. Albertazzi and Marchetti (2010) document a contraction of credit supply for banks with a weak capitalization after Lehman's collapse and a rebalancing of lending to less risky borrower. Gambacorta and Mistrulli (2011) show that, during the financial crisis that followed Lehman's collapse, spreads increased by less for borrowers of well-capitalized, liquid banks. Bofondi *et al.* (2013) exploit the lower impact of sovereign risk on foreign banks operating in Italy than on domestic banks and show that Italian banks tightened credit supply more than foreign banks. Bonaccorsi di Patti and Sette (2012) add the finding that banks that were more depending on wholesale funding and that made more use of securitization reduced their loan supply more and increased the loan spreads stronger. In contemporaneous work, Cingano *et al.* (2013) use the Bank of Italy's Credit Register database to identify the effect of a cutback in bank lending, caused by the liquidity drought on the interbank market in the aftermath of the 2007-09 financial crisis, on the investments of non-financial firms. Cingano *et al.* (2013) find that borrowers, which were more dependent on banks that mainly relied on wholesale funding, reduced their investments more than firms that were less exposed to these banks. Similar to Bonaccorsi di Patti and Sette (2012), Cingano *et al.* (2013) instrument credit growth by a bank's interbank liabilities to total assets ratio. The results of Balduzzi *et al.* (2014), which exploit the shock caused by the financial crisis and the European sovereign debt crisis to Italian banks' CDS spreads and equity valuations, point in the same direction. Using a survey on micro and small Italian firms that provides data on firm-bank relationships, Balduzzi *et al.* (2014) find evidence that firms that are connected to banks with a higher CDS spread invest less, hire fewer workers, and reduce the growth of bank borrowing.

In another contemporaneous work, Bentolila *et al.* (2013) also find negative real effects of the contraction in bank lending for Spain. By matching employment data from the Iberian Balance sheet Analysis System and loan information obtained from the Bank of Spain's Central Credit Register, the study analyzes employment changes from 2006 to 2010 that are caused by weak banks reducing their lending activity. Bentolila *et al.* (2013) document that firms' that had relationships to weak banks recorded a 18% to 35% (depending on the estimation method) larger job destruction than firms that only were exposed to healthy banks. Contrary to the other studies, Bentolila *et al.* (2013) defines a weak bank as a bank that obtained government assistance to remain alive. Notably,

the study finds that firms that had only a single connection to one weak bank obtained more credit than similar firms working with several banks, which Bentolila *et al.* (2013) interpret as a sign of “zombie lending”.

Therefore, to the best of our knowledge, this paper is the first that uses a pan-European dataset to study the adverse effects of the sovereign debt crisis on the real economy, that are transmitted through the bank lending channel. Our approach has four key advantages. First, it enables us to better disentangle the adverse effects on the real economy caused, on the one hand, by the macroeconomic demand shock and, on the other hand, by the bank credit supply shock. The reason is that by using a pan-European dataset, we can exploit the fact that we have information for firms that are adversely affected by a bank credit supply shock but less exposed to a macroeconomic demand shock (e.g., a German firms with bank relationships to GIIPS-banks but no significant business in these countries). Second, we can rule out the possibility that a reduction in bank lending by domestic banks is substituted by bank credit from foreign financial institutions and thus point out the real effects of a reduction in bank lending more robustly. Third, the pan-European dataset allows to study the different potential bank lending channels separately. Finally, since we use data from syndicated loans, which is mainly used by large corporations, our estimates serve as a lower bound for the adverse effects of a bank credit supply shock, since this effect is supposedly even more pronounced for smaller firms given their inability to substitute bank financing with other funding sources.

3. Methodology, Data, and Descriptive Statistics

3.1. Methodology

Our empirical strategy is to examine the association between a bank’s exposure to the sovereign debt crisis and the resulting corporate policy of its borrowers. We expect that firms with stronger lending relationships to banks affected by the sovereign debt crisis are more financially constrained and thus behave differently both in terms of financial and real decisions compared to less affected firms. To broadly assess whether the sovereign debt crisis affects the real economy through the bank lending channel, we use a bank’s country of incorporation as a proxy for its exposure to the sovereign crisis since this measure captures all channels through which banks are affected by the sovereign debt crisis. First, banks’ bond portfolios are generally biased towards domestic sovereign

bond holdings implying that there exists a strong positive relation between a bank’s country of incorporation and its exposure to the sovereign debt of that country (hit on balance sheet). Second, GIIPS banks have an incentive to buy additional risky domestic debt (risk-shifting) and, third, GIIPS governments potentially pressure domestic banks to increase their domestic sovereign holdings (financial repression). In addition, the country of incorporation is available for every bank, whereas the sovereign bond holdings are only observable for a subsample of our banks and only at very few points in time. For the analysis, we thus construct two groups of banks: the first group consists of banks headquartered in GIIPS countries (Greece, Ireland, Portugal, Spain, and Italy) given that these countries are most affected by the European sovereign debt crisis. As a control group, we choose banks from France, Germany, and the UK since these countries were less affected by the sovereign debt crisis. In a second step, we provide more detailed evidence in Section 6 on the exact channel how banks, which are active in the syndicated loan market, are affected by the sovereign debt crisis.

We construct two measures of GIIPS bank dependence of a firm in a given year. The first variable exploits the different contributions of the lenders to a syndicated loan. That is, for each firm-year, we construct the GIIPS exposure as the fraction of total syndicated loans outstanding that is provided by banks incorporated in a GIIPS country. Hence, the GIIPS exposure of firm i in year t is given by:

$$\text{GIIPS Exposure}_{it} = \frac{\sum_{\text{loans}_j} \% \text{GIIPS Banks in Syndicate}_{jit} * \text{Loan Amount}_{jit}}{\text{Total Loan Amount}_{it}}$$

Dealscan does not always report the exact contribution of each lender to a syndicated loan. If this information is missing, we infer the fraction of the loan provided by each bank from syndicated loans where Dealscan reports the contribution of the individual lenders. Our criteria are based on existing research on syndicated loans (Sufi (2007)). More specifically, we impute missing values as the median that is calculated conditional on (i) whether the lender acts as a lead arranger and (ii) the number and roles of lenders in the deal.

This variable definition takes into account all lenders of a firm, i.e., it includes also banks that only act as participants in a given syndicate. The second measure only considers banks that act as lead arranger because of the special role that these institutions play in originating and monitoring a syndicated loan (Ivashina (2009)). We construct a variable GIIPS Lead as the fraction of total

outstanding syndicated loans of a firm in a given year provided by lead arrangers incorporated in a GIIPS country:

$$\text{GIIPS Lead}_{it} = \frac{\sum_{\text{loans}_j} \% \text{Lead Arranger GIIPS Banks in Syndicate}_{jit} * \text{Loan Amount}_{jit}}{\text{Total Loan Amount}_{it}}$$

We identify lead arranger from the Standard & Poor’s Guide to the European loan market (2010) and classify a bank as lead arranger if its role is either “mandated lead arranger” or “bookrunner”. Note that it is not possible to unambiguously identify lead arrangers for all loans in our sample, implying that the sample size will be smaller for the regressions that include the exposure to GIIPS lead arrangers as main explanatory variable.

We divide our sample into two periods, that is, before and during the sovereign debt crisis. The pre-crisis period covers the years 2006 until 2009. The crisis period starts in 2010 when, fueled by a series of negative news from Greece, investors started to lose confidence in other Eurozone countries that were in similar trouble as Greece. This negative sentiment resulted in increasing funding costs and, ultimately, a temporary exclusion of the GIIPS countries from sovereign bond markets. Indeed, over the 2010 to 2012 period all GIIPS countries had to request some sort of official funding by the EU (Lane (2012)). Hence, the crisis period starts in 2010 and continues until 2012, which is the last year with accounting data available. We construct an indicator variable equal to one if the financial information reported in Amadeus falls in the crisis period. This variable is called *Crisis*.

3.2. Data

Our analysis makes use of a novel hand-collected data set of bank firm relationships in Europe. The data used in this paper stems from two main sources. Information about syndicated loans to European firms are taken from Dealscan. This database contains a comprehensive coverage of the European syndicated loan market. In contrast to the U.S., bank financing is the key funding source for firms in our sample since almost no bonds are issued in Europe (Standard&Poors (2010)). To measure GIIPS bank dependence, we collect information on syndicated loans to non-financial borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. Consistent with the existing literature (Sufi (2007)), all loans are aggregated to the bank’s parent company.

Firm level financial data are taken from Bureau Van Dijk’s Amadeus database. This database contains information about 19 million public and private companies from 34 countries, including all EU countries. Dealscan and Amadeus do not share a common identifier. To merge the information in these databases we hand-match firms to the Dealscan database. Amadeus groups firms into different size categories ranging from “Very Large” to “Small”. Perhaps not surprisingly firms in the intersection of Amadeus and Dealscan are either classified as “Very Large” or “Large”. For firms to be classified as large, they have to satisfy at least one of the following criteria: Operating Revenue of at least 10 million EUR, Total assets of at least 20 million EUR, at least 150 Employees, or the firm has to be publicly listed.

3.3. Descriptive Statistics

In Table 1, Panel A we provide evidence on the differences in evolution of firms across groups of high (above sample median) and low (below sample median) GIIPS bank exposure. We report mean, median, and standard deviation of high GIIPS exposure firms in rows (1)-(3) and for low GIIPS exposure firms in rows (4)-(6). We show pre-crisis summary statistics in the left half of the table and sovereign debt crisis values in the right half of the table. The general picture that emerges from the table is that the evolution of the sample of firms with high GIIPS exposure during the crisis is more negative than for less GIIPS bank dependent firms. High GIIPS bank dependent firms have significantly less employment growth, invest less, experience lower sales growth, and reduce their net debt ratios more compared to the sample of firms with low GIIPS exposure. These results are consistent with the notion that the sovereign debt crisis is transmitted into the real sector through the bank lending channel.

Panel B of Table 1 presents descriptive statistics for our set of firm-level control variables, split into firms with high and low GIIPS bank exposure and into crisis and pre-crisis period. Firms with high GIIPS bank exposure tend to be larger, have lower net worth, higher leverage, and lower interest coverage ratios. We follow Imbens and Wooldridge (2009) and report the difference in averages by treatment status, scaled by the square root of the sum of the variances, as a scale-free measure of the difference in distributions. This measure avoids the mechanical increase in sample size, that one typically observes when reporting t-statistics. The authors suggest as a rule of thumb that the normalized difference should not exceed one quarter. As can be seen from the reported

values in Panel B of Table 1 only the difference in the leverage ratio reaches this threshold, all other values are well below one quarter.

In Panel C of Table 1, we compare the time series properties of our main explanatory variables (GIIPS Exposure and GIIPS Lead) for borrowing firms located in GIIPS (left-hand side) and non-GIIPS (right-hand side) countries. The main observation that emerges from the table is that GIIPS bank dependence differs significantly by the country of incorporation of the borrowing firm. While the mean GIIPS exposure for borrowing firms incorporated in a GIIPS country ranges between 59.3% and 69.1% of the outstanding loan amount the mean GIIPS exposure for borrowers from non-GIIPS countries is roughly 7% throughout our sample period. The same conclusion can be drawn if we focus on the evolution of banks acting as lead arranger. Panel C also shows that GIIPS borrowers increasingly depend on lending from domestic banks. While 59.3% of GIIPS lending is from domestic banks in 2006 this percentage increases to 64% in 2011. These results are consistent with the flight home effect during times of crises reported in Giannetti and Laeven (2012). Note that for the GIIPS exposure, most of the increase occurred during the time of the general financial crisis in 2008-09, that is, before the sovereign debt crisis. Conversely, for GIIPS borrowers the fraction of GIIPS lead arrangers remains relatively stable over time.

4. Lending behavior of banks

As a consequence of the sovereign debt crisis in the Euro area, bank lending in the GIIPS countries contracted significantly (e.g., Popov and Van Horen (forthcoming)). We show in this section that a significant decrease in the lending volume of banks can also be observed in our sample. Figure 1 plots the evolution of the lending volume in the syndicated loan market in GIIPS and non-GIIPS countries. While one can observe a decline for both GIIPS and non-GIIPS countries, the decline in GIIPS countries is higher with a total contraction of 58% compared to non-GIIPS countries where loan volume only decreased by 33% relative to the pre-crisis peak in 2007. The result compares well to Ivashina and Scharfstein (2010), who document that new loans to large borrowers fell by 47% during the peak period of the financial crisis and to De Haas and Van Horen (2011), who show that syndicated cross-border lending declined on average by 53% compared to pre-crisis levels.

We run panel regressions where we use the bank-year as unit of observation. The dependent variable in Table 2, Columns (1)-(3) is the annual log change in a bank's lending volume. The results confirm that GIIPS banks cut lending to the real sector significantly more than non-GIIPS banks during the sovereign debt crisis. We use various alternative specifications to show the robustness of this result. In Column 1, we include year and country fixed effects to capture systematic shocks that affect all banks in a given year or in a given country, respectively. In Column 2, we add bank fixed effects to capture unobserved time-invariant bank heterogeneity. Finally, Column (3) adds country-year interaction fixed effects to capture time-specific macroeconomic shocks that affect banks in each country differently. Results remain qualitatively unchanged using either specification.

