

**FINANCIAL REPRESSION
IN THE EUROPEAN SOVEREIGN DEBT CRISIS**

Bo Becker
Stockholm School of Economics and NBER

Victoria Ivashina
Harvard University and NBER

March 14, 2014
(Preliminary draft)

By the end of 2013, the share of government debt held by the domestic banking sectors of Eurozone countries was more than twice its 2007 level. We show that this increasing reliance on the domestic banking sector for placing government bonds generates crowding out of corporate lending. For a given firm, new debt is less likely to be a loan— i.e., the loan supply contracts— when local banks have absorbed more domestic sovereign debt and when that debt is risky (as measured by CDS spreads). These effects are most pronounced in the period following the second Greek bailout in early 2010.

Key words: Credit cycles; Sovereign debt; Crisis; Financial repression.
JEL Codes: G11, G22, G30

We thank James Zeitler, Erika McCaffrey, Patrick Clapp and Baker Library Research Services for assistance with data.

When country risk and bond yields rise, governments may resort to formal and informal pressures on the local financial sector to absorb new issues of government bonds, that is, to use “financial repression.” If a bank cannot raise additional funds, purchases of government debt can only be made at the expense of other investments. This could be particularly problematic if financial repression leads to contraction in corporate loan issuance since loans have a relationship benefit and therefore are not easily substituted by other forms of financing.¹

In this paper we show that financial repression of the banking sector was actively used during the European sovereign debt crisis. As illustrated in Fig. 1, following the start of the global financial crisis in 2008, Eurozone countries experienced a run-up in public debt issuance. The expanding sovereign debt was increasingly absorbed by the *local* banking sector (Fig. 2.)² On average, between 2010 and 2013, sovereign debt holdings of domestic banks (as opposed to foreign banks) increased by 5 percent of gross domestic product (GDP). The data for the early period of the crisis is scarce, but according to the Eurostat, between 2007 and 2012, government debt held by the domestic financial sector increased from 26% to 39% of GDP. The aggregate data, however, masks significant variation in government debt holdings from country to country. The shift toward reliance on the domestic banking sector was the largest for countries with the highest sovereign risk, i.e., those countries for which use of financial repression—a form of domestic default—might be most beneficial from the central government’s prospective. For example, between 2010 and 2013, Greece, Ireland, Italy, Portugal, and Spain (“GIIPS”) saw an

¹ This point is backed by a large strand of literature including seminal theoretical work by Diamond (1984, 1991).

² We use the term “local”, we mean belonging to the same country. E.g., for Greek sovereign debt, the local banking sector is the Greek banking sector.

increase in domestic banks' share of bank-held sovereign debt, on average, of 19 percentage points (or nearly 30%).

[FIGURES 1&2]

The expansion in government debt in the context of the global financial crisis was at least partly a response to the general economic stress and, consequent, collapse in tax revenue. In this context, local investment opportunities—the demand for corporate loans—might have contracted, which, in turn, might have lead banks to increase their holdings of sovereign debt.³ To show the crowding-out effect on corporate credit, we need to show a contraction in the bank credit supply. To do so, we build on the Becker and Ivashina (2014) methodology for detecting time-variation in credit conditions. We discuss the methodology in more detail in the next section, but the basic idea is that, if a given firm issues debt, changes in its choice of debt are informative about relative conditions of bank credit supply. If in periods characterized by expansion of bank's holding of domestic sovereign debt, more firms issuing debt choose to switch to bond financing we imply that there was a relative shift in cost of bank credit.

Similar to Becker and Ivashina's (2014) findings for the U.S. market, we show that, for a European firm, the choice of loans over bonds has a pro-cyclical pattern showing strong correlation with multiple proxies of availability of bank credit, including: survey based measures of tightening in lending standards; aggregate corporate lending growth; banks' non-performing loans; loan allowances; stock price index; and as GDP growth. (We discuss this methodology and our implicit assumptions in the next section.) Although, due to our methodology, we are

³ To explain the preference for local sovereign debt—in absence of any pressure from the local government, i.e., financial repression—there would need to be some additional frictions, e.g., “home bias.”

constrained to the analysis of the larger firms (firms with access to the bond market), supply of bank credit to small firms is likely to experience similar if not larger contraction.

This methodology cannot rule out a simultaneous shift in a bond supply. In our setting, however, the advantage is that we look at cross-country variation in expansion of sovereign debt. Thus if the expansion in bond supply would need to be country-specific and would have to positively correlate with the expansion of bank's holdings of government debt. As we will show, bond market conditions actually tend to tighten in such periods. This allows us to interpret switching in type of issued debt in our sample as difficulties in getting a bank loan.

