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

Viral V. Acharya[a], Tim Eisert[b], Christian Eufinger[b], Christian Hirsch[c]

[a]*New York University, CEPR, and NBER*

[b]*Goethe University Frankfurt*

[c]*Goethe University Frankfurt and SAFE*

May 29, 2014

Abstract

This paper shows that the sovereign debt crisis and the resulting credit crunch in the periphery of the Eurozone lead to negative real effects for borrowing firms. Using a hand matched sample of loan information from Dealscan and accounting information from Amadeus, we show 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 show that our results are not driven by country or industry-specific macroeconomic shocks or a change in the demand for credit of borrowing firms. Thus, the high interdependence of bank and sovereign health and the resulting credit crunch is one important contributor to the severe economic downturn in the southern European countries during the sovereign debt crisis.

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

JEL: G21, E44, G28

1. Introduction

In recent years, countries in the periphery of the Eurozone drifted into a severe sovereign debt crisis. Starting with Greece in 2009, the crisis quickly spilled over to Ireland, Italy, Portugal, and Spain (the so-called GIIPS countries). These countries faced severe economic downturns which resulted in lower tax revenues, high fiscal deficits, and ultimately an increase in the sovereign credit risk.

This deterioration in the sovereigns' creditworthiness feeds back into the financial sector (Acharya *et al.* (forthcoming)) because of two factors: First, banks have 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] Second, banks suffer from a collateral damage due to the weakening of implicit bailout guarantees.

As a result of 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]

In this paper, we document that the sovereign debt crisis impacts real economic activity through the bank lending channel. 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. The main results imply that firms with a higher dependence on banks affected by the sovereign debt crisis have a higher

---

[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

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.

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.

In a first step, we document that the credit crunch observed as an economy wide phenomenon is also present in our sample. Using all syndicated loans originated by European banks in the period 2006 to 2012, we show that banks headquartered in GIIPS countries significantly reduce their lending volume during the sovereign debt crisis. While also non-GIIPS banks reduce lending volume, the reduction is significantly smaller than for GIIPS banks. Moreover, we show that GIIPS banks charge significantly higher loan spreads during the sovereign debt crisis. We use panel regressions to confirm that this result is not driven by time-varying country-specific macroeconomic shocks, time trends, time-varying bank characteristics or time-constant unobserved heterogeneity between banks. This effect is also robust to controlling for the quality of borrowers.

While it has also been documented by previous work that a contraction in the lending volume occurred during the sovereign debt crisis (e.g., Popov and Van Horen (2013)), it remains unclear whether this credit crunch in the syndicated loan market 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.

In the core of the paper, we use a bank's country of incorporation as proxy for how affected a bank was by the crisis. This is motivated by the banks' large direct holdings of domestic government debt as well as the weakening of implicit bailout guarantees for these banks. Using balance sheet information obtained from Amadeus, we show that first, firms significantly decrease their net debt if they are more exposed to GIIPS banks. Furthermore, firms with a high dependence

on GIIPS banks 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 higher GIIPS bank dependence of firms leads to negative real effects. That is, financially constrained firms have lower levels of investment, lower sales growth and lower employment growth compared to firms with lower GIIPS bank dependence, i.e., 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.

We then show that this negative effect of a high dependence on GIIPS banks is present for both GIIPS and non-GIIPS firms. While for firms incorporated in GIIPS countries effects are strongly significant for all measures of GIIPS bank dependence, we find that the impact on the corporate policy of non-GIIPS borrowers crucially depends on the lead arranger's exposure to sovereign credit risk. That is, if GIIPS banks only act as participant in the loan of a non-GIIPS firm, we do not find significant effects. If, however, the lead arranger is incorporated in a GIIPS country, we do find significant real effects suggesting that also firms that were less affected by the macroeconomic shock of the sovereign debt crisis face financial constraints and negative real effects if they are dependent on GIIPS banks. Hence, there exist significant spillover effects from the sovereign debt crisis in GIIPS countries to firms in non-GIIPS countries that are transmitted through the bank lending channel.

Our paper is thus the first that is able to document significant cross-country spillover effects of bank lending behavior in the European sovereign debt crisis. 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.

Overall, our results document that financial and real effects of the sovereign debt crisis were transmitted through the bank lending channel, that is, firms with a high dependence on GIIPS banks were more financially constrained and thus also show significant negative real effects. 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.

To show the robustness of our GIIPS bank dependence measure, we create an alternative measure of firms' exposure to GIIPS lead arrangers that follows Popov and Van Horen (2013). Using data from the various EBA banking stress tests and capital exercises, we calculate each bank's exposure to the sovereign debt crisis directly from the disclosed data on sovereign debt holdings of these banks. This alternative measure of GIIPS bank exposure yields qualitatively similar results compared to our measure based on a bank's country of incorporation, confirming the validity of our main explanatory variable.

We run a number of robustness tests to provide further evidence for the bank lending channel effect and rule out alternative stories. It has been established in previous studies that bank-firm relations are sticky, implying that firms that borrowed heavily from GIIPS banks before the crisis would also be highly dependent on these banks during the crisis (e.g., Chodorow-Reich (2014)). Still it could be the case that firms with bad performance during the crisis lose the opportunity to get funding from non-GIIPS banks and are only able to borrow from GIIPS banks. This would bias our results since badly performing firms then have a higher GIIPS exposure due to the lack of alternative funding sources, and we could not attribute the effects we find to the credit crunch. To alleviate this concern, we restrict our sample to firms with a constant GIIPS bank dependence throughout our sample period and confirm that all results continue to hold. As an additional robustness test, we split our sample according to the median net worth of all firms in our sample and show that both high as well as low net worth firms experience negative real effects associated with their exposure to banks in the periphery of the Eurozone.

Perhaps the biggest challenge in 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 volume but are

also exposed directly to the macroeconomic downturn in their respective countries. This makes it difficult to disentangle the effect of bank lending behavior on corporate policies from the overall macroeconomic conditions. 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 and 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. Similarly, 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. Second, we show that our results are also robust to the inclusion of industry-country-year fixed effects. This allows us to rule out that our effects are driven by industry-specific demand shocks within a country that could bias our results if the GIIPS bank dependence is correlated with the crisis resistance of an industry.

Furthermore, to identify the link between financial constraints and negative real effects more precisely, we split our sample according to the firms ability to find substitutes for a decline in bank lending. In particular, we split our sample into listed and non-listed firms given that publicly listed firms have more opportunities to tap alternative funding sources (Becker and Ivashina (2014b)). We show that all our results are driven by the subsample of non-listed firms, whereas listed firms do not face negative real effects. This finding confirms that indeed the financing bottleneck due to the cutback in bank lending is one of the main drivers that caused the downturn in the European real economy after the outbreak of the sovereign crisis.

The rest of the paper is organized as follows. Section 2 provides an overview of the related literature. Section 3 describes the methodology, our dataset, and presents descriptive statistics. The results of the paper are presented in Section 4. Section 5 concludes.

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 (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.

---

[4]For 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).

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 (2013) 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 (2013) also use data on syndicated lending. In line with Giannetti and Laeven (2012) and De Haas and Van Horen (2013), Popov and Van Horen (2013) 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 trough the bank lending channel. Our approach has three 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. 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

In the recent sovereign debt crisis, the funding costs of banks headquartered in countries that are strongly affected rose significantly. Allied Irish Bank (AIB), an Ireland based bank active in the syndicated loan market, states in its 2010 annual report that "AIB, in common with other banks, continues to face funding and liquidity issues. [...] The result of this situation is that [...] our profitability is severely curtailed by what we pay to secure our funding."[5]

In general, sovereign credit risk affects the refinancing costs of the banking sector through several channels. First, banks have large direct holdings of domestic government debt. For example, in mid 2011 Italian banks UniCredit and Intesa held 121 percent and 175 of their core capital in Italian sovereign debt, respectively, while domestic government bond holdings of Spanish banks BBVA and Santander amounted to 193 percent and 76 percent of core capital, respectively.[6] Losses

---

[5]Allied Irish Banks, Annual Financial Report 2010, p. 5 f.
[6]"Europe's Banks Struggle With Weak Bonds" by Landon Thomas Jr., NYTimes.com, August 3, 2011.

on these sovereign debt holdings weaken banks' balance sheet and as a result make these banks riskier. In the recent period this mechanism was further amplified by the high degree of uncertainty about the financial sector's government bond holdings prior to the release of the results from the EBA stress test in 2011. A study group of the Committee on the Global Financial System (CGFS) (2011) compares correlations between individual banks and sovereign CDS premia before and after the release of the results of the stress test. They document a strong correlation of individual banks CDS to GIIPS sovereign CDS before the release of the stress test irrespective of actual government bond holdings of the banks. After the stress test data were released the correlation more closely reflected the actual sovereign exposure.