In addition, Table 2, Columns (4)-(7) present results for regressions of loan spreads of newly issued loans during the sovereign debt crisis. Throughout all specifications, we find that GIIPS banks charge significantly higher loan spreads during the sovereign debt crisis. To rule out that this effect is driven by a deterioration in the quality of new borrowers, we also include country-year fixed effects to control for an overall decline in the firm quality in a given country (Column 6). Second, we show that this result is also robust to including the average maturity of new loans (Column 7).

An alternative explanation for the increase in loan spreads charged by affected banks could be that they at the same time lend at longer maturities. This would not only mitigate the problem of higher funding costs of borrowing firms, but could also reduce the necessity to issue new loans in a short period of time. To make sure that our results are not just driven by the fact that affected banks issue loans with longer maturities, Columns (8) and (9) take the average maturity of all newly issued loans as dependent variable. As can be seen from the results, GIIPS banks issue new loans with significantly lower maturities during the sovereign debt crisis compared to non-GIIPS banks.

The evidence in this section is consistent with banks not only cutting bank their lending volume and charging higher loan spreads from their borrowers, but also reducing the maturity of newly issued loans implying that it becomes increasingly difficult for corporate borrowers to have access to bank financing.

5. Financial and real effects of the sovereign debt crisis

We begin by exploring the effect of the sovereign debt crisis on several firm outcomes graphically in this section. Figures 2-4 plot the time series of the average employment growth rates, investment, and sales growth rate, respectively, for firms with a high and low GIIPS bank exposure. The evidence suggests a clear change in firm outcome during the sovereign debt crisis (that is, starting in 2010). For example, employment growth rates for GIIPS dependent borrowers decrease while employment growth for less GIIPS bank dependent firms show an increase. Similar results can be found for our other dependent variables.

The univariate results in Panel A of Table 1 suggest that a higher GIIPS exposure of firms leads to larger real (negative) effects. To provide multivariate evidence for these results, we estimate the following panel regression for a firm's employment growth rate, sales growth rate, investment, and net debt, respectively:

$$\begin{aligned}
 y_{it+1} &= \alpha + \beta_1 * \text{Crisis} + \beta_2 * \text{GIIPS Bank Dependence}_{it} \\
 &+ \beta_3 * \text{GIIPS Bank Dependence}_{it} * \text{Crisis} \\
 &+ \gamma * X_{it} + \text{Firm}_i + \text{Year}_{t+1} + u_{it+1}
 \end{aligned} \tag{1}$$

For the cash flow sensitivity of cash (Almeida *et al.* (2004)) we employ the following specification

$$\begin{aligned}
 \Delta\text{Cash} &= \alpha + \beta_1 * \text{Crisis} + \beta_2 * \text{GIIPS Bank Dependence}_{it} \\
 &+ \beta_3 * \text{GIIPS Bank Dependence}_{it} * \text{Crisis} \\
 &+ \beta_4 * \text{GIIPS Bank Dependence}_{it} * \text{Cash Flow}_{it} \\
 &+ \beta_5 * \text{GIIPS Bank Dependence}_{it} * \text{Cash Flow}_{it} * \text{Crisis} \\
 &+ \gamma * X_{it} + \text{Firm}_i + \text{Year}_{t+1} + u_{it+1}
 \end{aligned} \tag{2}$$

Our key variables of interest are the interaction term between our various measures of firms' GIIPS bank dependence with the Crisis dummy (β_3 in Eq. 1) and the triple interaction term (β_5 in Eq. 2), respectively. If firms are adversely affected by the sovereign debt crisis through the bank lending channel, then we expect β_3 in Eq. 1 to be negative. Moreover, if firms with a high dependence on GIIPS banks are financially constrained during the sovereign debt crisis, we expect that they

will save more cash out of their generated cash flows to build up a liquidity buffer against the possibility to not be able to obtain additional funding in the future, that is, we expect β_5 in Eq. 2 to be positive. We use two different measures of GIIPS bank dependence, both based on a bank's country of incorporation. First, the variable GIIPS Exposure captures the importance of GIIPS banks for the entire syndicate structure. Second, GIIPS Lead uses the fraction of GIIPS banks that act as lead arrangers in the respective deals.

We consider several control variables to capture confounding factors. In the baseline specification, we include firm fixed effects to capture unobserved time-invariant firm heterogeneity and year fixed effects to control for systematic shocks that affect all firms in a given year. Moreover, we include firm-level control variables to capture other determinants of firms' corporate policies. These include whether a firm has access to the bond market, firm size, leverage, net worth, the fraction of tangible assets, the interest coverage ratio, and the ratio of EBITDA to total assets (see the Appendix for exact definitions of these variables).

GIIPS countries went through a severe recession starting in 2010 while non-GIIPS countries were significantly less affected by economic downturns. To address concerns that our results are driven by different aggregate demand fluctuations in the two subsets of our sample, we consider an alternative specification where we additionally add interactions between year and country fixed effects to capture any unobserved country specific macroeconomic shocks. This also allows to capture time-varying country specific shocks to the credit demand of borrowing firms. We thus estimate the following regression model:

$$\begin{aligned}
 y_{it+1} &= \alpha + \beta_1 * \text{Crisis} + \beta_2 * \text{GIIPS Bank Dependence}_{it} \\
 &+ \beta_3 * \text{GIIPS Bank Dependence}_{it} * \text{Crisis} \\
 &+ \gamma * X_{it} + \text{Firm}_i + \text{Year}_{t+1} + \text{Country}_j * \text{Year}_{t+1} + u_{it+1}
 \end{aligned} \tag{3}$$

where y_{it+1} again represents a firm's employment growth rate, sales growth rate, investment, and net debt. For the cash flow sensitivity of cash we estimate:

$$\begin{aligned}
\Delta\text{Cash} &= \alpha + \beta_1 * \text{Crisis} + \beta_2 * \text{GIIPS Bank Dependence}_{it} \\
&+ \beta_3 * \text{GIIPS Bank Dependence}_{it} * \text{Crisis} \\
&+ \beta_4 * \text{GIIPS Bank Dependence}_{it} * \text{Cash Flow}_{it} \\
&+ \beta_5 * \text{GIIPS Bank Dependence}_{it} * \text{Cash Flow}_{it} * \text{Crisis} \\
&+ \gamma * X_{it} + \text{Firm}_i + \text{Year}_{t+1} + \text{Country}_j * \text{Year}_{t+1} + u_{it+1}
\end{aligned} \tag{4}$$

In the following, we report results for both specifications for the entire sample of firms. We start by analyzing how exposure to GIIPS banks affects firms' financial decisions. Results are presented in Table 3. Column (1) provides results for Net Debt (Current + Non-Current Liabilities - Cash/Total Assets). The coefficient of the interaction of the GIIPS exposure with the Crisis dummy (β_3 in Eq. 1) is negative indicating that during the sovereign debt crisis firms with higher exposure to affected banks reduce external debt financing more than less affected firms. A one standard deviation increase in the GIIPS exposure during the financial crisis leads to a reduction in net debt of between 1.3 and 2.1 percentage points.⁵

Column (2) of Table 3 presents results for the degree to which firms save cash out of their cash flow. The coefficient of the triple interaction of GIIPS exposure with cash flow and the Crisis dummy (β_5 in Eq. 2) is statistically significant at the 1% level. This positive coefficient implies that a higher GIIPS exposure induces firms to save more cash out of its cash flow for precautionary reasons, suggesting that GIIPS bank dependent firms are financially constrained during the crisis. Based on the estimates in Column (2), a one standard deviation increase in the GIIPS exposure of borrowing firms during the crisis implies that these firms save 3.5 cents more per Euro of cash flow. This compares well to the magnitudes found by Almeida *et al.* (2004), who show that financially constrained firms save on average 5-6 cents per dollar of cash flow, while financially unconstrained firms have no significant relation between cash flow and the change in cash holdings.

An alternative explanation for this effect could be that firms have worse investment opportunities during a crisis period and as a result save more of their cash flow. To address this concern, we

⁵Results are qualitatively similar if we use the leverage ratio instead of net debt as dependent variable.

include country-year fixed effects to absorb both aggregate macroeconomic shocks at the country level and related to that shocks to the profitability of new investment projects. Results for this alternative specification are presented in Columns (3) and (4) of Table 3. All results continue to hold.

In a recent paper, Acharya *et al.* (2013) show that firms with higher liquidity risk are more likely to use cash rather than credit lines for liquidity management because the cost of credit lines increases with liquidity risk. This is due to the fact that banks retain the right to revoke access to liquidity precisely in states where the firms need liquidity due to, for example, a liquidity shortfall because of negative cash flows. Since banks themselves face a substantial liquidity shock during the sovereign debt crisis, we would expect that firms that are highly dependent on affected banks could lose access to their credit lines either because the credit lines are not prolonged or cut off by their banks. Firms with a high GIIPS bank dependence should thus increasingly rely on cash rather than on lines of credit in their liquidity management.

To test this implication, we follow Acharya *et al.* (2013) and hand match our sample to CapIQ. This enables us to obtain data on the debt structure for a subsample of our firms including detailed information on total outstanding and undrawn credit lines. We construct two measures for the liquidity composition of borrowing firms from these data. First, we consider the fraction of the total amount of outstanding credit lines over the sum of the amount of total outstanding credit line and cash. Second, we construct a measure that captures the fraction of undrawn credit lines (i.e., the amount of a firm's credit line that is still available and can be drawn in case of liquidity needs) over undrawn credit lines and cash. Figures 5 and 6 plot the time series of the average total and undrawn credit lines. The evidence suggests a clear change in firm outcome during the sovereign debt crisis (that is, starting in 2010). Column (5) of Table 3 reports results for a firm's overall credit line whereas Column (6) reports results for the undrawn credit lines. Across both specifications, we find that more GIIPS bank dependent borrower are less able to rely on secure funding from lines of credit.

Lastly, Columns (7)-(12) of Table 3 show that our results are also robust to constructing the GIIPS bank dependence measure based on the lead arrangers of a syndicate. Therefore, our results on the financial policy of borrowing firms suggest that firms with a high GIIPS bank dependence show the typical pattern of financially constrained firms during the sovereign debt crisis, that is,

they increase the fraction of their cash holdings in their liquidity management during the sovereign debt crisis and are less able to rely on secure funding from lines of credit. Note that the results in Table 3 show no significant relation between cash flow and the propensity to save cash out of these cash flows in the pre-crisis period. Hence, if firms become financially constrained during the sovereign debt crisis due to the lending behavior of their main banks, then firms with a high GIIPS bank dependence should also respond by adjusting their real activities.

Hence, we next turn to an analysis of how the sovereign debt crisis impacts corporate policies of borrowers. We estimate panel regression (see Eq. 1) where y_{it+1} measures employment growth ($\Delta \log$ Employment), investment (CAPX/Tangible Assets)⁶, or sales growth ($\Delta \log$ Sales), respectively. Table 4 presents the results. Columns (1)-(3) reveal that GIIPS bank dependent firms have significantly lower employment growth rates, cut investment by more, and experience larger sales growth reduction than firms which are less dependent on GIIPS banks. Columns (4)-(6) show that these results are robust to including interactions of country and year fixed effects. Based on the specifications in Columns (4)-(6), a one standard deviation increase in the GIIPS bank dependence of borrowing firms during the sovereign debt crisis leads to a 3.0 percentage point reduction in employment growth, a 4.9 percentage point decrease in capital expenditures, and a 3.6 percentage point decrease in sales growth. Lastly, the results reported in Columns (7)-(12) of Table 4 confirm the robustness of our results with respect to a measure of GIIPS bank dependence constructed from banks that act as lead arranger in the syndicated loans.

Perhaps the biggest challenge to our empirical analysis is the concern that, during the sovereign debt crisis, many firms were of course also directly affected by the macroeconomic downturn in the periphery of the Eurozone. While the inclusion of country-year fixed effects absorbs macroeconomic shocks that affect all firms in a given country in the same way, it of course does not rule out completely that our effects are at least partly driven by the overall recession in these countries. In particular, we have to rule out the possibility that the negative real effects are driven by the fact that a firm's dependency on GIIPS and non-GIIPS banks is determined by whether this firm has business in the respective countries. To address this issue, we collect information on all foreign and domestic subsidiaries of the borrowing firms in our sample and use information about the revenues

⁶Amadeus does not report capital expenditures. We construct a proxy for investments by the following procedure: $\frac{\text{Fixed Assets}_{t+1} - \text{Fixed Assets}_t + \text{Depreciation}}{\text{Fixed Assets}_t}$. We set CAPX to 0 if negative.

of foreign subsidiaries of borrowers to proxy for a firm's business activities abroad. Ideally, we would like to control for precise export/import dependence of our firms to specific countries. This data is, however, only available for a very small subsample of our firms in Amadeus, making it impossible to use export/import dependence at the firm level to control for the exposure to macroeconomic shocks. Therefore, we focus on revenues generated by subsidiaries. GIIPS firms with a larger fraction of their revenue generated by non-GIIPS subsidiaries should face a lower macroeconomic shock than firms with a larger fraction of their business in the affected countries. In Panel A of Table 5, we thus restrict our sample to GIIPS firms with an above median fraction of their revenue generated by non-GIIPS subsidiaries.⁷ For these firms it is plausible to assume that they have a relatively smaller macroeconomic shock compared to firms with more business in the periphery countries. This lower exposure to the overall crisis in the affected countries allows us to at least partially disentangle the shock that comes from the lending behavior of banks and the resulting funding uncertainty of borrowers from the overall macroeconomic shock. As can be seen in Panel A of Table 5, all results continue to hold for this subsample of GIIPS firms with an above median fraction of their revenue generated by foreign non-GIIPS subsidiaries. Looking at Panel B, we find weaker effects for GIIPS firms with a majority of their business in GIIPS countries, although the difference is in most cases not statistically significant. For these firms it seems plausible that both the crisis indicator as well as the country-year fixed effects absorb the dominating macro shock and that the bank lending channel is only a second order effect if firms are hit very hard by the crisis. Similarly, we restrict the sample to non-GIIPS firms without subsidiaries in a GIIPS country, thereby narrowing the sample to firms that are not directly affected by the macroeconomic shock. As Panel C of Table 5 shows, all results continue to hold, providing additional evidence that the decline in lending of banks, which are adversely affected by the sovereign crisis, has negative real effects for borrowing firms. Again, we find weaker effects for non-GIIPS firms with GIIPS subsidiaries (Panel D), indicating that for these firms the crisis dummy picks up the macroeconomic shock and that this effect is potentially stronger if a firm has a lot business in GIIPS countries, compared to the bank lending channel effect.