Our findings indicate that, between 2007 and 2013, public debt expansion by ailing European countries and its increased absorption on the balance sheets of the domestic banking sector led to a reduced loan supply to large corporate issuers, as reflected in their increased propensity to switch from loan to bond financing. It is interesting that contraction in loan supply in the latter part of the sovereign debt crisis—the period between the second Greek bailout and the 2013:Q2 (the end of our sample)—is nearly three times larger than the contraction in loan supply that followed the period from Lehman Brothers' collapse through the first Greek bailout (Fig.3, Panel A). This is consistent with a prolonged and aggravating economic conditions triggered by the “the vicious cycle of banks hurting sovereigns and sovereigns hurting banks”.⁴

Although generally there is (as there should be) directional consistency between survey-based measures of bank credit conditions (Fig.3, Panel B) and the debt-substitution measure, it is hard to assess the effects of financial repression based on the survey information.

⁴ “Global Challenges in 2012,” statement by International Monetary Fund Managing Director Christine Lagarde January 23, 2012. The spill-over spiral between government debt and banking markets is formalized in Cooper and Nikolov (2014).

[FIGURE 3]

Financial repression affects the domestic sector; this is central to the interpretation of our result. Centralized, cross-country policy actions or regulatory measures cannot explain our finding. In particular, Basel III rules assign zero risk-weight in calculating capital requirements for all OECD government bonds, regardless of whether they are denominated in the issuing country's own currency. For the Eurozone, application of this rule does not favor home-country debt.⁵ Similarly, our finding is distinct from Drechsler et al. (2013) who find that weakly-capitalized European banks were more likely to purchase risky sovereign debt to use as collateral in accessing European Central Bank (ECB) subsidized lending facility. ECB lending facility set collateral haircuts based on the nature of the collateral (the country's credit rating), and not based on the counterparty. As such, it cannot explain relative increase in domestic share of the bank-held sovereign debt.

There are multiple channels through which governments could exercise pressure over their domestic banking sectors. Increased investment in home-country sovereign bonds could be explained by the expectation that bailout mechanisms will be national and favor those banks that hold home country sovereign debt. This is consistent with findings of home-country bias in sovereign debt holdings intensifying in times of economic distress. But as we will show, across large banks, there is no correlation between banks health and their relative preference for domestic sovereign debt. This suggests that the most important mechanisms for financial repression are likely to be other than implicit bailout guarantee. In particular, we find that government control through a direct equity holding is positively correlated with the spread of

⁵ See also "Squaring the Eurozone's Vicious Circle," by Lucrezia Reichlin and Luis Garicano, *Project Syndicate*, January 27, 2014.

financial repression. But there are other complementary channels through which central government can influence the local banking sector. Barth, Caprio and Levine (2001) and most recently, Iannotta, Nocera and Sironi (2013), show examples of government influence over banks.

The remainder of the paper is organized in four sections. In Section I, we provide a detailed discussion of the methodology and data used to construct the dependent variables. In Section II, we validate the methodology by replicating the central result in Becker and Ivashina (2014) for the European countries. Section III discusses our core results and Section IV concludes the paper.

I. Methodology and Data

A. Methodology: Mechanics

As shown earlier, during the European sovereign debt crisis, much of the public debt issued by governments was purchased by local banking sectors. We want to establish that, over this period, banks that took on more domestic government debt did so at the expense of their traditional lending activities. In other words, we want to show that reduction in credit was driven by contraction in credit supply, and not by contraction in credit demand, due to the pressure to buy local government debt. To measure movements in bank credit supply over time, we build on the methodology proposed by Becker and Ivashina (2014). The idea is that, conditional on firms' raising new debt financing (i.e., conditional on non-zero demand for debt), substitution from bank credit to public debt is indicative of a relative contraction in bank credit supply.⁶ As in

⁶ Note that this research design does not require perfect substitutability between public debt and bank loans. If substitutability is low, the tests will lack power.

Becker and Ivashina (2014), we are able to examine the choice of debt at the firm level, thus addressing potential concerns about compositional changes in the set of firms raising debt.

The dependent variable is quarterly indicator of the debt choice (L_{it}) which is equal to 1 if a firm i receives a bank loan, and 0 if a firm issues a bond in a given quarter t . The sample excludes any firm-quarter where no debt was raised. The basic estimated equation takes the following form:

$$L_{it} = c_i + \beta S_{It} + e_{it} \quad (1)$$

where c_i are firm fixed effects (within firm time-invariant effect); S_{It} is a time-series measure capturing government debt held by the banks in country I (the home country of company i) in quarter t . Inclusion of firm fixed effects, c_i , is core to the identification of movements in bank credit supply. The coefficient of interest, β , can be identified only if individual firms switch between loans and bonds. Due to firm fixed effects (c_i), including non-switchers in the sample— i.e., firms that only issue one type of debts— brings the coefficient of interest (β) toward zero, *regardless* of the type of debt that they issue. To reduce this bias, the sample is limited to firms that issued bonds and loans over the period of our sample.