Second, an increase in sovereign credit risk reduces the value of implicit as well as explicit government guarantees. Indeed, CGFS (2011) document that banks incorporated in countries with severely impaired public finance conditions tend to have issued more government-guaranteed bonds compared to banks in other countries. An increase in sovereign debt risk then may erode the value of these guarantees ultimately leading to higher funding costs. Moreover, Acharya *et al.* (forthcoming) present a model where a financial sector bailout leads to an increase in sovereign credit risk which in turn reduces the value of future government bailout guarantees. They empirically show that a feedback loop between sovereign and bank credit risk exists in the period after 2008.

Our empirical strategy is thus 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. In the core of the paper, we use a bank's country of incorporation as a proxy for its exposure to sovereign default risk. This choice is motivated by several facts. 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. Second, the sovereign bond holdings are only observable for a subsample of our banks and only at very few points in time. Third, GIIPS banks also suffered from a stronger weakening of the value of their implicit bailout guarantees compared to non-GIIPS banks. In the main part of 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.

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:

$$GIIPS\,Exposure_{it} = \frac{\sum_{loans_j} \%GIIPS\,Banks\,in\,Syndicate_{jit} * Loan\,Amount_{jit}}{Total\,Loan\,Amount_{it}}$$

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 (1) whether the lender acts as a lead arranger and (2) 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:

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

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, temporary shut outs 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 very large, they have to satisfy at least one of the following criteria: Operating Revenue of at least 100 million EUR, Total assets of at least

200 million EUR, at least 1000 Employees, or the firm has to be publicly listed. The respective criteria for large companies are: at least 10 million EUR operating revenue, at least 20 million EUR total assets, or at least 150 employees.

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 dependence. We report mean, median, and standard deviation of high GIIPS exposure firms in columns 3-5 and for low GIIPS exposure firms in columns 6-8. We show pre-crisis summary statistics in the top half of the table and sovereign debt crisis values in the bottom 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 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 dependence and into crisis and pre-crisis period. Firms with high GIIPS bank dependence 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 Table 2, we compare the time series properties of our main explanatory variables (GIIPS Exposure and GIIPS Lead) for borrowing firms located in GIIPS (Panel A) and non-GIIPS (Panel B) 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.

Table 2 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.

Table 2 Panel C and D compare GIIPS exposure across groups of high net worth and low net worth borrowing firms where low (high) net worth firms are those below (above) median net worth in the entire sample. The main difference between the two samples is the higher level of GIIPS exposure for low net worth firms. For example, the mean GIIPS exposure in 2009 is 33.5% for low net worth firms and 23.5% for high net worth firms. Note that the evolution of the mean GIIPS exposure over time is very similar across the two samples of firms. This result suggests that low net worth firms do not shift towards GIIPS banks over time, especially not during the sovereign debt crisis period.

4. Results

4.1. 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 (2013)). We show in this section that a significant decrease in the lending volume of banks can also be observed in our sample.

We run panel regressions where we use the bank-year as unit of observation. The dependent variable in Table 3, Columns (1)-(4) is the 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 country-year interaction fixed effects to capture time-specific macroeconomic shocks that affect banks in each country differently. Column 3 shows that results are similar if we construct a measure of bank affectedness based on the direct sovereign debt holdings of banks. Finally, Column 4 adds bank fixed effects to capture unobserved time-invariant bank heterogeneity. Results remain qualitatively unchanged using either specification.

In addition, Table 3, Columns (5) to (9) 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 and that this result is again robust to constructing a measure of bank affectedness from the sovereign debt holdings of these banks. To rule out that this effect is driven by a deterioration in the quality of new borrowers, we first include country-year fixed effects to control for an overall decline in the firm quality in a given country. Second, we show that this result is also robust to including the average borrower quality of all firms that receive a new loan (Column 7). The evidence in this section is consistent with banks not only cutting bank their lending volume but also charging higher loan spreads from their borrowers, implying that it becomes increasingly difficult for corporate borrowers to have access to bank financing.

4.2. 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 1-4 plot the time series of the average employment growth rates, investment, sales growth rate, and net debt, 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

16

the following panel regression for a firm's employment growth rate, sales growth rate, investment, and net debt, respectively:

$$
\begin{aligned}
y_{it+1} \;=\;& \alpha + \beta_1 * Crisis + \beta_2 * GIIPS\ Bank\ Dependence_{it} \\
+\;& \beta_3 * GIIPS\ Bank\ Dependence_{it} * Crisis \\
+\;& \gamma * X_{it} + Firm_i + Year_{t+1} + u_{it+1}
\end{aligned}
\tag{1}
$$

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

$$
\begin{aligned}
\Delta Cash \;=\;& \alpha + \beta_1 * Crisis + \beta_2 * GIIPS\ Bank\ Dependence_{it} \\
+\;& \beta_3 * GIIPS\ Bank\ Dependence_{it} * Crisis \\
+\;& \beta_4 * GIIPS\ Bank\ Dependence_{it} * CashFlow_{it} \\
+\;& \beta_5 * GIIPS\ Bank\ Dependence_{it} * CashFlow_{it} * Crisis \\
+\;& \gamma * X_{it} + Firm_i + Year_{t+1} + u_{it+1}
\end{aligned}
\tag{2}
$$

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:

$$
\begin{aligned}
y_{it+1} \;=\; & \alpha + \beta_1 * Crisis + \beta_2 * GIIPSBankDependence_{it} \\
+ \; & \beta_3 * GIIPS\,Bank\,Dependence_{it} * Crisis \\
+ \; & \gamma * X_{it} + Firm_i + Year_{t+1} + Country_j * Year_{t+1} + u_{it+1}
\end{aligned}
\tag{3}
$$

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:

$$
\begin{aligned}
\Delta Cash \;=\; & \alpha + \beta_1 * Crisis + \beta_2 * GIIPS\,Bank\,Dependence_{it} \\
+ \; & \beta_3 * GIIPS\,Bank\,Dependence_{it} * Crisis \\
+ \; & \beta_4 * GIIPS\,Bank\,Dependence_{it} * CashFlow_{it} \\
+ \; & \beta_5 * GIIPS\,Bank\,Dependence_{it} * CashFlow_{it} * Crisis \\
+ \; & \gamma * X_{it} + Firm_i + Year_{t+1} + Country_j * Year_{t+1} + u_{it+1}
\end{aligned}
\tag{4}
$$

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 4. Note that firm level controls are included in all regressions but not reported. Column (1) provides results for Net Debt (Current + Non-Current Liabilities - Cash/Total Assets). The coefficient of the interaction of the GIPIS 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.

Column (2) of Table 4 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 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 4. All results continue to hold. Lastly, Columns (5) - (8) of Table 4 show that our results are also robust to constructing the GIIPS bank dependence measure based on the lead arrangers of a syndicate.

We next turn to an analysis of how the sovereign debt crisis impacts corporate policies of borrowers. The previous 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. Note that the results in Table 4 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.

We estimate panel regression (see Eq. 1) where y_{it+1} measures employment growth (Δ log Employment), investment (CAPX/Tangible Assets)[7], or sales growth (Δ log Sales), respectively. Table 5 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. Table 5, 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 5 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.

In a next step, we split our sample into GIIPS and non-GIIPS borrowers and analyze whether firms are affected irrespective of their country of incorporation. Table 6 report results for the financial policy variables. For firms incorporated in a GIIPS country the results in Column (1) and (2) show that a one standard deviation increase in their GIIPS bank dependence leads to a 2.5 percentage point reduction in net debt and induces them to save 5 cent more per Euro of cash flow generated. Results do not change if we measure GIIPS bank dependence from banks that act as lead arranger in the syndicated loans.