Given our sample construction process, we focus on the largest firms in each country and investigate their reaction to the credit contraction. This raises the concern of whether we are

⁷Focusing on firms with an above sample median fraction of their revenues generated by subsidiaries in countries with an above EU average GDP growth yields qualitatively similar results. Results are available upon request.

able to appropriately proxy for the change in the demand for credit since if anything these firms should be the ones with the smallest financing constraint in any given country. Moreover, these firms should be the ones which are best able to substitute their bank funding with other sources of funding. On the one hand, we might thus wrongly attribute changes in the demand for bank debt as a credit contraction. On the other hand, if this is not the case, our results would serve as lower bound for the bank lending effect in the entire economy, since smaller firms should be more severely affected given their lack of other alternative funding sources and the higher degree of opacity.

To rule out that our results are driven by a change in the demand for credit, we follow Sufi (2007) and split our sample into listed and non-listed firms. The assumption here is that non-listed firms have fewer alternative sources of funding, since they are not able to raise additional public equity or issue bonds implying that these firms are more bank dependent. Moreover, there is less publicly available information for these firms, requiring more monitoring and information collection on the banks' side. Overall, non-listed firms should thus be much more affected than listed firms which have potentially other sources of funding available. Indeed Becker and Ivashina (2014b) show that very large firms with access to alternative funding sources (e.g., bonds) are able to substitute the lack of funding from banks with these alternative funding sources.

Panel A of Table 6 presents the results for our subsample of non-listed firms, whereas results for the listed firms are presented in Panel B of Table 6. As can be seen from the Table our results continue to hold for the non-listed firms. For the listed firms, however, we do not find any evidence that these firms show the typical behavior of a financially constrained firm or that they have significantly negative real effects during the sovereign debt crisis. In line with the argument of Becker and Ivashina (2014b) these firms thus seem to be able to substitute the lack of bank financing with other funding sources, whereas non-listed/unrated firms cannot easily alter their funding sources. These results also help to rule out that our effects are driven by the fact that we are unable to capture the demand for debt financing appropriately.

Therefore, the paper shows, first, that there exist strong spillovers from high-spread euro area sovereigns to the local real economy through the bank lending channel. Second, the paper documents that there also exist significant cross-border spillovers from the sovereign debt crisis in GIIPS countries to firms in non-GIIPS countries that are also transmitted through the bank lending chan-

nel. Therefore, the paper is the first that is able to show that, while the Euro greatly benefits its members by deepening the degree of financial integration, the resulting extensive cross-border bank lending has facilitated the transmission of shocks across the Eurozone.

6. Active and passive transmission channels

Throughout the previous analysis, our measure of GIIPS bank dependence was determined by a bank's country of incorporation, which, broadly defined, captures a bank's exposure to sovereign risk. In this section, we shed more light on how sovereign credit risk is associated with the contraction of lending by banks incorporated in GIIPS countries and the resulting financial and real effects of borrowing firms during the sovereign debt crisis.

There are at least three channels through which banks might be affected by the sovereign debt crisis, one passive channel and two active ones. The passive channel works through the dramatic increase in credit risk of GIIPS sovereign debt during the sovereign debt crisis. Recent data published by the EBA show that banks generally have large direct holdings of domestic government debt. Therefore, the increase in risk of GIIPS sovereign debt directly translates into losses which weakened the asset side of GIIPS banks' balance sheet and as a result made these banks riskier. To cope with these losses, GIIPS banks might have to deleverage and reduce lending to the private sector. We call this the hit on balance sheet channel.

The active channels are the risk-shifting and the financial repression channel. The risk-shifting motive arises since, as default risk of GIIPS countries increases, highly levered banks have an incentive to increase their domestic sovereign debt holdings (Crosignani (2014)). This is due to the fact that these bonds are correlated with the banks' other sources of revenue and offer a comparatively high return in the good state of the world (when the sovereign is not in default), while the banks are protected by limited liability in case of a sovereign default. This risk-shifting mechanism might lead to a crowding-out of lending to the private sector.

Furthermore, an increase in domestic sovereign debt holdings may also be caused by financial repression (see Becker and Ivashina (2014b)). As the crisis peaked, governments from GIIPS countries face severe problems in refinancing their debt. In these cases, governments may turn to their domestic banks and force them to purchase domestic sovereign debt. Note that the

risk-shifting channel and the financial repression channel are both consistent with an increase in domestic sovereign debt holdings over the crisis period, which makes disentangling these two channels particularly challenging.

Since all of these channels are directly related to the sovereign bond holdings of banks and/or the risk of these holdings, we use the data disclosed by the EBA in its various stress tests and capital exercises. As discussed in Acharya and Steffen (forthcoming), the EBA, after taking over responsibilities from the Committee of European Banking Supervisors (CEBS), conducted stress tests to “ensure the orderly functioning and integrity of financial markets and the stability of the financial system in the EU.” The results from these stress tests include a precise breakdown of banks’ holdings of sovereign debt.⁸

To get a first idea about which of the channels is more important in our sample period, we explore graphically the evolution of sovereign debt exposure over time for various subsets of banks. To determine how much a bank is affected by the risk of its domestic and GIIPS sovereign portfolio, we use a similar measure as in Popov and Van Horen (forthcoming), and measure the dependency on domestic sovereign risk of bank j in year t as follows:

$$\text{Domestic Sovereign Debt Risk} = \frac{\text{Domestic Sov. Debt Holdings}_{jt} * \text{Domestic Sov. CDS}_t}{\text{Total Assets}_{j,t}}$$

and the dependency on GIIPS sovereign risk of bank j in year t as

$$\text{GIIPS Sovereign Debt Risk} = \frac{\sum_k \text{Sov. Debt Holdings}_{jkt} * \text{CDS}_{kt}}{\text{Total Assets}_{j,t}}$$

where

$$k \in \{\text{Greece, Italy, Ireland, Portugal, Spain}\}$$

Given that the sovereign debt holdings are multiplied with the respective CDS spreads, these measures do not only account for the amount of domestic and GIIPS sovereign debt holdings of the respective bank, but also for the risk associated with these holdings. In Figures 7 to 11, the

⁸The data is publicly available on the website of the EBA (<http://www.eba.europa.eu/Home.aspx>)

blue solid line shows the evolution of the sum of the respective banks' sovereign debt holdings scaled by the sum of banks' total assets at the end of the respective year. The red dashed line shows the sum of sovereign debt holdings multiplied by the sovereign's CDS spread as a fraction of the sum of total assets.

In particular, Figure 7 and 8 plot the evolution of GIIPS and domestic sovereign debt exposure over time, respectively, for banks incorporated in non-GIIPS countries (left graph) and GIIPS countries (right graph). The graphs clearly illustrate that, over our sample period, the risk unadjusted holdings have not increased, meaning that neither GIIPS nor non-GIIPS banks have significantly increased their holdings of GIIPS or domestic sovereign debt. However, risk associated with GIIPS and domestic bond holdings significantly increases for GIIPS banks, which follows from the considerable increase in the country-CDS weighted sovereign debt holdings. Therefore, GIIPS banks incurred significant losses, but, on average, did not significantly alter their sovereign bond holdings. This observation suggests that the balance sheet channel seems to be an important driver for our analysis.

However, even though GIIPS banks have not significantly increased their domestic sovereign debt holdings, we cannot rule out the risk-shifting channel and the financial repression channel. The fact that, in aggregate, the domestic sovereign debt holdings of GIIPS banks do not change is also consistent with banks in distress (i.e., those with high risk-shifting incentives) increasing their holdings, while other banks decrease their domestic sovereign debt holdings. Similarly, only those GIIPS banks that are very dependent on their governments might be pressured to increase their domestic sovereign holdings, while less dependent banks might not.

To investigate these possibilities, we look at the respective subsets of GIIPS banks separately. We start with the risk-shifting channel and plot the evolution of the domestic sovereign debt exposure over time separately for weakly and well-capitalized financial institutions, where we consider a GIIPS bank to be weakly-capitalized if its ratio between total equity to total assets (obtained from SNL Financial) at the end of 2009 is below the sample median. As can be seen from Figure 9, well-capitalized GIIPS banks did not alter their holdings of domestic sovereign debt from 2009 to 2011, while weakly-capitalized GIIPS banks indeed increased their holdings of domestic sovereign debt significantly by roughly 4 pp. This observation indicates that indeed risk-shifting might have played a role for the cutback in lending of highly leveraged banks. To

show the robustness of this finding, we use the banks' rating before the outbreak of the crisis (i.e., at the end of 2009) as an alternative measure of bank health. To determine the rating cutoff, we follow Drechsler *et al.* (2013) and use the ratings (obtained from Bloomberg) by the main rating agencies (Moody's, S&P, and Fitch). We then construct the median long-term unsecured credit rating by assigning a numerical value to each rating: 1 for AAA, 2 for AA+, and so on, and finally computing the median rating for each bank. This rating measure has the advantage that, in contrast to accounting-based measures, it is based on assessments by market participants. Figure 10 plots the evolution of the domestic sovereign debt exposure for high-rated GIIPS banks (left graph) and low-rated GIIPS banks (right graph), where we consider a GIIPS bank to be low-rated if its mean rating is below the A+ threshold. Results remain unchanged, which again supports the risk-shifting hypothesis.

Finally, we turn to the financial repression channel. Following Acharya and Steffen (forthcoming), we use data about government interventions compiled from information disclosed on the official EU state-aid websites⁹ to classify banks into intervened and non-intervened subsamples. The idea is that intervened banks are more prone to financial repression as the influence of regulators on these banks is arguably larger than for non-intervened banks. The results are depicted in Figure 11. The general conclusion emerging from the graphs is that intervened banks increased their sovereign debt holdings slightly more than non-intervened banks, which is consistent with the notion of financial repression.

So in summary, the observations from Figures 7 to 11 are consistent with the presence of a hit on balance sheet and a risk-shifting channel and to a lesser degree also with a financial repression channel. But how important are these different channels for the borrowers of these banks? To analyze this question, we next turn to how these different channels have impacted the lending activities of banks. To do so, we replicate the regressions reported in Table 2, where we use our different proxies of the bank lending channels.

Table 7, Columns (1) and (2) present the results of a panel regression for our proxies of the hit on balance sheet channel. Note that the unit of observation in the regression is a bank-year. We classify banks as affected if their CDS weighted holdings of domestic or GIIPS sovereign debt,

⁹The data can be obtained here: http://ec.europa.eu/competition/elojade/isef/index.cfm?clear=1policy_area_id=3.

respectively, are above the sample median. The coefficients of the sovereign risk dummy variables interacted with the crisis dummy variable are negative and significant, indicating that banks with larger sovereign risk in their portfolios reduced lending in the crisis period by a larger fraction than banks with lower sovereign risk exposure. Note that for most banks the majority of their sovereign debt holdings are domestic, which is why the coefficients for the domestic and GIIPS sovereign risk exposure measures are very similar in magnitude. This result demonstrates that the risk associated with the sovereign debt holdings and thus the losses incurred due to the sovereign debt crisis indeed play an important role for the lending behavior of banks.

Next, we check whether the reduction in bank lending is also driven by risk-shifting incentives, that is, whether weakly-capitalized GIIPS banks, which increased their domestic sovereign debt holdings during the sovereign crisis, also decreased their corporate lending. Results are presented in Column (3) and (4) of Table 7. Indeed weakly-capitalized GIIPS banks cut their lending to the real sector more than well-capitalized GIIPS, irrespective of how we proxy for risk-shifting incentives. This results thus suggest that the active increase in domestic sovereign debt holdings, shown in Figure 9 and 10, results in a crowding-out of lending to the private sector for weakly-capitalized GIIPS banks. Furthermore, Table 7 Column (5) presents results for the case where we distinguish between affected and non-affected banks based on whether a bank has received some form of financial aid by the government. The interaction of this indicator variable for an intervened GIIPS bank with the crisis dummy variable is negative but not statistically significant. This results is consistent with the notion that financial repression does not seem to play an important role for the banks' lending decision in our sample period.

Table 7, Columns (6) to (10) present results for panel regressions where the dependent variable is the spread of newly issued loans instead of the change in volume. Again, it seems that banks that are severely hit by the increase in sovereign risk are more reluctant to lend to the private sector as they significantly increase the loan spreads in the crisis period. Finally, Columns (11) to (15) show that the results for the average maturity point in the same direction.

To conclude, our results suggest that the balance sheet hit caused by the increase in sovereign risk and the risk-shifting channel are of first-order importance regarding the effect of the sovereign crisis on bank lending, while financial repression does not seem to drive the banks' lending behavior. But, we also note that our sample period ends in 2011 where the sovereign debt crisis was still

amplifying. Therefore, GIIPS banks might have engaged in even greater risk-shifting and/or might have been forced by their governments to buy domestic debt after this period. This interpretation is consistent with the findings in Crosignani (2014). He shows that the domestic sovereign debt holdings of banks in GIIPS countries remained relatively stable during the 2010 to 2011 period but started to pick up at the beginning of 2012. Furthermore, GIIPS governments might not have faced the need to pressure banks into buying more domestic sovereign debt since the weakly-capitalized banks did so anyway due to their risk-shifting incentives. Furthermore, it is also very likely that GIIPS governments encouraged this risk-shifting behavior or at least did not intervene to stop it.

Next, to analyze which of the channels contributed to financial and real effects of borrowing firms, we rerun our main panel regressions from, Eqs. (3) and (4). We construct several variables at the firm-year level, reflecting how much credit comes from affected banks in a given year, where we distinguish between affected and non-affected banks using the same proxies as in the Figures 7 to 11 and Table 7. This leads to the following proxy for firm i in year t :

$$\text{GIIPS Affected}_{it} = \frac{\sum_{\text{loans}_j} \% \text{Affected Banks in Syndicate} * \text{Loan}_{jit} * \text{Loan Amount}_{jit}}{\text{Total Loan Amount}_{it}}$$

Note that we can only derive this measure for the respective lead arrangers since we are not able to get data about the sovereign debt holdings of all participating banks, given the limited number of banks included in the stress test.

We start our analysis by looking at the passive bank lending channel, that is, whether the increase in sovereign risk that forced banks to deleverage and thus decrease their corporate lending, which, in turn, made the firms connected to these banks capital constraint. The results are presented in Table 8. In Panel A the affected indicator variable is equal to one if a bank's GIIPS sovereign portfolio credit risk exposure is above the sample median and in Panel B the domestic sovereign portfolio credit risk exposure is used to distinguish between affected and non-affected banks. The interaction term of affected bank indicator and Crisis is negative and significant for all dependent variables. Therefore, Panel A and Panel B show that the hit on the affected banks' balance sheets results in financial and real effects for firms that have a lending relationship with these banks.

Next, we check whether the active bank lending channels, that is, the risk-shifting and the financial repression channel lead to real effects for borrowing firms. Table 9 reports results for the real effects if we construct our affected variable using GIIPS banks' leverage (Panel A) or rating (Panel B), respectively. The results for both bank health proxies indicate that the real effects are much stronger for firms that have a lending relationship to a GIIPS bank that is weakly-capitalized and thus not able to cope with the losses caused by the sovereign crisis. These banks engage in risk-shifting by increasing their risky domestic sovereign holdings and thus decrease bank lending even more compared to well-capitalized GIIPS banks that can better manage the losses incurred due to the sovereign crisis. Finally, the results for the financial repression proxy are presented in Table 9, Panel C. The general picture emerging from this panel is that financial repression does not seem to impact the corporate policies of borrowing firms. This is consistent with the fact that financial repression does not significantly impact the lending behavior of banks in our sample.

As a last step, we investigate which of these channels is the most important driver for the negative real effects of borrowing firms. To do so we include proxies for all channels in one regression (Equations 3 and 4) to see which of them has a significant impact on the corporate policy of borrowers. Results are presented in Table 10. Panel A uses the leverage of banks as a proxy for risk-shifting incentives of GIIPS banks and additionally includes the CDS weighted sovereign holdings of GIIPS banks as a proxy for the severity of the hit on balance sheet channel. Moreover we include whether or not a banks received government support as a proxy for the financial repression channel. This specification suggests that the negative real effects of borrowing companies are mainly caused by risk-shifting incentives of highly leverages GIIPS banks.

In Panel B we replace the leverage-based risk-shifting proxy with our rating-based measure for risk shifting incentives. All other variables remain unchanged. Using this alternative specification suggests that the hit on balance sheet channel seems to be of first order importance for the negative real effects of corporate borrowers. But also here, although to a lesser degree, the risk-shifting incentives seem to play an important role.

Thus, overall, both the risk shifting and the hit on balance sheet channel seem to play a crucial role for the negative real effects documented in this paper, while we do not find evidence that financial repression has a significant impact on the corporate policy of borrowing firms.

7. Conclusion

This paper shows that the sovereign debt crisis and the resulting credit crunch in the periphery of the Eurozone have significant negative real effects for borrowing firms in Europe. We show that the sharp contraction in lending volume implies that firms with a high GIIPS bank dependence are financially constrained during the crisis and as a result have lower employment growth rates, lower levels of investment, and lower sales growth rates. This holds true for both GIIPS and non-GIIPS borrowers.

Moreover, we document that it is especially the hit on banks' balance sheet resulting from the large holdings of risky GIIPS debt as well as the risk shifting behavior of banks that causes these negative real effects for borrowing firms.

This paper is thus the first to provide cross-country evidence that negative spillovers from the sovereign to the banking sector were also transmitted into the real economy throughout Europe. Hence, the high interdependence of bank and sovereign health is one important contributor to the severe economic downturn in the southern European countries during the sovereign debt crisis.

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Appendix

Definition of Variables:

Dependent Variables:

- Net Debt: (Current + Non-Current Liabilities - Cash)/Total Assets, Source: Amadeus
- $\Delta Cash$: Change in firm's cash holdings, Source: Amadeus
- Employment Growth: Δ Log Employment, Source: Amadeus
- CAPX/Tangible Assets: $\frac{Fixed\ Assets_{t+1} - Fixed\ Assets_t + Depreciation}{Fixed\ Assets_t}$, set to 0 if negative, Source: Amadeus
- Sales Growth: Δ Log Sales, Source: Amadeus

Key Explanatory Variables:

- $GIIPS\ Exposure_{it} = \sum_{loans_j} \frac{\%GIIPS\ Banks\ in\ Syndicate_{jit} * Loan\ Amount_{jit}}{Loan\ Amount_{jit}}$
- $GIIPS\ Lead_{it} = \sum_{loans_j} \frac{\%Lead\ Arranger\ GIIPS\ Banks\ in\ Syndicate_{jit} * Loan\ Amount_{jit}}{Loan\ Amount_{jit}}$

Control Variables (all winsorized at the 5% level):

- Bond outstanding: Indicator variable equal to one if firm has bonds outstanding, zero else, Source: CapIQ
- ln(Assets): Natural logarithm of total assets, Source: Amadeus
- Leverage: (Total Assets - Total Equity)/Total Assets, Source: Amadeus
- Net Worth: (Total shareholder funds & Liabilities - Current & Non-Current Liabilities - Cash)/Total Assets, Source: Amadeus
- Tangibility: Fixed Assets/Total Assets, Source: Amadeus
- Interest Coverage Ratio: EBIT/Interest Expense, Source: Amadeus
- EBITDA/Assets: EBITDA scaled by Total Assets, Source: Amadeus
- Cash Flow: Cash flow/Total Assets, Source: Amadeus

Figure 1 shows the evolution of aggregate lending volume in the syndicated loan market for GIIPS and non-GIIPS countries

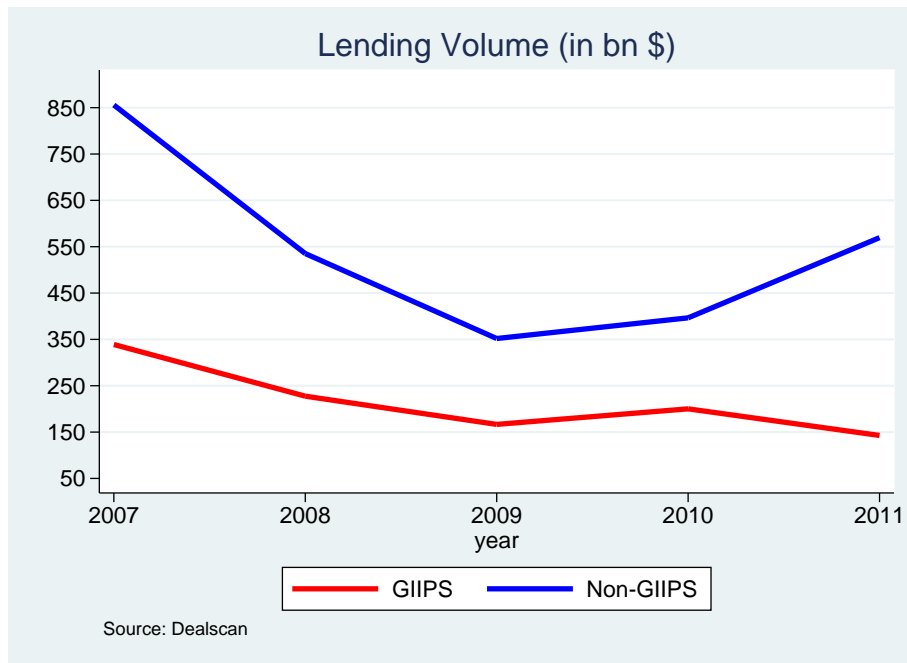


Figure 2 shows employment growth rates for firms with high and low GIIPS exposure. We consider all loans in Dealscan to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.

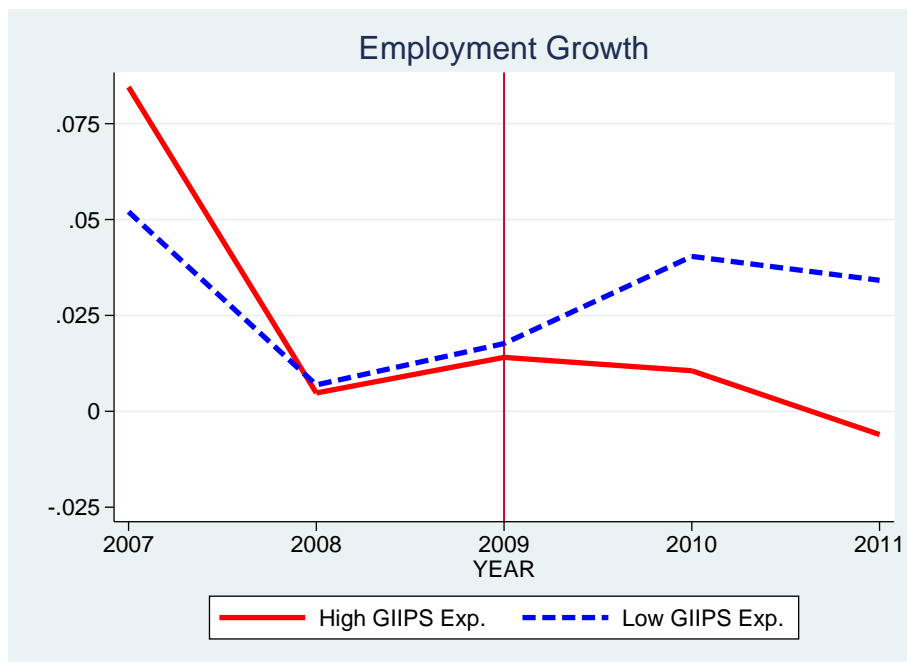


Figure 3 shows capital expenditures as a fraction of tangible assets for firms with high and low GIIPS exposure. We consider all loans in Dealscan to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.

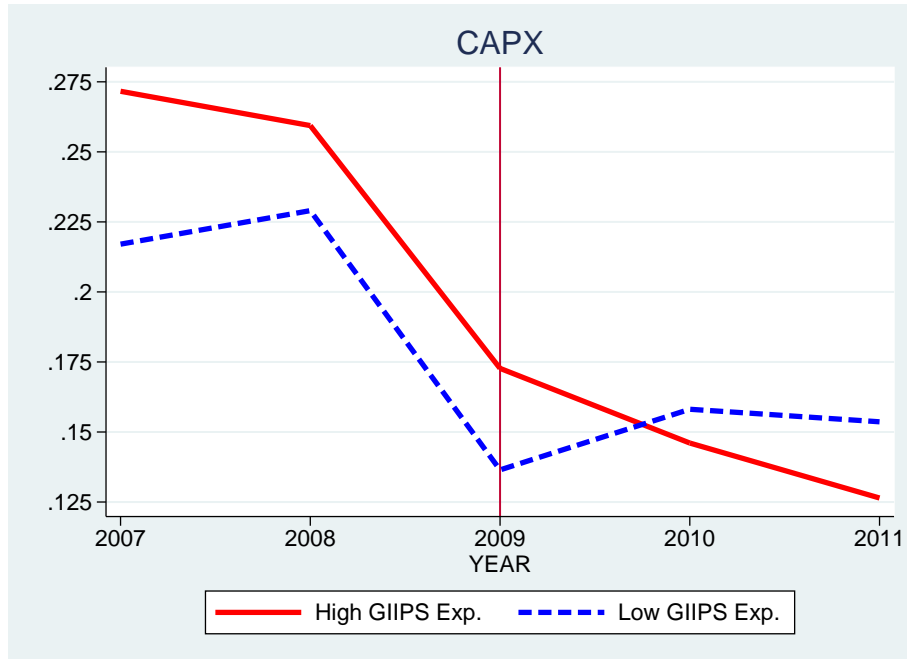


Figure 4 shows sales growth for firms with high and low GIIPS exposure. We consider all loans in Dealscan to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.