Considering the sample of non-GIIPS borrowers, we only find significant effects on the corporate policies of firms when using the fraction of GIIPS lead arrangers as key explanatory variable. Given the lower overall exposure of these firms to GIIPS banks it seems plausible that they are only affected by the sovereign debt crisis in the periphery of the Eurozone if banks play an important role in the loan syndicate. From the results in Column (7) and (8) of Table 6 one can see that non-GIIPS firms with higher GIIPS bank dependence in the sense that they have GIIPS lead arrangers in their deals have a marginally significant higher propensity to save cash out of their cash flow. A one standard deviation increase in their GIIPS lead arranger dependence induces them to save 3

---

[7]Amadeus does not report capital expenditures. We construct a proxy for investments by the following procedure: $\frac{Fixed\ Assets_{t+1} - Fixed\ Assets_t + Depreciation}{Fixed\ Assets_t}$. We set CAPX to 0 if negative.

cent more per Euro of cash flow. Hence, also non-GIIPS firms appear to be financially constrained if they have a higher GIIPS bank dependence.

Table 7 presents results for the real effects. Columns (1) - (3) of Table 7 show that firms headquartered in GIIPS countries have significantly negative real effects resulting from the reduced availability of bank financing. A one standard deviation increase in the GIIPS exposure of a borrower leads to 3 percentage points less employment growth, a 4.7 percentage point reduction in investments, and a 4 percentage point reduction in sales growth. All coefficients remain statistically and economically significant after controlling for country-year fixed effects. The results in Columns (10)-(12) of Table 7 reveal that GIIPS firms also experience significant negative real effects, that is, they also have lower employment growth rates, lower capital expenditures, and lower sales growth rates when these firms depend on syndicated loans where GIIPS banks act as lead arranger.

4.3. Alternative measure of GIIPS bank dependence

So far our measure of GIIPS bank dependence was determined by a bank's country of incorporation. But of course also non-GIIPS banks could be affected by the sovereign debt crisis if they have large holdings of sovereign debt of the affected countries. Moreover, the degree to which GIIPS banks were affected also depends on the amount of sovereign debt they were holding on their balance sheet and the risk associated with these holdings. While it is convenient to use a GIIPS bank dependence measure that is based on a bank's country of incorporation, it might underestimate the degree to which non-GIIPS banks are affected by the sovereign debt crisis. To address this issue, we follow the definition of Popov and Van Horen (2013) and use data disclosed from the 2011 EBA stress test to directly measure the extent to which banks were affected by the sovereign debt crisis.[8] As discussed in Acharya and Steffen (2013), 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.[9]

---

[8]Our results are unaffected if we use a time-series of sovereign holdings of banks constructed from the EBA stress tests and capital exercises data between 2010 to 2012

[9]The data is publicly available on the website of the EBA (http://www.eba.europa.eu/Home.aspx)

Using this information, we follow Popov and Van Horen (2013) and construct our measure of GIIPS dependence as follows. We calculate the exposure to the sovereign debt crisis for each lead arranger that is included in the EBA stress test:

$$GIIPS\,Dependence_{Bank_j,t} = \sum_k \frac{Debt\,Holdings_{jkt} * CDS_{kt}}{Total\,Assets_{j,t}}$$

where

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

Given that the sovereign debt holdings are multiplied with the respective CDS spreads, this measure does not only account for the amount of sovereign debt holdings of the respective bank, but also for the risk associated with these holdings. We use this measure to define an indicator variable (Affected Bank) that equals one if a bank's exposure is above the sample median. In an next step, we use this measure of GIIPS dependence for a given bank and derive an aggregate measure for each firm-year in our sample. This leads to the following proxy for the GIIPS dependence of firm i in year t:

$$GIIPS\,Affected_{it} = \frac{\sum_{loans_j} \%Affected\,Banks\,in\,Syndicate * Loan_{jit} * Loan\,Amount_{jit}}{Total\,Loan\,Amount_{it}}$$

Results for this alternative measure of GIIPS bank dependence are presented in Table 8. 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. As can be seen from Table 8, all results continue to hold using this alternative measure of GIIPS bank dependence, confirming that the direct sovereign debt holdings are one important factor that drives the lending behavior of banks and thus leads to negative real effects for corporate borrowers.

4.4. Controlling for borrower quality

Our interpretation of the results presented above relies on the assumption that no unobservable variable is able to explain both the GIIPS exposure of borrowers and its financial and real performance over time. One potential alternative story could be that high-quality firms which are

potentially more crisis resistant are better able to borrow from non-GIIPS banks while low-quality firms may only be able to get funding from GIIPS banks. If this is true then our results presented above could be driven by a selection of firms into GIIPS and non-GIIPS lenders and not by a causal effect which runs from the bank lending channel to the firm. To address this possible concern, we provide additional evidence in this section.

First, firms with negative expectations about their future outcomes at the onset of the crisis in 2010 might not obtain credit from non-GIIPS banks and have to switch to GIIPS banks. This might imply that we find a correlation between financial and real effects and GIIPS bank dependence which stems from a change in treatment and control group over time. To address this possible concern, we estimate the panel regression in Eq. 3 on a sample of borrowers that have constant GIIPS bank dependence over time. The results in Table 9 show that higher GIIPS exposure is associated with a reduction in leverage, a higher propensity to save cash out of cash flow, and significant negative real effects for borrowers in the crisis period.

As a second test, we split our sample into high and low net worth firms and estimate panel regressions separately for each subsample. Table 10, Panel A presents the results for the GIIPS bank dependence measure constructed from all lenders and Table 10, Panel B reports results for the GIIPS exposure measure constructed from lead arrangers. The coefficients of the interaction of GIIPS exposure and the Crisis dummy (Panel A) is negative and statistically significant for all financial and real variables in both subsamples. The results in Table 10, Panel B confirm these results for GIIPS bank dependence based on the lead arranger. We conclude that both high as well as low net worth borrowers of exposed banks are adversely affected by the sovereign debt crisis.

4.5. Controlling for macroeconomic exposure

During the sovereign debt crisis, 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. Ideally, we would want the sovereign debt crisis to not affect firms' performance other than through the contraction in bank lending volume.

To address this issue, we use information about the revenues of foreign subsidiaries of our GIIPS firms to proxy for a firm's business activities abroad. 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 11 we thus restrict our sample to GIIPS firms with an above median fraction of their revenue generated by non-GIIPS subsidiaries.[10] 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 11 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.

Considering the sample of non-GIIPS firms a similar concern arises. Here, an alternative story would suggest that non-GIIPS firms with GIIPS lead arrangers also have significant business in GIIPS countries and are therefore more affected by the macroeconomic downturn abroad than other borrowers without GIIPS lead arranger. Hence, our GIIPS bank dependence measure would in fact capture exposure to the macroeconomic shock in the affected countries and not the lending behavior of banks. We use the available data on firms' subsidiaries to address this issue. Table 11, Panel B restricts the sample to non-GIIPS firms without subsidiaries in a GIIPS country. All results continue to hold using this subsample, providing additional evidence for our main mechanism, that is, the lending behavior of banks has negative real effects for the borrowing firms.

4.6. Controlling for unobserved industry shocks

To further isolate the effect of the bank lending channel and distinguish it from potential industry specific shocks, we run additional regressions where we include industry-country-year fixed effects. This allows us to rule out that our effects are driven by the fact that certain industries were simply more affected by the sovereign debt crisis in a given country. A potential problem for our results could arise if firms in these more affected industries also have less possibilities to

---

[10]Focusing 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.

attract funding from non-GIIPS banks (e.g., because firms in more affected industries operate more domestically and have less ability to do business in other countries) and would thus have a higher GIIPS exposure. Then it would be possible that all our effects are driven by industry specific shocks and not by the lending behavior of banks. Results are presented in Table 12. Again all results remain qualitatively unchanged implying that our effect is not driven by unobserved time-variant heterogeneity between firms in a given industry and country.

4.7. Access to alternative funding sources

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 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 13 presents the results for our subsample of non-listed firms, whereas results for the listed firms are presented in Panel B of Table 13. 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[11]. 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 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.

4.8. Liquidity management of borrowing firms

In a recent paper Acharya *et al.* (2013) study whether a firms liquidity risk impacts its use of cash rather than credit lines for liquidity management. They 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 e.g., 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

---

[11]In unreported regressions we confirm that we get qualitatively similar results if we divide the sample into rated and unrated firms.

debt crisis (that is, starting in 2010). Table 14 Columns (1) and (2) report panel regressions for a firm's overall credit line whereas Columns (3) and (4) report results for the undrawn credit lines. Across all four specifications we find more GIIPS bank dependent borrower 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.