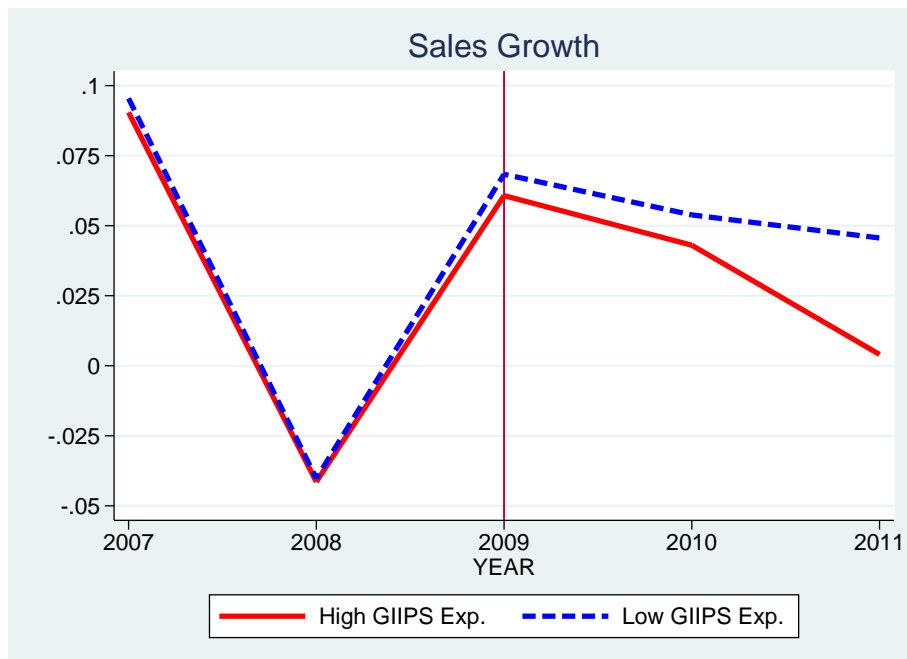


Figure 5 shows a firms total outstanding credit lines as a fraction of credit lines plus cash holdings. We consider all loans in the intersection of Dealscan, Amadeus and CapIQ to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.

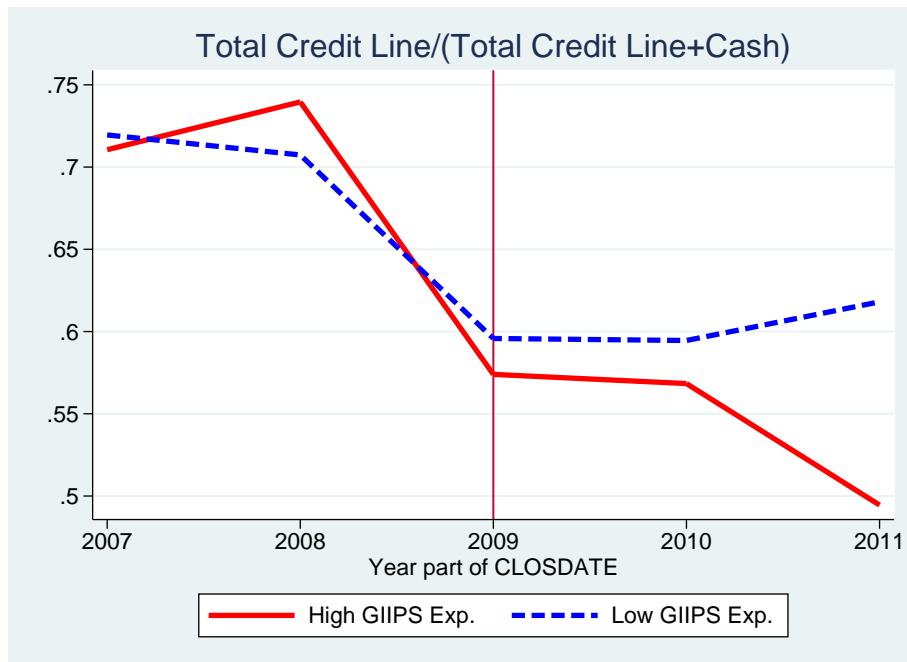


Figure 6 shows a firms undrawn credit lines as a fraction of undrawn credit lines plus cash holdings. We consider all loans in the intersection of Dealscan, Amadeus and CapIQ to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.

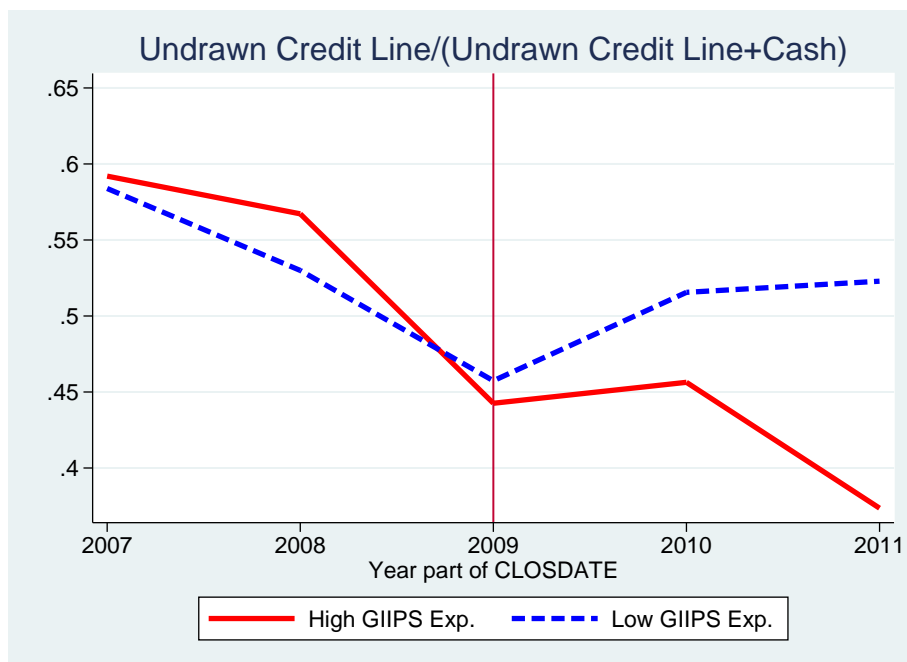


Figure 7 plots the aggregated GIIPS sovereign debt holdings of banks (solid blue line, left axis, as a fraction of total assets) and the aggregated GIIPS sovereign debt holdings by banks multiplied by the CDS spread of the respective GIIPS country (dashed red line, right axis, as a fraction of total assets). GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy. Non-GIIPS banks consists of banks headquartered in France, Germany, and UK. Sovereign debt holdings are from EBA. We compile total assets from SNL Financial and CDS spreads from Datastream. CDS spreads are measured at the end of the preceding year.

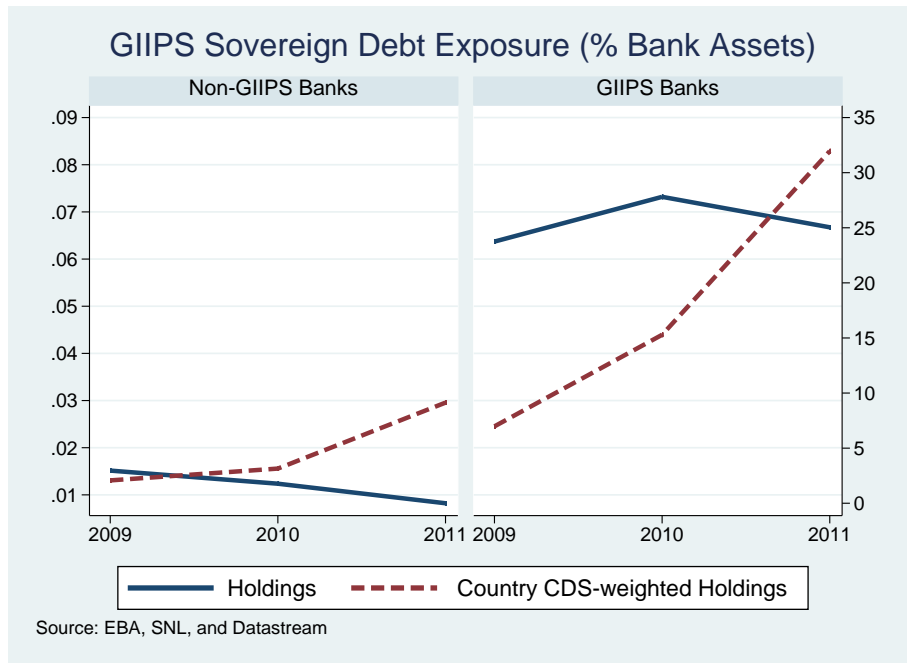


Figure 8 plots the aggregated domestic sovereign debt holdings of banks (solid blue line, left axis, as a fraction of total assets) and the aggregated domestic sovereign debt holdings by banks multiplied by the CDS spread of the respective GIIPS country (dashed red line, right axis, as a fraction of total assets). GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy. Non-GIIPS banks consists of banks headquartered in France, Germany, and UK. Sovereign debt holdings are from EBA. We compile total assets from SNL Financial and CDS spreads from Datastream. CDS spreads are measured at the end of the preceding year.

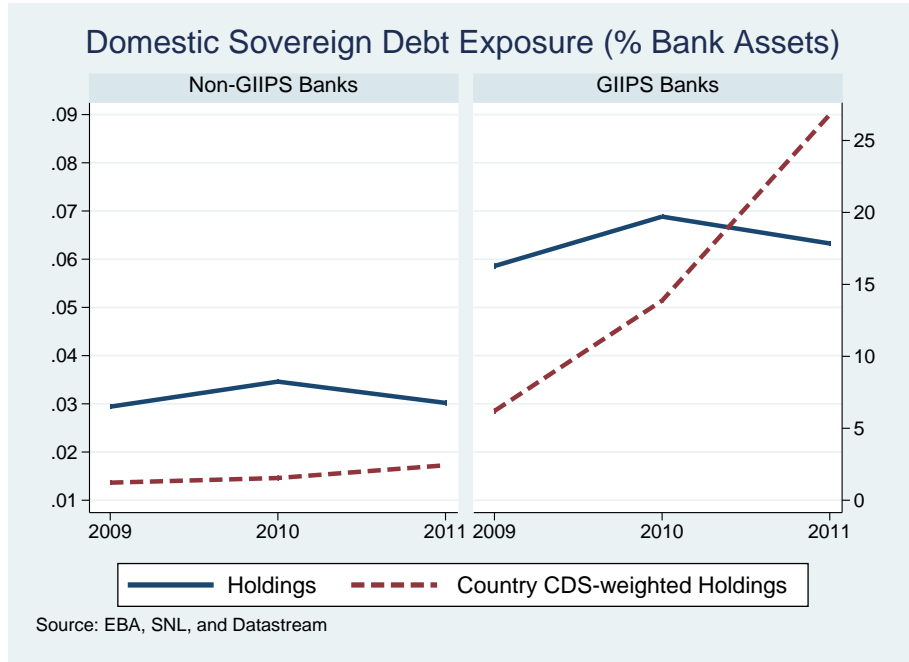


Figure 9 plots the aggregated domestic sovereign debt holdings by domestic banks (solid blue line, left axis, as a fraction of total assets) and the aggregated domestic sovereign debt holdings by domestic banks multiplied by the CDS spread of the banks home country (dashed red line, right axis, as a fraction of total assets). High Leverage GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that have a below median ratio of total equity to total assets. Low Leverage GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that have an above median ratio of total equity to total assets. Sovereign debt holdings are from EBA. We compile total assets from SNL Financial and CDS spreads from Datastream. CDS spreads are measured at the end of the preceding year.

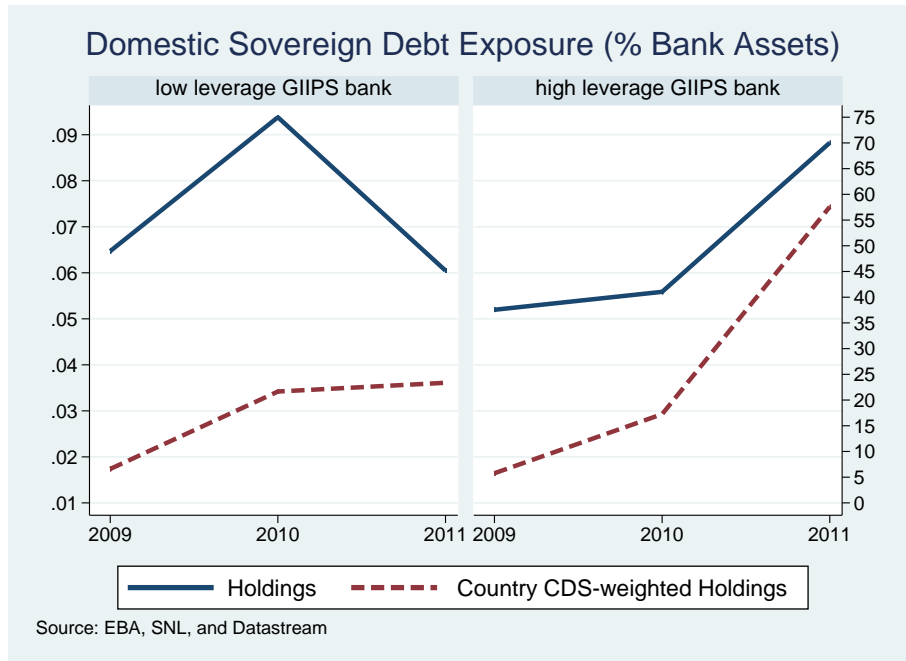


Figure 10 plots the aggregated domestic sovereign debt holdings by domestic banks (solid blue line, left axis, as a fraction of total assets) and the aggregated domestic sovereign debt holdings by domestic banks multiplied by the CDS spread of the banks home country (dashed red line, right axis, as a fraction of total assets). Low rating GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that have a rating of A+ or lower. High rating GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that have a rating of AA- or better. Sovereign debt holdings are from EBA. We compile total assets from SNL Financial and CDS spreads from Datastream. CDS spreads are measured at the end of the preceding year.

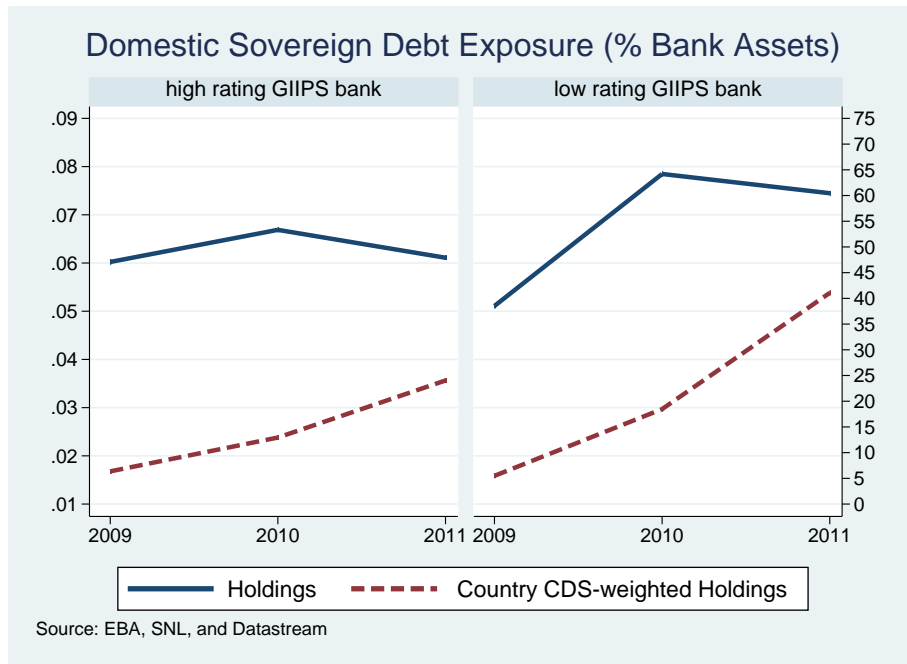


Figure 11 plots the aggregated domestic sovereign debt holdings by domestic banks (solid blue line, left axis, as a fraction of total assets) and the aggregated domestic sovereign debt holdings by domestic banks multiplied by the CDS spread of the banks home country (dashed red line, right axis, as a fraction of total assets). Intervened GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that received government support during the crisis. Non-intervened GIIPS banks comprise all banks headquartered in Greece, Ireland, Portugal, Spain, and Italy that did not receive government support during the crisis. Sovereign debt holdings are from EBA. We compile total assets from SNL Financial and CDS spreads from Datastream. CDS spreads are measured at the end of the preceding year.

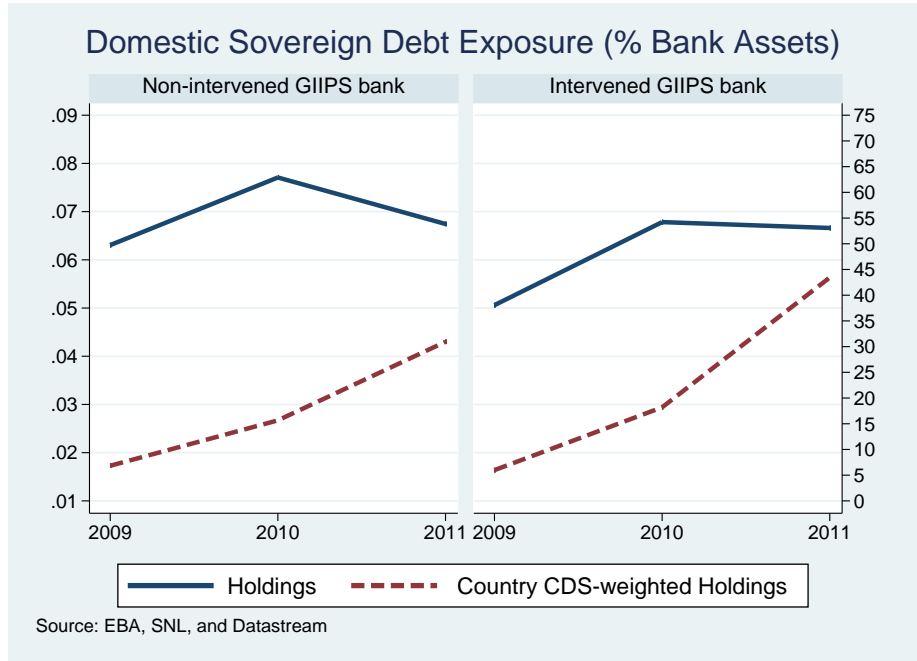


Table 1: Descriptive Statistics

		Before Crisis						Crisis					
		Emp Growth	CAPX/Assets	Sales Growth	Net Debt	Emp Growth	CAPX/Assets	Sales Growth	Net Debt	Emp Growth	CAPX/Assets	Sales Growth	Net Debt
High GIIPS Exposure	Mean	0.053	0.243	0.058	0.745	0.010	0.156	0.056	0.696				
	Median	0.02	0.106	0.048	0.718	0	0.072	0.041	0.683				
	Std. Dev.	0.167	0.369	0.258	0.289	0.146	0.274	0.233	0.282				
Low GIIPS Exposure	Mean	0.037	0.245	0.056	0.643	0.021	0.177	0.062	0.615				
	Median	0.021	0.11	0.055	0.620	0.014	0.09	0.055	0.591				
	Std. Dev.	0.150	0.373	0.221	0.305	0.146	0.281	0.210	0.292				
Diff-in-Diff.						-0.027 (4.28)	-0.019 (2.01)	-0.010 (3.32)	-0.021 (2.07)				

		Before Crisis						Crisis					
		Total Assets	Tangibility	Int. Cov.	Net Worth	EBITDA/Assets	Leverage	Total Assets	Tangibility	Int. Cov.	Net Worth	EBITDA/Assets	Leverage
High GIIPS Exposure	Mean	5210	0.569	2.87	0.200	0.095	0.652	4940	0.587	2.65	0.200	0.082	0.655
	Median	478	0.612	1.40	0.179	0.092	0.673	348	0.626	1.18	0.189	0.079	0.663
	Std. Dev.	17700	0.267	4.27	0.190	0.074	0.204	19700	0.269	4.32	0.210	0.074	0.217
Low GIIPS Exposure	Mean	4950	0.543	3.76	0.247	0.111	0.570	4210	0.552	4.00	0.249	0.100	0.570
	Median	543	0.562	1.80	0.247	0.103	0.570	407	0.575	1.82	0.247	0.097	0.558
	Std. Dev.	16700	0.266	5.00	0.220	0.082	0.214	17300	0.271	5.25	0.233	0.080	0.222
Normalized Diff.		0.02	0.06	0.11	0.16	0.12	0.25						

		GIIPS Borrowers						Non-GIIPS Borrowers					
		2006	2007	2008	2009	2010	2011	2006	2007	2008	2009	2010	2011
GIIPS Exposure	Mean	0.593	0.594	0.630	0.677	0.691	0.640	0.069	0.070	0.071	0.071	0.073	0.071
	Median	0.514	0.631	0.640	0.706	0.719	0.650	0	0	0	0	0	0
	Std. Deviation	0.287	0.290	0.273	0.274	0.274	0.279	0.118	0.123	0.118	0.118	0.122	0.115
GIIPS Lead	Mean	0.486	0.470	0.501	0.487	0.507	0.519	0.175	0.174	0.183	0.216	0.221	0.271
	Median	0.5	0.5	0.5	0.5	0.5	0.445	0	0	0	0	0	0
	Std. Deviation	0.421	0.426	0.434	0.438	0.432	0.418	0.339	0.340	0.348	0.373	0.367	0.383

Table 2: Lending Volume and Spread

Table (2) presents bank level regressions. The dependent variable is the change in a bank's volume of new loans issued (Columns 1-3), the average loan spread (Columns 4-7), or the average maturity of all newly issued loans (Columns 8-9), respectively. GIIPS Bank is an indicator variable for banks incorporated in a GIIPS country. Crisis is an indicator variable equal to one starting in 2010 (beginning of sovereign debt crisis). Log(Assets) is the logarithm of a bank's total assets. Capital Ratio is the ratio of a bank's equity to total assets. Standard errors are adjusted for heteroskedasticity and clustered at the bank level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Δ Volume	Δ Volume	Δ Volume	Spread	Spread	Spread	Spread	Maturity	Maturity
GIIPS Bank	0.105 (1.31)			32.856 (1.58)					
GIIPS Bank*Crisis	-0.594*** (-3.72)	-0.827*** (-4.50)	-0.756** (-2.03)	59.663** (2.53)	58.897** (2.39)	156.512*** (4.42)	86.169*** (2.90)	-0.141** (-2.39)	-0.173** (-2.03)
Crisis	-0.295* (-1.74)	-0.426* (-1.76)	0.586 (1.46)	101.355*** (5.56)	65.686*** (3.25)	-97.125** (-2.31)	9.599 (0.29)	-0.311*** (-5.20)	-0.284*** (-3.00)
Log(Assets)		0.171 (0.54)	0.357 (1.39)		-55.625 (-1.17)	-19.080 (-0.39)	-13.597 (-0.29)	0.066 (0.96)	0.058 (0.91)
Capital Ratio		-0.024 (-0.37)	0.038 (0.50)		-16.267** (-2.18)	-14.730 (-1.58)	-1.492 (-0.09)	0.035** (2.03)	0.029 (1.34)
Average Maturity							-34.612 (-0.76)		
Year Fixed Effects	YES	YES	NO	YES	YES	NO	NO	YES	NO
Country Fixed Effects	YES	NO	NO	YES	NO	NO	NO	NO	NO
Bank Fixed Effects	NO	YES	YES	NO	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	YES	NO	NO	YES	YES	NO	YES
R2	0.082	0.127	0.284	0.337	0.345	0.555	0.581	0.312	0.523
N	739	491	491	258	219	219	210	490	490

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Main Results: Financials

Table (3) presents firm level regressions. The dependent variables are net debt, the change in cash holdings, credit lines as a fraction of credit lines and cash, and undrawn credit lines as a fraction of undrawn credit lines and cash, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Greece, Italy, Portugal, Spain, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries) for the net debt and cash flow regressions and firms in the intersection of Dealscan, Amadeus, and CapIQ for the credit line regressions. GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. GIIPS Lead is defined as fraction of total outstanding loans with GIIPS lead arrangers. Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. Firm control variables include the logarithm of total assets, tangibility, interest coverage ratio, EBITDA as a fraction of total assets, and for the cash regressions, a firm's cash flow, leverage and capital expenditures. Standard errors are adjusted for heteroskedasticity and clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Net Debt	Δ Cash	Net Debt	Δ Cash	$\frac{CreditLine}{CreditLine+Cash}$	$\frac{UndrawnCreditLine}{UndrawnCreditLine+Cash}$	Net Debt	Δ Cash	Net Debt	Δ Cash	$\frac{CreditLine}{CreditLine+Cash}$	$\frac{UndrawnCreditLine}{UndrawnCreditLine+Cash}$
GIIPS Exposure	0.032 (0.48)	0.016 (0.73)	0.039 (0.57)	0.005 (0.23)	0.422 (1.27)	0.501 (1.09)						
GIIPS Exposure*Crisis	-0.047** (-2.33)	-0.004 (-0.69)	-0.074* (-1.91)	-0.003 (-0.29)	-0.482*** (-3.73)	-0.540*** (-3.47)						
GIIPS Lead							0.064 (1.28)	0.012 (0.55)	0.079 (1.51)	0.006 (0.26)	0.452 (1.38)	0.147 (0.36)
GIIPS Lead*Crisis							-0.076*** (-2.80)	-0.007 (-0.80)	-0.098*** (-2.83)	-0.007 (-0.81)	-0.229* (-1.86)	-0.467*** (-2.90)
Cash Flow*GIIPS Exposure		-0.010 (-0.36)		-0.013 (-0.46)								
Cash Flow*GIIPS Exposure*Crisis		0.110*** (3.67)		0.111*** (3.71)								
Cash Flow*GIIPS Lead										-0.050 (-1.39)		
Cash Flow*GIIPS Lead*Crisis										0.095*** (2.59)		
Crisis	-0.004 (-0.20)	0.006* (1.66)	0.207*** (3.53)	-0.023 (-0.40)	0.255 (1.14)	0.157 (1.59)	-0.005 (-0.18)	0.010* (1.87)	0.069* (1.74)	0.148** (2.34)	-0.436*** (-6.86)	-0.555*** (-4.45)
Firm Controls	YES	YES	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	YES	YES	YES	YES	NO	NO	YES	YES	YES	YES
R2	0.228	0.098	0.238	0.111	0.332	0.237	0.252	0.100	0.267	0.112	0.325	0.268
N	5629	4668	5629	4668	597	597	4280	3593	4280	3593	478	478