5. 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. We show that our results are not driven by country or industry-specific macroeconomic shocks or a change in the demand for credit of 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.

References

ACHARYA, V. V., ALMEIDA, H., IPPOLITO, F. and PEREZ, A. (2013). Credit lines as monitored liquidity insurance: Theory and evidence. *Journal of Financial Economics*.

—, DRECHSLER, I. and SCHNABL, P. (forthcoming). A pyrrhic victory?-bank bailouts and sovereign credit risk. *Journal of Finance*.

— and STEFFEN, S. (2013). The greatest carry trade ever? understanding eurozone bank risks.

ADRIAN, T., PAOLO, C. and SHIN, H. S. (2013). Which financial frictions? parsing the evidence from the financial crisis of 200709. In J. P. Daron Acemoglu and M. Woodford (eds.), *NBER Macroeconomics Annual 2012*, (Chicago: University of Chicago Press, 2013).

ALBERTAZZI, U. and MARCHETTI, D. J. (2010). Credit supply, flight to quality and evergreening: an analysis of bank-firm relationships after lehman. *Bank of Italy Temi di Discussione (Working Paper)*.

ALMEIDA, H., CAMPELLO, M. and WEISBACH, M. S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, **59** (4), 1777–1804.

ARTETA, C. and HALE, G. (2008). Sovereign debt crises and credit to the private sector. *Journal of International Economics*, **74** (1), 53–69.

BALDUZZI, P., BRANCATI, E. and SCHIANTARELLI, F. (2014). Financial markets, banks' cost of funding, and firms' decisions: Lessons from two crises. *Working Paper*.

BECKER, B. and IVASHINA, V. (2014a). Cyclicality of credit supply: Firm level evidence. *Journal of Monetary Economics*, **62**, 76–93.

— and — (2014b). Financial repression in the european sovereign debt crisis. *Working Paper*.

BENTOLILA, S., JANSEN, M., JIMÉNEZ, G. and RUANO, S. (2013). When credit dries up: Job losses in the great recession.

BERNANKE, B. (1983). Nonmonetary effects of the financial crisis in the propagation of the great depression. *American Economic Review*, **73** (3), 257–276.

BOFONDI, M., CARPINELLI, L. and SETTE, E. (2013). Credit supply during a sovereign debt crisis. *Bank of Italy Temi di Discussione (Working Paper)*.

BONACCORSI DI PATTI, E. and SETTE, E. (2012). Bank balance sheets and the transmission of financial shocks to borrowers: evidence from the 2007-2008 crisis. *Bank of Italy Temi di Discussione (Working Paper)*.

BORD, V. M. and SANTOS, J. A. C. (2014). Banks' liquidity and the cost of liquidity to corporations. *Journal of Money, Credit and Banking*, **46** (s1), 13–45.

CHODOROW-REICH, G. (2014). The employment effects of credit market disruptions: Firm-level evidence from the 2008-09 financial crisis. *Quarterly Journal of Economics*, **129**, 1–59.

CINGANO, F., MANARESI, F. and SETTE, E. (2013). Does credit crunch investments down? new evidence on the real effects of the bank-lending channel.

CORREA, R., SAPRIZA, H. and ZLATE, A. (2012). Liquidity shocks, dollar funding costs, and the bank lending channel during the european sovereign crisis.

DE HAAS, R. and VAN HOREN, N. (2013). Running for the exit? international bank lending during a financial crisis. *Review of Financial Studies*, **26** (1), 244–285.

GAMBACORTA, L. and MISTRULLI, P. E. (2011). Bank heterogeneity and interest rate setting: what lessons have we learned since lehman brothers? *Bank of Italy Temi di Discussione (Working Paper)*.

GIANNETTI, M. and LAEVEN, L. (2012). The flight home effect: Evidence from the syndicated loan market during financial crises. *Journal of Financial Economics*, **104** (1), 23–43.

IMBENS, G. M. and WOOLDRIDGE, J. M. (2009). Recent developments in the econometrics of program evaluation. *Journal of Economic Literature*, **47** (1), 5–86.

IVASHINA, V. (2009). Asymmetric information effects on loan spreads. *Journal of Financial Economics*, **92** (2), 300–319.

— and SCHARFSTEIN, D. (2010). Bank lending during the financial crisis of 2008. *Journal of Financial Economics*, **97** (3), 319–338.

—, Scharfstein, D. S. and Stein, J. C. (2012). Dollar funding and the lending behavior of global banks. *Working Paper.*

Lane, P. R. (2012). The european sovereign debt crisis. *The Journal of Economic Perspectives*, **26** (3), 49–67.

Panetta, F., Correa, R., Davies, M., Di Cesare, A., Marques, J.-M., Nadal de Simone, F., Signoretti, F., Vespro, C., Vildo, S., Wieland, M. *et al.* (2011). The impact of sovereign credit risk on bank funding conditions. *Committee on the Global Financial System.*

Popov, A. and Van Horen, N. (2013). The impact of sovereign debt exposure on bank lending: Evidence from the european debt crisis.

Santos, J. A. C. (2011). Bank corporate loan pricing following the subprime crisis. *Review of Financial Studies*, **24** (6), 1916–1943.

Standard&Poors (2010). A guide to the european loan market. *The McGraw-Hill Companies, Inc.,New York,NY.*

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *The Journal of Finance*, **62** (2), 629–668.

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:

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

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

- $GIIPS\,Affected_{it} = \sum_{loans_j} \frac{\%Affected\,Banks\,in\,Syndicate * Loan_{jit} * Loan\,Amount_{jit}}{Loan\,Amount_{jit}}$

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 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.
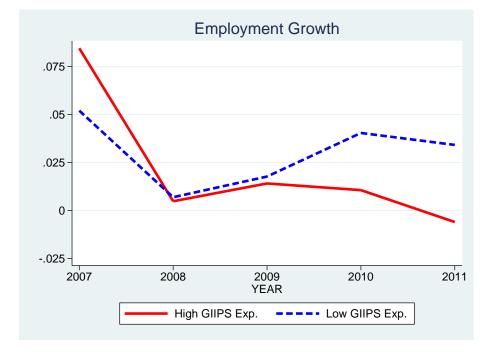

Figure 2 shows capital expenditures as a fraction of tangible assets for firms with high and low GIIPS exposure. We consider all loans in Dealscan to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.
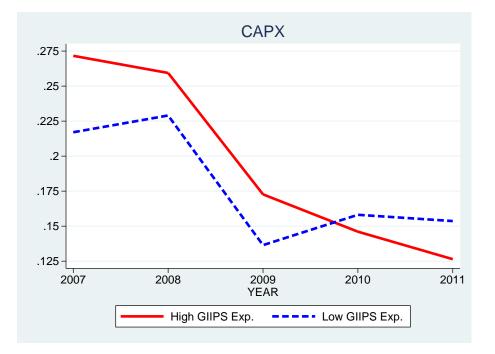
Figure 3 shows sales growth for firms with high and low GIIPS exposure. We consider all loans in Dealscan to borrowers located in the following countries: Greece, Italy, Portugal, Spain, Ireland, France, U.K., and Germany. We restrict the sample to borrowers with financial information available in Amadeus.
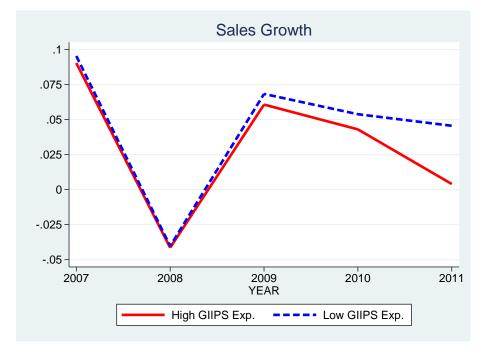
Sales Growth

Figure 4 shows net debt 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.

Net Debt

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.