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 4: Main Results: Real Effects

Table (4) presents firm level regressions. The dependent variables are employment growth, capital expenditures, and sales growth, respectively. The sample consists of all firms in the intersection of DealScan and Amadeus and located in the following countries: Greece, Italy, Portugal, Spain, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries). GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. GIIPS Lead is defined as fraction of total outstanding loans with GIIPS lead arrangers. Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. Firm control variables include the logarithm of total assets, leverage, net worth, tangibility, interest coverage ratio, and EBITDA as a fraction of total assets. All regressions include firm and year fixed effect, Columns (4)-(6) and (10)-(12) additionally include country*year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Emp. Growth	CAPX	Sales Growth	Emp. Growth	CAPX	Sales Growth	Emp. Growth	CAPX	Sales Growth	Emp. Growth	CAPX	Sales Growth
GIIPS Exposure	0.080 (1.18)	0.119 (0.97)	-0.038 (-0.49)	0.082 (1.19)	0.123 (0.96)	-0.012 (-0.15)						
GIIPS Exposure*Crisis	-0.081*** (-4.48)	-0.136*** (-4.14)	-0.069** (-2.51)	-0.095*** (-2.82)	-0.154** (-2.53)	-0.117** (-2.23)						
GIIPS Lead							0.052 (1.32)	0.112 (1.37)	-0.015 (-0.24)	0.043 (1.02)	0.096 (1.13)	0.007 (0.11)
GIIPS Lead*Crisis							-0.082*** (-3.98)	-0.142*** (-3.53)	-0.091*** (-2.83)	-0.073*** (-2.86)	-0.147*** (-2.98)	-0.117*** (-3.04)
Crisis	-0.014 (-0.99)	0.025 (0.99)	-0.049*** (-2.67)	0.163* (1.92)	0.305** (2.26)	0.363** (2.29)	-0.005 (-0.31)	0.022 (0.61)	-0.061** (-2.56)	0.220*** (4.78)	0.266 (0.96)	-0.552*** (-5.92)
Firm Controls	YES	YES	YES	NO	NO	NO	YES	YES	YES	NO	NO	NO
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	NO	YES	YES	YES	NO	NO	NO	YES	YES	YES
R2	0.069	0.312	0.165	0.084	0.321	0.185	0.083	0.300	0.175	0.101	0.309	0.198
N	4778	5461	5281	4778	5461	5281	3637	4164	4061	3637	4164	4061

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 5: Subsidiaries

Table (5) presents firm level regressions. The dependent variables are employment growth, capital expenditures, sales growth, net debt, and change in cash holdings, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Italy, Spain, Greece, Portugal, and Ireland (GIIPS) which have an above sample median fraction of their revenues generated by non-GIIPS subsidiaries (Panel A), and which have a below median fraction of their revenue generated by non-GIIPS subsidiaries (Panel B) as well as Germany, France, and U.K. (non-GIIPS) that do not have any foreign subsidiary in a GIIPS country (Panel C) and which have a foreign GIIPS subsidiary (Panel D). GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. GIIPS Lead is defined as fraction of total outstanding loans with GIIPS lead arrangers. Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. All regressions include firm, year, and country*year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

Panel A: GIIPS Firms with high fraction of revenue generated by non-GIIPS subsidiaries						
	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Loan Volume	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
GIIPS Bank*Crisis	-0.821** (-2.61)					
GIIPS Lead*Crisis		-0.127** (-2.14)	-0.283*** (-2.78)	-0.133** (-2.23)	-0.163** (-2.38)	-0.003 (-0.22)
Cash Flow*GIIPS Lead*Crisis						0.137** (2.33)
R2	0.167	0.202	0.283	0.372	0.310	0.272
N	313	318	356	355	363	322
Panel B: GIIPS Firms with low fraction of revenue generated by non-GIIPS subsidiaries						
GIIPS Bank*Crisis	-0.726** (-2.45)					
GIPSI Lead*After		-0.047 (-1.65)	-0.050 (-0.98)	-0.082* (-1.72)	-0.066* (-1.96)	-0.009 (-0.79)
Cash Flow*GIPSI Lead*After						0.158** (2.54)
R2	0.109	0.177	0.378	0.272	0.372	0.150
N	352	770	877	819	895	709
T-Test for Diff. Interaction		1.52	2.07	0.66	1.26	0.24
Panel C: non-GIIPS firms without GIIPS subsidiaries						
GIIPS Bank*Crisis	-0.703*** (-3.49)					
GIIPS Lead*Crisis		-0.469*** (-4.94)	-0.522*** (-4.07)	-0.566*** (-2.95)	-0.542** (-2.01)	-0.053 (-0.69)
Cash Flow*GIIPS Lead*Crisis						0.339*** (9.17)
R2	0.381	0.109	0.311	0.190	0.250	0.136
N	225	1270	1531	1490	1603	1308
Panel D: non-GIIPS firms with GIIPS subsidiaries						
GIIPS Bank*Crisis	-0.553** (-2.17)					
GIPSI Lead*Crisis		-0.163*** (-2.88)	-0.040 (-0.42)	-0.113 (-1.08)	-0.030 (-0.44)	-0.087** (-2.01)
Cash Flow*GIPSI Lead*Crisis						0.867** (2.47)
R2	0.267	0.090	0.366	0.191	0.301	0.124
N	236	1198	1317	1316	1332	1190
T-Test for Diff. Interaction		2.75	3.02	2.07	1.84	1.50

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 6: Listed vs. Non-Listed Firms

Table (6) presents firm level regressions. The dependent variables are employment growth, capital expenditures, sales growth, net debt, and change in cash holdings, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries) that are not publicly listed (Panel A) and that are publicly listed (Panel B). GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. GIIPS Lead is defined as fraction of total outstanding loans with GIIPS lead arrangers. Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. All regressions include firm, year, and country*year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

Panel A: Non-Listed Firms						
	(1)	(2)	(3)	(4)	(5)	(6)
	Δ Loan Volume	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
GIIPS Bank*Crisis	-0.512** (-2.58)					
GIIPS Lead		0.114 (1.12)	-0.041 (-0.24)	-0.023 (-0.17)	0.082 (0.86)	0.034 (1.12)
GIIPS Lead*Crisis		-0.064** (-2.39)	-0.120** (-2.43)	-0.105** (-2.45)	-0.076** (-2.25)	0.000 (0.03)
Cash Flow*GIIPS Lead*Crisis						0.090* (1.84)
R2	0.126	0.240	0.434	0.320	0.390	0.232
N	391	1973	2454	2370	2547	2022
Panel B: Listed Firms						
GIIPS Bank*Crisis	-0.518*** (-3.13)					
GIIPS Lead		0.158* (1.86)	0.245 (1.29)	0.082 (0.78)	0.090 (1.06)	-0.006 (-0.18)
GIIPS Lead*Crisis		-0.062 (-1.38)	-0.107 (-1.52)	-0.107 (-1.58)	-0.067 (-1.63)	-0.001 (-0.06)
Cash Flow*GIIPS Lead*Crisis						0.007 (0.20)
R2	0.126	0.336	0.490	0.399	0.474	0.286
N	414	1664	1710	1691	1733	1571

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 7: Bank Lending

Table (7) presents bank level regressions. The dependent variable is the change in a bank's volume of new loans issued (Columns 1-5), the average loan spread (Columns 6-10), or the average maturity of all newly issued loans (Columns 11-15), respectively. We classify banks as affected if their CDS weighted holdings of GIIPS sovereign debt are above the sample median (Columns 1, 6, and 11), if their CDS weighted holdings of domestic sovereign debt are above the sample median (Columns 2, 7, and 12), if a bank has a below median equity ratio in 2009 (high leverage) (total equity/total assets) (split separately for GIIPS and non-GIIPS banks) (Columns 3, 8, and 13), if a bank has a rating of A+ or lower in 2009 (low rating) (Columns 4, 9, and 14), or if a firm received government support (Columns 5, 10, and 15). Crisis is an indicator variable equal to one starting in 2010 (beginning of sovereign debt crisis). Log(Assets) is the logarithm of a bank's total assets. Capital Ratio is the ratio of a bank's equity to total assets. All regressions include bank and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the bank level.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
	Δ Volume	Δ Volume	Δ Volume	Δ Volume	Δ Volume	Spread	Spread	Spread	Spread	Spread	Maturity	Maturity	Maturity	Maturity	Maturity
CDS Weighted GIIPS Sov. Debt Holdings*Crisis	-0.520** (-2.31)					83.911*** (4.96)					-0.234*** (-2.98)				
CDS Weighted Domestic Sov. Debt Holdings*Crisis		-0.616*** (-2.75)					77.003*** (4.04)					-0.270*** (-3.49)			
High Leverage GIIPS*Crisis			-0.570* (-1.67)					106.419*** (3.38)					0.155 (0.87)		
Low Rating GIIPS*Crisis				-0.659** (-2.15)					86.167** (2.15)					-0.334*** (-3.20)	
GIIPS Gov. Intervention*Crisis					-0.294 (-0.86)					51.447 (1.25)					-0.143 (-0.91)
GIIPS*Crisis			-0.252 (-1.34)	-0.381** (-2.18)	-0.305 (-1.50)			42.005** (2.27)	44.692** (2.25)	48.700* (1.89)			-0.315*** (-3.08)	-0.089 (-1.24)	-0.168* (-1.71)
Crisis	0.206 (0.69)	0.229 (0.77)	0.218 (0.81)	0.117 (0.51)	0.175 (0.64)	36.171*** (2.94)	42.527*** (3.25)	43.542** (2.59)	35.058*** (2.71)	30.281* (1.85)	-0.242*** (-3.08)	-0.233*** (-3.01)	-0.089 (-1.36)	-0.137 (-1.50)	-0.273*** (-3.77)
Log(Assets)	-0.767* (-1.72)	-0.737* (-1.70)	-0.781* (-1.79)	-0.443 (-1.21)	-0.707* (-1.77)	-11.552 (-0.56)	-13.854 (-0.67)	-26.486 (-1.24)	-7.042 (-0.31)	-10.720 (-0.42)	0.053 (0.36)	0.066 (0.44)	-0.117 (-1.17)	-0.210*** (-2.76)	0.091 (0.64)
Capital Ratio	-0.023 (-0.28)	-0.027 (-0.33)	0.002 (0.03)	-0.028 (-0.47)	-0.038 (-0.61)	-6.414 (-0.58)	-7.850 (-0.72)	3.997 (0.43)	-5.056 (-0.48)	-8.101 (-0.82)	0.058*** (3.58)	0.056*** (3.44)	0.030 (1.26)	0.033* (1.71)	0.055*** (3.54)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Bank Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R2	0.181	0.187	0.215	0.246	0.221	0.446	0.430	0.503	0.470	0.451	0.465	0.475	0.451	0.492	0.475
N	258	258	253	247	258	145	145	143	139	145	299	299	252	246	307

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 8: Passive Channel: Hit on balance sheet

Table (8) presents firm level regressions. The dependent variables are employment growth, capital expenditures, sales growth, net debt, and the change in cash holdings, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus that are located in the following countries: Greece, Italy, Portugal, Spain, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries), which have a lending relationship to a bank that was part of the EBA stress tests. CDS weighted GIIPS sov. debt holdings (Panel A) and CDS weighted domestic sov. debt holdings (Panel B) measure the fraction of affected lead arrangers based on the risk-adjusted sovereign and domestic debt holdings of banks in a firm's syndicate, respectively. Crisis is an indicator variable equal to one starting in 2010 (beginning of sovereign debt crisis). All regressions include firm, and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

Panel A:

	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
CDS weighted GIIPS sov. debt holdings*Crisis	-0.052** (-2.32)	-0.076** (-1.97)	-0.072** (-2.13)	-0.074** (-2.54)	-0.007 (-0.70) 0.138** (2.49)
CDS weighted GIIPS sov. debt holdings*Crisis*Cash Flow					
R2	0.101	0.314	0.199	0.262	0.116
N	3503	4003	3901	4114	3450

Panel B:

	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
CDS weighted domestic sov. debt holdings*Crisis	-0.048** (-2.13)	-0.064* (-1.68)	-0.073** (-2.15)	-0.069** (-2.41)	-0.007 (-0.68)
CDS weighted domestic sov. debt holdings*Cash Flow*Crisis					0.134** (2.46)
R2	0.101	0.314	0.199	0.261	0.116
N	3503	4003	3901	4114	3450

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9: Active Channel: Risk Shifting and Financial Repression

Table (9) presents firm level regressions. The dependent variables are employment growth, capital expenditures, sales growth, net debt, and the change in cash holdings, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Greece, Italy, Portugal, Spain, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries), with a lending relationship to a bank that was part of the EBA stress tests. GIIPS measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country and High Leverage GIIPS (Low Rating GIIPS) the fraction provided by high leverage (low rating) banks incorporated in a GIIPS country. A bank is considered highly leveraged if its ratio of total equity to total assets is below the sample median in 2009 (separate median split for GIIPS and non-GIIPS banks) (Panel A) and it is considered to have a low rating if its rating is A+ or lower in 2009 (Panel B). Gov. Intervention measures the fraction provided by lead arrangers that received government support during the crisis (Panel C). Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. All regressions include firm, and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

Panel A: Risk Shifting					
	(1)	(2)	(3)	(4)	(5)
	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
High Leverage GIIPS*Crisis	-0.102** (-2.08)	-0.178** (-2.37)	-0.113* (-1.73)	-0.085 (-1.42)	0.005 (0.31)
GIIPS*Crisis	-0.037* (-1.87)	-0.069* (-1.84)	-0.062** (-2.20)	-0.027 (-1.11)	-0.004 (-0.50)
High Leverage*Crisis	0.031 (1.21)	0.044 (1.31)	0.044 (1.64)	-0.005 (-0.18)	0.007 (0.77)
High Leverage GIIPS*Crisis*Cash Flow					0.143** (2.56)
High Leverage*Crisis*Cash Flow					-0.001 (-0.07)
GIIPS*Crisis*Cash Flow					0.018 (0.69)
R ²	0.105	0.310	0.208	0.266	0.122
N	3573	4094	3996	4211	3533
Panel B: Risk Shifting					
Low Rating GIIPS*Crisis	-0.189* (-1.84)	-0.311** (-2.56)	-0.257*** (-2.67)	-0.379** (-2.41)	-0.043 (-1.31)
GIIPS*Crisis	-0.049*** (-2.76)	-0.071** (-2.09)	-0.067** (-2.53)	-0.034 (-1.57)	-0.003 (-0.50)
Low Rating*Crisis	0.071 (0.83)	0.200 (1.34)	0.115 (1.19)	0.337** (2.46)	0.057** (2.22)
Low Rating GIIPS*Crisis*Cash Flow					0.314** (2.10)
Low Rating*Crisis*Cash Flow					-0.080 (-0.88)
GIIPS*Crisis*Cash Flow					0.033 (1.28)
R ²	0.103	0.308	0.207	0.266	0.121
N	3573	4094	3996	4211	3533
Panel C: Financial Repression					
GIIPS Gov. Intervention*Crisis	0.038 (0.82)	0.024 (0.38)	0.017 (0.30)	0.000 (0.01)	0.001 (0.04)
Gov. Intervention*Crisis	-0.022 (-1.11)	-0.030 (-1.13)	-0.020 (-0.83)	-0.012 (-0.49)	-0.008 (-1.09)
GIIPS*Crisis	-0.075*** (-2.94)	-0.099** (-2.47)	-0.087** (-2.57)	-0.048 (-1.53)	-0.008 (-0.78)
GIIPS Gov. Intervention*Crisis*Cash Flow					0.035 (0.53)
Gov. Intervention*Crisis*Cash Flow					0.013 (0.75)
GIIPS*Crisis*Cash Flow					0.065* (1.69)
R ²	0.105	0.308	0.207	0.266	0.120
N	3573	4094	3996	4211	3533

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 10: Horse Race

Table (10) presents firm level regressions. The dependent variables are employment growth, capital expenditures, sales growth, net debt, and the change in cash holdings, respectively. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Greece, Italy, Portugal, Spain, and Ireland (GIIPS countries) and Germany, France, and U.K. (non-GIIPS countries), with a lending relationship to a bank that was part of the EBA stress tests. CDS weighted GIIPS sov. debt holdings and CDS weighted domestic sov. debt holdings measure the fraction of affected lead arrangers based on the risk-adjusted sovereign and domestic debt holdings of banks in a firm's syndicate, respectively. High Leverage GIIPS (Low Rating GIIPS) the fraction provided by high leverage (low rating) banks incorporated in a GIIPS country. A bank is considered highly leveraged if its ratio of total equity to total assets is below the sample median in 2009 (separate median split for GIIPS and non-GIIPS banks; Panel A) and it is considered to have a low rating if its rating is A+ or lower (Panel B) in 2009. Gov. Intervention measures the fraction provided by lead arrangers that received government support during the crisis Crisis is an indicator variable equal to one starting in 2010 (beginning of the sovereign debt crisis) and zero before. All regressions include firm, and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

Panel A:	(1)	(2)	(3)	(4)	(5)
	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
High Leverage GIIPS*Crisis	-0.143*** (-2.64)	-0.204** (-2.33)	-0.147* (-1.82)	-0.071 (-1.19)	-0.002 (-0.16)
High Leverage*Crisis	0.042 (1.41)	0.067 (1.53)	0.083** (2.23)	-0.003 (-0.08)	0.016 (1.53)
CDS weighted GIIPS sov. debt*CDS*Crisis	-0.041 (-1.37)	-0.068 (-1.32)	-0.055 (-1.07)	-0.080** (-2.24)	-0.008 (-0.60)
GIIPS Gov. Intervention*Crisis	-0.024 (-0.55)	-0.094* (-1.75)	-0.062 (-1.25)	-0.035 (-0.76)	0.000 (0.02)
Gov. Intervention*Crisis	0.001 (0.05)	0.001 (0.02)	0.023 (0.80)	-0.014 (-0.53)	0.008 (1.00)
CDS weighted GIIPS sov. debt*CDS*Crisis*Cash Flow					0.055 (0.66)
High Leverage GIIPS*Crisis*Cash Flow					0.142* (1.87)
High Leverage*Crisis*Cash Flow					-0.067* (-1.92)
GIIPS Gov. Intervention*Crisis*Cash Flow					-0.015 (-0.22)
Gov. Intervention*Crisis*Cash Flow					-0.062* (-1.95)
R ²	0.110	0.315	0.213	0.266	0.131
N	3453	3947	3850	4060	3404
Panel B:					
Low Rating GIIPS*Crisis	-0.126 (-1.30)	-0.276** (-2.53)	-0.253* (-1.89)	-0.153 (-0.87)	-0.017 (-0.46)
Low Rating*Crisis	0.035 (0.61)	0.187* (1.73)	0.203** (2.05)	0.175 (1.16)	0.055* (1.71)
CDS weighted GIIPS sov. debt*CDS*Crisis	-0.067** (-2.27)	-0.083* (-1.71)	-0.080* (-1.77)	-0.083** (-2.43)	-0.017 (-1.40)
GIIPS Gov. Intervention*Crisis	-0.013 (-0.32)	-0.052 (-0.88)	-0.038 (-0.71)	-0.029 (-0.71)	-0.004 (-0.38)
Gov. Intervention*Crisis	-0.011 (-0.55)	-0.017 (-0.63)	-0.004 (-0.16)	-0.004 (-0.20)	-0.002 (-0.27)
CDS weighted GIIPS sov. debt*CDS*Crisis*Cash Flow					0.122* (1.70)
Low Rating GIIPS*Crisis*Cash Flow					0.211 (1.32)
Low Rating*Crisis*Cash Flow					-0.072 (-1.02)
GIIPS Gov. Intervention*Crisis*Cash Flow					-0.034 (-0.49)
Gov. Intervention*Crisis*Cash Flow					-0.021 (-1.08)
R ²	0.107	0.313	0.212	0.266	0.130
N	3453	3947	3850	4060	3404

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 11: This table provides a list of the top 100 lenders in our sample based on the number of loans issued. The sample consists of all firms in the intersection of Dealscan and Amadeus and located in the following countries: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries).

No	lenderparentname	lenderparentcountry
1	Royal Bank of Scotland Plc [RBS]	United Kingdom
2	BNP Paribas SA	France
3	Credit Agricole Corporate & Investment Bank SA [Credit Agricole CIB]	France
4	Barclays	United Kingdom
5	Societe Generale SA	France
6	HSBC Banking Group	United Kingdom
7	Lloyds Banking Group Plc	United Kingdom
8	UniCredit	Italy
9	Natixis SA	France
10	Commerzbank AG	Germany
11	Banco Santander SA	Spain
12	Banco Bilbao Vizcaya Argentaria SA [BBVA]	Spain
13	Deutsche Bank AG	Germany
14	CM-CIC	France
15	Intesa Sanpaolo SpA [ISP]	Italy
16	Portigon AG	Germany
17	Bank of Ireland Group	Ireland
18	BayernLB	Germany
19	Banco Financiero y de Ahorros SA	Spain
20	Landesbank Baden-Wuerttemberg [LBBW]	Germany
21	La Caixa [La Caja de Ahorros I Pensions de Barcelona]	Spain
22	IKB Deutsche Industrie Bank AG	Germany
23	Allied Irish Banks Plc [AIB]	Ireland
24	Banco de Sabadell SA	Spain
25	Landesbank Hessen-Thuringen GZ [Helaba]	Germany
26	DZ Bank AG	Germany
27	Grupo Banco Popular	Spain
28	Mediobanca SpA	Italy
29	Banca Monte dei Paschi di Siena SpA [MPS]	Italy
30	KfW Bankengruppe	Germany
31	Unione di Banche Italiane ScpA [UBI Banca]	Italy
32	Banco Espirito Santo SA [BES]	Portugal
33	Caixa Geral de Depositos SA [CGD]	Portugal
34	Caixa d'Estalvis de Catalunya SA [Caixa Catalunya]	Spain
35	HSB Nordbank AG	Germany
36	ICO [Instituto de Credito Oficial]	Spain

No	lenderparentname	lenderparentcountry
37	Credit du Nord	France
38	Caja de Ahorros del Mediterraneo SA [CAM]	Spain
39	NordLB Group	Germany
40	Bankinter SA	Spain
41	Caja de Ahorros de Valencia Castellon y Alicante	Spain
42	NCG Banco SA [Novagalicia Banco]	Spain
43	Standard Chartered Bank Plc [SCB]	United Kingdom
44	Banco BPI SA	Portugal
45	Banca Popolare di Milano SCaRL [BPM]	Italy
46	Unicaja	Spain
47	Cooperative Bank Plc	United Kingdom
48	Ibercaja	Spain
49	Bilbao Bizkaia Kutxa [BBK]	Spain
50	Banco Pastor SA	Spain
51	Banca Popolare di Vicenza SCaRL	Italy
52	Cajastur	Spain
53	Westdeutsche Genossenschafts-Zentralbank eG [WGZ-Bank]	Germany
54	Banco Popolare Societa Cooperativa Scrl [BP]	Italy
55	Banco de Valencia SA	Spain
56	NM Rothschild & Sons Ltd	United Kingdom
57	Banco Cooperativo Espanol SA	Spain
58	Bankia	Spain
59	Caja de Ahorros de Castilla-La Mancha	Spain
60	Caja de Ahorros de Santander y Cantabria SA	Spain
61	Efibanca SpA	Italy
62	Banque Esprit Santo et de la Venetie [BESV]	France
63	Landesbank Saar GZ	Germany
64	Credit Cooperatif	France
65	Banca March SA	Italy
66	Caja Espana de Inversiones	Spain
67	Banco Guipuzcoano SA	Spain
68	DekaBank Deutsche Girozentrale	Germany
69	Banca Popolare dell'Emilia Romagna SCRL [BPER]	Italy
70	Banca di Cividale SpA	Italy
71	Instituto Catalan de Finanzas [ICF]	Spain
72	National Bank of Greece SA	Greece
73	Caja de Badajoz	Spain
74	Banque de Developpement des Petites et Moyennes Entreprises [BDPME]	France
75	Liberbank SA	Spain
76	Banca Carige SpA	Italy

No	lenderparentname	lenderparentcountry
77	Caja Vital Kuxta	Spain
78	Banco Comercial Portugues SA [BCP]	Portugal
79	Sal Oppenheim jr & Cie KGaA	Germany
80	Ahorro Corporacion Financiera SVB SA [ACF]	Spain
81	Alpha Bank AE	Greece
82	Cassa di Risparmio di Parma e Piacenza	Italy
83	Caja de Ahorros de Galicia	Spain
84	Banca Popolare di Sondrio SCRL [BPS]	Italy
85	La Caja Insular de Ahorros de Canarias	Spain
86	HRE Group [Hypo Real Estate Holding AG]	Germany
87	Caja de Ahorros de Murcia	Spain
88	Caja Laboral	Spain
89	EBN Banco	Spain
90	Caja Rural del Duero	Spain
91	Stadtsparkasse Dusseldorf	Germany
92	Banca Popolare di Novara SCaRL	Italy
93	Deutsche Apotheker-und Arztebank	Germany
94	Caja de Burgos	Spain
95	Landesbank Sachsen GZ	Germany
96	Nationwide Building Society	United Kingdom
97	DVB Bank AG	Germany
98	Cajasol	Spain
99	ICCREA Banca SpA	Italy
100	CajaSur [Caja de Ahorros y Monte de Piedad de Cordoba SA]	Spain