Total Credit Line/(Total Credit Line+Cash)

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.
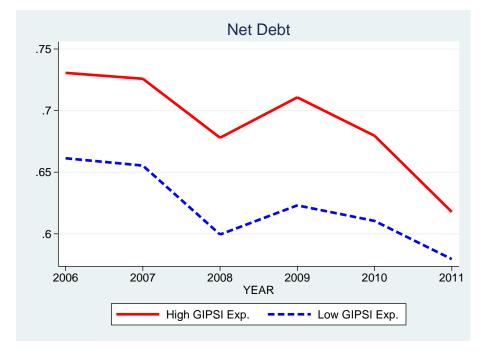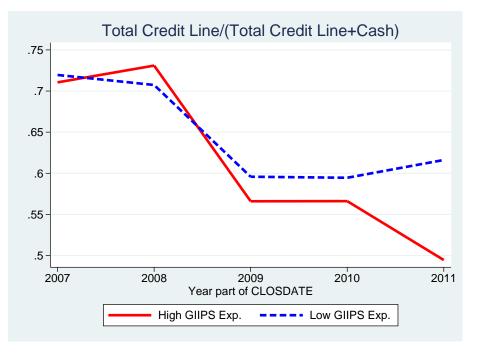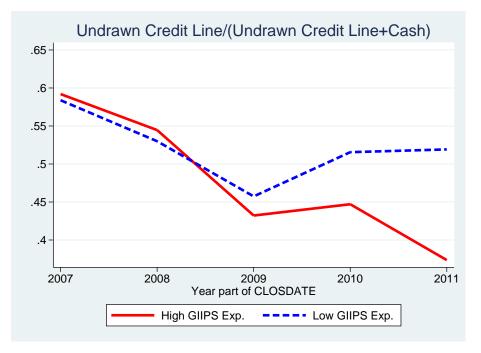

Undrawn Credit Line/(Undrawn Credit Line+Cash)

Table 1: Descriptive Statistics

Panel A: Dependent Variables

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

Panel B: Explanatory Variables

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

Table 2: Descriptive Statistics: GIIPS Exposure

Panel A: GIIPS Borrowers

		2006	2007	2008	2009	2010	2011
	Mean	0.593	0.594	0.630	0.677	0.691	0.640
GIIPS Exposure	Median	0.514	0.631	0.640	0.706	0.719	0.650
	Std. Deviation	0.287	0.290	0.273	0.274	0.274	0.279
	Mean	0.486	0.470	0.501	0.487	0.507	0.519
GIIPS Lead	Median	0.5	0.5	0.5	0.5	0.5	0.445
	Std. Deviation	0.421	0.426	0.434	0.438	0.432	0.418

Panel B: Non-GIIPS Borrowers

		2006	2007	2008	2009	2010	2011
	Mean	0.069	0.070	0.071	0.071	0.073	0.071
GIIPS Exposure	Median	0	0	0	0	0	0
	Std. Deviation	0.118	0.123	0.118	0.118	0.122	0.115
	Mean	0.023	0.026	0.033	0.037	0.044	0.059
GIIPS Lead	Median	0	0	0	0	0	0
	Std. Deviation	0.132	0.136	0.142	0.153	0.156	0.156

Panel C: Low Net Worth Firms

		2006	2007	2008	2009	2010	2011
	Mean	0.257	0.269	0.284	0.335	0.351	0.373
GIIPS Exposure	Median	0.108	0.119	0.120	0.166	0.171	0.233
	Std. Deviation	0.314	0.317	0.330	0.363	0.374	0.376
	Mean	0.175	0.174	0.183	0.216	0.221	0.271
GIIPS Lead	Median	0	0	0	0	0	0
	Std. Deviation	0.339	0.340	0.348	0.373	0.367	0.383

Panel D: High Net Worth Firms

		2006	2007	2008	2009	2010	2011
	Mean	0.161	0.184	0.201	0.235	0.253	0.255
GIIPS Exposure	Median	0.023	0.037	0.046	0.070	0.094	0.080
	Std. Deviation	0.256	0.281	0.298	0.325	0.328	0.339
	Mean	0.116	0.141	0.154	0.153	0.177	0.199
GIIPS Lead	Median	0	0	0	0	0	0
	Std. Deviation	0.294	0.314	0.324	0.326	0.342	0.344

Table 3: Lending Volume and Spread

Table (3) presents bank level regressions. The dependent variable is the change in a bank's volume of new loans issued (Columns 1-4) or the value weighted loan spread of all newly issued loans in a given year (Columns 5-9). GIIPS Bank is an indicator variable for banks incorporated in a GIIPS country. Affected Bank measures a bank's exposure to GIIPS sovereign debt using EBA data. 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)
	ΔVolume	ΔVolume	ΔVolume	ΔVolume	Spread	Spread	Spread	Spread	Spread
GIIPS Bank	0.106				7.981				
	(1.32)				(0.32)				
GIIPS Bank*Crisis	-0.594***	-0.830***		-0.758**	61.757***	57.224**		163.738***	289.115***
	(-3.72)	(-4.53)		(-2.05)	(2.63)	(2.30)		(4.97)	(10.02)
Affected Bank*Crisis			-0.016***				1.004*		
			(-3.42)				(1.95)		
Crisis	-0.293*	-0.420*	0.617**	0.587	99.530***	63.655***	45.883*	-100.253**	-248.249***
	(-1.73)	(-1.74)	(2.48)	(1.47)	(5.64)	(3.20)	(1.90)	(-2.55)	(-10.59)
Log(Assets)		0.169	-0.620*	0.359		-64.000	-36.367	-31.338	-16.039
		(0.53)	(-1.87)	(1.40)		(-1.33)	(-1.20)	(-0.64)	(-0.33)
Capital Ratio		-0.028	-0.033	0.038		-1533.471**	-645.615	-1271.154	-776.214
		(-0.41)	(-0.37)	(0.51)		(-2.31)	(-1.06)	(-1.61)	(-1.22)
Avg. Borrower Quality									-1.253
									(-0.56)
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country Fixed Effects	YES	NO	NO	NO	NO	NO	NO	NO	NO
Bank Fixed Effects	NO	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	NO	YES	NO	NO	NO	YES	YES
R2	0.082	0.126	0.244	0.285	0.294	0.326	0.425	0.530	0.576
N	739	491	221	491	281	228	134	228	212

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

38

Table 4: Main Results: Financials

Table (4) presents firm level regressions. The dependent variables are 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). 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. Zero Exp is an indicator variable that equals one for firms with zero GIIPS exposure. Zero Lead is an indicator variables that equals one if a firm has zero GIIPS lead arrangers. 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) Net Debt	(2) Δ Cash	(3) Net Debt	(4) Δ Cash	(5) Net Debt	(6) Δ Cash	(7) Net Debt	(8) Δ Cash
GIIPS Exposure	0.032	0.016	0.039	0.005				
	(0.48)	(0.73)	(0.57)	(0.23)				
GIIPS Exposure*Crisis	-0.047**	-0.004	-0.074*	-0.003				
	(-2.33)	(-0.69)	(-1.91)	(-0.29)				
GIIPS Lead					0.064	0.012	0.079	0.006
					(1.28)	(0.55)	(1.51)	(0.26)
GIIPS Lead*Crisis					-0.076***	-0.007	-0.098***	-0.007
					(-2.80)	(-0.80)	(-2.83)	(-0.81)
Cash Flow*GIIPS Exposure		-0.010		-0.013				
		(-0.36)		(-0.46)				
Cash Flow*GIIPS Exposure*Crisis		0.110***		0.111***				
		(3.67)		(3.71)				
Cash Flow*GIIPS Lead						-0.050		-0.050
						(-1.39)		(-1.39)
Cash Flow*GIIPS Lead*Crisis						0.094***		0.095***
						(2.61)		(2.59)
Cash Flow*Crisis		-0.010*		-0.010*		-0.002		-0.002
		(-1.85)		(-1.84)		(-0.31)		(-0.32)
Crisis	-0.004	0.006*	0.207***	-0.023	-0.005	0.010*	0.069*	0.148**
	(-0.20)	(1.66)	(3.53)	(-0.40)	(-0.18)	(1.87)	(1.74)	(2.34)
Crisis*Zero Exp.	0.007	-0.001	0.009	-0.001				
	(0.48)	(-0.28)	(0.63)	(-0.34)				
Crisis*Zero Lead					-0.021	-0.003	-0.018	-0.004
					(-1.13)	(-0.68)	(-0.92)	(-0.93)
Bond outstanding	-0.000	-0.006	-0.001	-0.007*	-0.000	-0.007	0.001	-0.007
	(-0.01)	(-1.54)	(-0.05)	(-1.71)	(-0.01)	(-1.37)	(0.04)	(-1.56)
Bond outstanding*Crisis	0.004	0.004	0.005	0.004	-0.001	0.002	-0.003	0.003
	(0.23)	(1.01)	(0.26)	(1.09)	(-0.08)	(0.45)	(-0.14)	(0.64)
Firm Controls	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	YES	YES	NO	NO	YES	YES
R2	0.228	0.098	0.238	0.111	0.252	0.100	0.267	0.112
N	5629	4668	5629	4668	4280	3593	4280	3593

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

Table 5: Main Results: Real Effects

Table (5) 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. Zero Exp is an indicator variable that equals one for firms with zero GIIPS exposure. Zero Lead is an indicator variable that equals one if a firm has zero GIIPS lead arrangers. 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) Emp. Growth	(2) CAPX	(3) Sales Growth	(4) Emp. Growth	(5) CAPX	(6) Sales Growth	(7) Emp. Growth	(8) CAPX	(9) Sales Growth	(10) Emp. Growth	(11) CAPX	(12) Sales Growth
GIIPS Exposure	0.080	0.119	-0.038	0.082	0.123	-0.012						
	(1.18)	(0.97)	(-0.49)	(1.19)	(0.96)	(-0.15)						
GIIPS Exposure*Crisis	-0.081***	-0.136***	-0.069**	-0.095***	-0.154**	-0.117**						
	(-4.48)	(-4.14)	(-2.51)	(-2.82)	(-2.53)	(-2.23)						
GIIPS Lead							0.052	0.112	-0.015	0.043	0.096	0.007
							(1.32)	(1.37)	(-0.24)	(1.02)	(1.13)	(0.11)
GIIPS Lead*Crisis							-0.082***	-0.142***	-0.091***	-0.073***	-0.147***	-0.117***
							(-3.98)	(-3.53)	(-2.83)	(-2.86)	(-2.98)	(-3.04)
Crisis	-0.014	0.025	-0.049***	0.163*	0.305**	0.363**	-0.005	0.022	-0.061**	0.220***	0.266	-0.552***
	(-0.99)	(0.99)	(-2.67)	(1.92)	(2.26)	(2.29)	(-0.31)	(0.61)	(-2.56)	(4.78)	(0.96)	(-5.92)
Crisis*Zero Exp.	-0.009	-0.025	-0.010	-0.008	-0.022	0.000						
	(-0.80)	(-1.36)	(-0.64)	(-0.66)	(-1.13)	(0.01)						
Crisis*Zero Lead							-0.015	-0.040	-0.022	-0.008	-0.039	-0.012
							(-1.11)	(-1.55)	(-1.18)	(-0.61)	(-1.48)	(-0.65)
Bond outstanding	0.010	0.008	0.022	0.006	0.005	0.022	0.006	0.020	-0.006	0.003	0.020	0.000
	(0.79)	(0.23)	(1.02)	(0.44)	(0.14)	(1.10)	(0.42)	(0.49)	(-0.27)	(0.19)	(0.49)	(0.00)
Bond outstanding*Crisis	0.014	0.008	0.017	0.013	0.009	0.018	0.020	0.007	0.029	0.018	0.003	0.028
	(1.10)	(0.30)	(0.95)	(1.06)	(0.30)	(1.04)	(1.58)	(0.22)	(1.51)	(1.39)	(0.10)	(1.45)
Firm Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
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 6: Financials: GIIPS vs. non-GIIPS Borrower

Table 6 presents firm level regressions. The dependent variables are 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) (Columns 1-4) and Germany, France, and U.K. (non-GIIPS countries) (Columns 5-8). 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 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. All regressions include firm, year, and country*year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level.

	GIIPS Borrowers				non-GIIPS Borrowers			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Net Debt	Δ Cash	Net Debt	Δ Cash	Net Debt	Δ Cash	Net Debt	Δ Cash
GIIPS Exposure	-0.024	0.019			0.116	0.011		
	(-0.24)	(0.60)			(1.29)	(0.43)		
GIIPS Exposure*Crisis	-0.088**	-0.019			-0.081	-0.008		
	(-2.04)	(-1.25)			(-1.06)	(-0.32)		
GIIPS Lead			0.074	0.005			0.151**	0.074
			(1.04)	(0.22)			(1.98)	(1.59)
GIIPS Lead*Crisis			-0.084***	-0.009			-0.055	-0.040*
			(-2.85)	(-1.00)			(-0.59)	(-1.74)
Cash Flow*GIIPS Exposure		-0.173*				0.037		
		(-1.95)				(0.99)		
Cash Flow*GIIPS Exposure*Crisis		0.291***				0.095**		
		(3.25)				(2.08)		
Cash Flow*GIIPS Lead				-0.079				-0.129
				(-1.64)				(-1.25)
Cash Flow*GIIPS Lead*Crisis				0.163***				0.296***
				(3.27)				(4.47)
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
R2	0.309	0.123	0.341	0.125	0.212	0.116	0.241	0.117
N	1804	1453	1296	1066	3825	3215	2984	2527

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

Table 7: Real Effects: GIIPS vs. non-GIIPS Borrower

Table 7 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) (Columns 1-5) and Germany, France, and U.K. (non-GIIPS countries) (Columns 6-10). 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, year, and country*year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the firm level.

	GIIPS Borrowers						non-GIIPS Borrowers					
	(1) Emp. Growth	(2) CAPX	(3) Sales Growth	(4) Emp. Growth	(5) CAPX	(6) Sales Growth	(7) Emp. Growth	(8) CAPX	(9) Sales Growth	(10) Emp. Growth	(11) CAPX	(12) Sales Growth
GIIPS Exposure	-0.054	0.058	0.008				0.241***	0.202	0.024			
	(-0.55)	(0.37)	(0.08)				(2.69)	(0.92)	(0.22)			
GIIPS Exposure*Crisis	-0.106***	-0.167**	-0.147**				-0.084	-0.087	-0.118			
	(-2.92)	(-2.49)	(-2.48)				(-1.23)	(-0.70)	(-1.32)			
GIIPS Lead				0.020	0.085	-0.064				0.109	0.147	0.176
				(0.36)	(0.79)	(-0.90)				(1.49)	(1.29)	(1.23)
GIIPS Lead*Crisis				-0.059**	-0.106**	-0.085**				-0.138**	-0.182**	-0.224***
				(-2.48)	(-2.40)	(-2.31)				(-2.24)	(-2.04)	(-3.39)
Crisis	0.186*	0.138	0.318*	0.155	0.290	0.431***	0.007	0.056	-0.075***	-0.003	0.050	-0.071**
	(1.90)	(1.07)	(1.68)	(1.39)	(1.05)	(3.03)	(0.27)	(1.27)	(-2.68)	(-0.10)	(0.99)	(-2.14)
Crisis*Zero Exp.							-0.005	-0.016	-0.009			
							(-0.32)	(-0.65)	(-0.49)			
Crisis*Zero Lead										-0.006	-0.038	-0.013
										(-0.42)	(-1.19)	(-0.56)
Bond outstanding	-0.034	-0.031	0.050	-0.066**	-0.043	0.028	0.013	0.014	0.013	0.018	0.037	-0.007
	(-1.23)	(-0.27)	(0.85)	(-1.99)	(-0.34)	(0.41)	(0.86)	(0.44)	(0.67)	(1.18)	(0.99)	(-0.33)
Bond outstanding*Crisis	0.007	-0.003	-0.016	0.023	0.004	-0.001	0.014	0.009	0.025	0.015	-0.001	0.035*
	(0.31)	(-0.04)	(-0.40)	(1.00)	(0.06)	(-0.02)	(0.99)	(0.31)	(1.33)	(1.00)	(-0.05)	(1.67)
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	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R2	0.120	0.334	0.224	0.150	0.295	0.260	0.071	0.315	0.176	0.085	0.317	0.181
N	1517	1769	1651	1125	1271	1211	3261	3692	3630	2512	2893	2850

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

Table 8: Alternative Measure of GIIPS Exposure

Table (8) 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: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries). GIIPS Affected measures the fraction of affected lead arrangers based on the sovereign debt holdings of banks in a firm's syndicates. 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. Columns (6)-(10) additionally include 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.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
GIIPS Affected	0.001	0.159	0.020	0.092	-0.012	-0.013	0.143	0.082	0.097	-0.017
	(0.02)	(1.29)	(0.36)	(1.05)	(-0.57)	(-0.18)	(1.13)	(1.44)	(1.08)	(-0.88)
GIIPS Affected*Crisis	-0.070***	-0.087***	-0.069***	-0.064***	-0.003	-0.052**	-0.076**	-0.072**	-0.074**	-0.007
	(-3.85)	(-3.04)	(-2.76)	(-2.86)	(-0.39)	(-2.32)	(-1.97)	(-2.13)	(-2.54)	(-0.70)
Cash Flow*GIIPS Affected					-0.093*					-0.090*
					(-1.80)					(-1.77)
Cash Flow*Crisis					0.004					0.005
					(0.69)					(0.74)
Cash Flow*GIIPS Affected*Crisis					0.137**					0.138**
					(2.47)					(2.49)
Crisis	-0.013	-0.006	-0.077***	-0.021	0.004	0.239***	0.272	-0.037	-0.031	-0.036
	(-0.92)	(-0.22)	(-3.88)	(-0.99)	(0.89)	(5.05)	(0.81)	(-0.40)	(-0.36)	(-1.18)
Bond outstanding	0.008	0.023	-0.002	0.002	-0.008*	0.006	0.022	0.004	0.002	-0.008*
	(0.58)	(0.54)	(-0.07)	(0.08)	(-1.70)	(0.38)	(0.52)	(0.15)	(0.09)	(-1.75)
Bond outstanding*Crisis	0.020	0.007	0.028	0.001	0.003	0.014	0.003	0.022	-0.001	0.003
	(1.50)	(0.24)	(1.39)	(0.03)	(0.60)	(1.05)	(0.10)	(1.13)	(-0.03)	(0.68)
Firm Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	NO	NO	NO	NO	NO	YES	YES	YES	YES	YES
R2	0.084	0.306	0.176	0.250	0.102	0.101	0.314	0.199	0.262	0.116
N	3503	4003	3901	4114	3450	3503	4003	3901	4114	3450

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

Table 9: Firms with constant GIIPS Bank dependence

Table 9 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: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries) which have either a constant overall exposure to GIIPS banks (Columns 1-5) or a constant fraction of GIIPS lead arrangers (Columns 6-10). GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. 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.

	(1) Emp Growth	(2) CAPX	(3) Sales Growth	(4) Net Debt	(5) Δ Cash	(6) Emp Growth	(7) CAPX	(8) Sales Growth	(9) Net Debt	(10) Δ Cash
GIIPS Exposure*Crisis	-0.136***	-0.151**	-0.128*	-0.068*	-0.014					
	(-3.20)	(-2.19)	(-1.86)	(-1.65)	(-0.93)					
GIIPS Lead*Crisis						-0.075***	-0.119**	-0.113***	-0.085***	0.004
						(-2.97)	(-2.48)	(-2.81)	(-2.59)	(0.45)
Cash Flow*GIIPS Exposure					-0.045					
					(-1.34)					
Cash Flow*GIIPS Exposure*Crisis					0.147***					
					(3.85)					
Cash Flow*GIIPS Lead										-0.033
										(-0.83)
Cash Flow*GIIPS Lead*Crisis										0.091**
										(2.17)
Cash Flow*Crisis					-0.006					-0.000
					(-1.04)					(-0.03)
Crisis	0.203***	-0.287***	0.199	-0.204***	0.157***	0.135***	1.256***	-0.376**	0.167	-0.085***
	(4.32)	(-6.54)	(1.46)	(-6.63)	(5.38)	(2.63)	(8.58)	(-2.47)	(1.57)	(-35.58)
Bond outstanding	-0.052	0.010	-0.036	-0.010	-0.014	-0.010	0.036	-0.002	-0.042	-0.025***
	(-1.50)	(0.16)	(-0.79)	(-0.20)	(-1.39)	(-0.48)	(0.62)	(-0.04)	(-1.46)	(-2.98)
Bond outstanding*Crisis	0.043	-0.026	0.025	0.017	0.008	0.032	-0.025	0.024	0.024	0.014*
	(1.23)	(-0.46)	(0.70)	(0.42)	(0.82)	(1.40)	(-0.51)	(0.60)	(0.82)	(1.81)
Firm Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R2	0.084	0.326	0.198	0.227	0.135	0.112	0.311	0.196	0.285	0.123
N	2623	3130	3019	3246	2623	2538	3002	2928	3093	2578

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

Table 10: High vs. Low Net Worth

Table 10 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: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries). GIIPS exposure measures the fraction of syndicated loans provided by banks incorporated in a GIIPS country. 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. Columns (1)-(5) include firms with an above median net worth (threshold measured before beginning of crisis). Columns (6)-(10) consider firms with a below median net worth. All firm level control variables are included, but not reported.

Panel A: GIIPS Exposure

	High Net Worth					Low Net Worth				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
GIIPS Exposure	0.223*	0.262	0.051	0.186	0.059	0.068	0.203	0.129	0.139	-0.019
	(1.75)	(0.98)	(0.32)	(1.46)	(1.34)	(0.76)	(1.44)	(1.21)	(1.46)	(-0.79)
GIIPS Exposure*Crisis	-0.100*	-0.171*	-0.153**	-0.113**	-0.039*	-0.129***	-0.114*	-0.161***	-0.084**	0.017
	(-1.84)	(-1.67)	(-2.01)	(-1.99)	(-1.77)	(-3.14)	(-1.88)	(-2.60)	(-1.98)	(1.26)
Cash Flow*GIIPS Exposure*Crisis					0.138*					0.115***
					(1.92)					(3.22)
R2	0.113	0.335	0.180	0.256	0.103	0.095	0.347	0.204	0.223	0.147
N	2464	2746	2669	2804	2372	2314	2715	2612	2750	2270

Panel B: GIIPS Lead

	High Net Worth					Low Net Worth				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash	Emp Growth	CAPX	Sales Growth	Net Debt	Δ Cash
GIIPS Lead	0.013	-0.231	-0.231	-0.076	0.024	0.125**	0.273***	0.143*	0.133**	-0.013
	(0.17)	(-1.53)	(-1.50)	(-0.61)	(0.43)	(2.31)	(3.23)	(1.72)	(2.00)	(-0.81)
GIIPS Lead*Crisis	-0.081*	-0.196**	-0.104*	-0.106**	-0.032	-0.085**	-0.174***	-0.119**	-0.082*	-0.008
	(-1.83)	(-2.41)	(-1.85)	(-2.12)	(-1.57)	(-2.28)	(-2.95)	(-2.03)	(-1.80)	(-0.70)
Cash Flow*GIIPS Lead*Crisis					0.199**					0.080*
					(2.05)					(1.89)
R2	0.111	0.337	0.196	0.291	0.116	0.133	0.351	0.223	0.248	0.135
N	1819	2053	2006	2090	1781	1818	2111	2055	2135	1793
Firm Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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

Table 11: Subsidiaries

Table 11 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) which have an above sample median fraction of their revenues generated by non-GIIPS subsidiaries (Panel A) and Germany, France, and U.K. (non-GIIPS countries) that do not have any foreign subsidiary in a GIIPS country (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. All firm level control variables are included, but not reported. Standard errors are adjusted for heteroskedasticity and clustered at the firm level.

	(1) Emp Growth	(2) CAPX	(3) Sales Growth	(4) Net Debt	(5) Δ Cash	(6) Emp Growth	(7) CAPX	(8) Sales Growth	(9) Net Debt	(10) Δ Cash
Panel A: GIIPS Firms with above median revenue generated by non-GIIPS subsidiaries										
GIIPS Exposure	-0.198	-0.100	-0.133	-0.177	-0.004					
	(-1.63)	(-0.37)	(-0.70)	(-0.94)	(-0.09)					
GIIPS Exposure*Crisis	-0.225***	-0.334**	-0.216**	-0.175	-0.030					
	(-2.63)	(-1.99)	(-2.38)	(-1.55)	(-1.21)					
GIIPS Lead						0.085	-0.058	-0.113	-0.135	-0.015
						(0.94)	(-0.36)	(-0.67)	(-0.98)	(-0.50)
GIIPS Lead*Crisis						-0.127**	-0.283***	-0.133**	-0.163**	-0.003
						(-2.14)	(-2.78)	(-2.23)	(-2.38)	(-0.22)
Cash Flow*GIIPS Exposure*Crisis					0.310**					
					(2.34)					
Cash Flow*GIIPS Lead*Crisis										0.137**
										(2.33)
R2	0.238	0.252	0.332	0.314	0.192	0.202	0.283	0.372	0.310	0.272
N	380	422	422	430	380	318	356	355	363	322
Panel B: non-GIIPS firms without GIIPS subsidiaries										
GIIPS Exposure	0.203*	0.440	0.144	0.165	-0.012					
	(1.86)	(1.05)	(1.07)	(1.12)	(-0.30)					
GIIPS Exposure*Crisis	-0.072	-0.084	-0.048	-0.115	-0.001					
	(-1.07)	(-0.68)	(-0.53)	(-1.44)	(-0.05)					
GIIPS Lead						0.329*	0.117	0.050	0.254	0.088
						(1.81)	(0.33)	(0.16)	(0.51)	(0.65)
GIIPS Lead*Crisis						-0.469***	-0.522***	-0.566***	-0.542**	-0.053
						(-4.94)	(-4.07)	(-2.95)	(-2.01)	(-0.69)
Cash Flow*GIIPS Exposure*Crisis					0.095*					
					(1.82)					
Cash Flow*GIIPS Lead*Crisis										0.339***
										(9.17)
R2	0.085	0.321	0.185	0.205	0.141	0.109	0.311	0.190	0.250	0.136
N	1747	2052	1993	2160	1761	1270	1531	1490	1603	1308
Firm Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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

46

Table 12: Unobserved Industry Shocks

Table (12) 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: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries). GIIPS exposure measures the fraction of total outstanding 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 industry*country*year fixed effects where industries are defined as one-digit SIC codes. Standard errors are adjusted for heteroskedasticity and clustered at the firm level. All firm level control variables are included, but not reported.

	(1) Emp Growth	(2) CAPX	(3) Sales Growth	(4) Net Debt	(5) Δ Cash	(6) Emp Growth	(7) CAPX	(8) Sales Growth	(9) Net Debt	Δ Cash
GIIPS Exposure	0.115 (1.51)	0.176 (1.35)	0.014 (0.16)	0.072 (1.05)	0.003 (0.15)					
GIIPS Exposure*Crisis	-0.104*** (-3.07)	-0.149** (-2.56)	-0.124** (-2.37)	-0.059* (-1.69)	-0.006 (-0.53)					
GIIPS Lead						0.076 (1.21)	0.082 (0.67)	0.015 (0.19)	0.067 (1.15)	0.004 (0.17)
GIIPS Lead*Crisis						-0.054** (-2.00)	-0.162*** (-3.10)	-0.096** (-2.47)	-0.092*** (-2.60)	-0.004 (-0.38)
Cash Flow*GIIPS Exposure					-0.013 (-0.48)					
Cash Flow*GIIPS Exposure*Crisis					0.103*** (3.51)					
Cash Flow*GIIPS Lead										-0.038 (-1.00)
Cash Flow*GIIPS Lead*Crisis										0.074* (1.94)
Cash Flow*Crisis					-0.008 (-1.61)					-0.001 (-0.23)
Crisis	-0.356*** (-2.79)	0.956*** (11.79)	1.180*** (3.79)	-0.328* (-1.71)	-0.017 (-0.59)	0.204*** (4.56)	-0.179* (-1.76)	-0.333*** (-6.64)	-0.267 (-0.83)	0.027 (0.35)
Bond outstanding	0.005 (0.39)	-0.005 (-0.15)	0.023 (1.23)	-0.001 (-0.08)	-0.006 (-1.41)	0.006 (0.41)	0.007 (0.20)	0.004 (0.17)	-0.000 (-0.02)	-0.005 (-1.07)
Bond outstanding*Crisis	0.013 (1.02)	0.020 (0.78)	0.021 (1.23)	0.008 (0.45)	0.003 (0.80)	0.014 (1.00)	0.023 (0.78)	0.030 (1.63)	0.009 (0.46)	0.001 (0.15)
Firm Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry*Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
R2	0.165	0.387	0.250	0.315	0.184	0.194	0.402	0.285	0.375	0.197
N	4778	5461	5281	5629	4668	3637	4164	4061	4280	3593

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

Table 13: Listed vs. Non-Listed Firms

Table 13 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) Emp Growth	(2) CAPX	(3) Sales Growth	(4) Net Debt	(5) Δ Cash	(6) Emp Growth	(7) CAPX	(8) Sales Growth	(9) Net Debt	(10) Δ Cash
GIIPS Exposure	0.206*	-0.104	-0.152	-0.067	0.017					
	(1.89)	(-0.56)	(-1.16)	(-0.69)	(0.55)					
GIIPS Exposure*Crisis	-0.086**	-0.115**	-0.144**	-0.090**	0.000					
	(-2.51)	(-1.98)	(-2.53)	(-2.32)	(0.03)					
GIIPS Lead						0.114	-0.041	-0.023	0.082	0.034
						(1.12)	(-0.24)	(-0.17)	(0.86)	(1.12)
GIIPS Lead*Crisis						-0.064**	-0.120**	-0.105**	-0.076**	0.000
						(-2.39)	(-2.43)	(-2.45)	(-2.25)	(0.03)
Cash Flow*GIIPS Exposure*Crisis					0.104***					
					(2.80)					
Cash Flow*GIIPS Lead*Crisis										0.090*
										(1.84)
R2	0.196	0.403	0.279	0.326	0.241	0.240	0.434	0.320	0.390	0.232
N	2620	3239	3100	3375	2640	1973	2454	2370	2547	2022
Panel B: Listed Firms										
GIIPS Exposure	0.144	0.462**	0.087	0.282***	-0.022					
	(1.25)	(2.26)	(0.81)	(2.81)	(-0.63)					
GIIPS Exposure*Crisis	-0.098	-0.198	-0.084	-0.068	-0.002					
	(-1.26)	(-1.42)	(-0.85)	(-1.05)	(-0.07)					
GIIPS Lead						0.158*	0.245	0.082	0.090	-0.006
						(1.86)	(1.29)	(0.78)	(1.06)	(-0.18)
GIIPS Lead*Crisis						-0.062	-0.107	-0.107	-0.067	-0.001
						(-1.38)	(-1.52)	(-1.58)	(-1.63)	(-0.06)
Cash Flow*GIIPS Exposure*Crisis					0.084					
					(1.37)					
Cash Flow*GIIPS Lead*Crisis										0.007
										(0.20)
R2	0.272	0.473	0.330	0.421	0.245	0.336	0.490	0.399	0.474	0.286
N	2158	2222	2181	2254	2028	1664	1710	1691	1733	1571
Firm Level Controls	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Industry*Country*Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

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

Table 14: Credit Lines: CapIQ Sample

Table 14 presents firm level regressions. The dependent variables are $\frac{CreditLine}{CreditLine+Cash}$ or $\frac{UndrawnCreditLine}{UndrawnCreditLine+Cash}$, respectively. The sample consists of all firms in the intersection of Dealscan, Amadeus, and CapIQ and located in the following countries: Germany, France, and U.K. (non-GIIPS countries) and Italy, Spain, Greece, Portugal, and Ireland (GIIPS countries). 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.

	(1)	(2)	(3)	(4)
	$\frac{CreditLine}{CreditLine+Cash}$	$\frac{CreditLine}{CreditLine+Cash}$	$\frac{UndrawnCreditLine}{UndrawnCreditLine+Cash}$	$\frac{UndrawnCreditLine}{UndrawnCreditLine+Cash}$
GIIPS Exposure	0.422		0.501	
	(1.27)		(1.09)	
GIIPS Exposure*Crisis	-0.482***		-0.540***	
	(-3.73)		(-3.47)	
GIIPS Lead		0.452		0.147
		(1.38)		(0.36)
GIIPS Lead*Crisis		-0.229*		-0.467***
		(-1.86)		(-2.90)
Crisis	0.255	-0.436***	0.157	-0.555***
	(1.14)	(-6.86)	(1.59)	(-4.45)
Bond outstanding	-0.017	0.019	0.040	0.058
	(-0.53)	(0.55)	(0.89)	(0.98)
Bond outstanding*Crisis	0.000	-0.023	0.003	-0.002
	(0.01)	(-0.62)	(0.05)	(-0.03)
Firm Level Controls	YES	YES	YES	YES
Firm Fixed Effects	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES
Country*Year Fixed Effects	YES	YES	YES	YES
R2	0.332	0.325	0.237	0.268
N	597	478	597	478

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