Our goal is to measure relative rise in the cost of bank debt. As the “true” loan price (r_l) is not observable, we imply movement in the relative cost of bank debt ($r^l - r^b$) from a firm’s decision to switch the source of debt. The quarterly indicator of the debt choice (L_{it}) can be written as:

$$L = \begin{cases} 1 & \text{if } F(r^l - r^b) \geq \alpha \\ 0 & \text{if } F(r^l - r^b) < \alpha . \end{cases} \quad (2)$$

As in Kashyap, Stein and Wilcox (1993), $F(\cdot)$ is a decreasing function which reflects that loans have a “relationship” benefit. This function highlights that while the change in relative cost of loans and bonds, $(r^l - r^b)$, is continuous, the observable outcome—debt choice—is not. Some firms in our sample will continue to obtain bank credit despite the fact that loans become more expensive for them, meaning we will miss changes in bank credit conditions. This makes it harder for us to find the evidence that we are looking for.

Similarly, the “true” demand for credit is not observable; implicitly, we are using a proxy for non-zero demand for debt. We know for certain that a firm that issues a loan or a bond has a non-zero demand for credit, but the methodology misses firms with non-zero demand for debt that cannot get a loan or a bond when private credit is crowded out by government debt.⁷ If the demand was observable, instead of dropping quarters with non-zero demand where no debt was issued, we would code them as $L \leq 0$ to reflect the severity of bank-credit constraint, the variable of interest. Such observations would make our case stronger; thus, missing these cases in our sample biases the estimate of β toward zero (against our findings.) Limiting the sample to firms with bonds issued within a narrow window makes this bias small.

B. Methodology: Validity of assumptions

The methodology is designed to measure fluctuations in relative cost of bank debt $(r_i^l - r_i^b)$, but we are interested in bank credit contraction (i.e., an increase in r_i^l). Because we rely on country-specific variation in debt-substitution behavior, we implicitly assume that country-level bond-market conditions—as measured by yield spread—are not negatively correlated with signs

⁷ Note that, because of the firm fixed effect, this is only a concern for firms that a) use both types of debt over the span of our sample and b) only drop out of the sample in periods of financial repression.

of financial repression, that is $dr_i^b/dS_{IT} \geq 0$. Although, through the period of the sovereign debt crisis, the overall conditions of bond supply in the Eurozone had been easing as a result of ECB cutting its benchmark rate to record low levels, this cannot explain the cross-country variation in propensity to switch from loans into bonds. To give a concrete example, for an expansion in bond supply to explain our finding, it would need to be the case that Greek firms face the lowest cost of public debt among the European companies just as Greek sovereign debt—and its country risk—increases. But if the cost of bonds reflects a country risk premium, the result should be just the opposite. This point is illustrated in Fig. 5. Moreover, financial repression does not only affect the banking sector. Captive domestic intermediaries can include traditional bond investors like pension funds and insurance companies. Thus, expansion sovereign debt is likely to depress both the domestic supply of bank debt and of bonds. This last point actually biases our estimates toward zero (against our finding).

[FIGURE 5]

The second assumption embedded in interpretation of our results is that preference, or demand for different type of debt, stays constant over time. In other words, we assume that it is not the case that Greek firms favor bonds over loans—for reasons *other* than credit conditions—as the country sovereign debt crisis escalates. This is consistent with the common prediction in the economic literature that in economic downturns, firms are likely to prefer bank debt because of its advantages in monitoring and renegotiation. Becker and Ivashina (2014) provide a discussion of plausibility of a range of alternative explanations that relate to the countercyclical shift in demand for bonds and we do not repeat it here.

C. Sample

The benchmark sample consists of non-financial European firms (excluding SIC codes 6000 to 6999) that issued loans and bonds between 1996 and 2013:Q2. We look at substitution between term loans (installment loans as opposed to revolving line) and bonds.⁸

Our firm-level data on bonds comes from Thomson Reuter's SDC Platinum database. We exclude convertible bonds, mortgage- and asset-backed bonds, and preferred stock (which appear under bonds in SDC). The median bond issue in our sample is equivalent to \$225 million, and the mean is equivalent to \$1,865 million. The median maturity of bonds is 5.1 years and the average is 5.8 years; the average is slightly shorter at end of our sample. Less than 10% of bonds in our sample have maturities of two years or less.

Firm-level data on term loans issuance is compiled from two different sources: (i) Thomson Reuters' DealScan database of syndicated loans, and (ii) CapitalIQ. To make sure that we analyze similar forms of debt, we look at bonds and term loans rather than revolving credit lines, as a revolving line is unlikely to be a close substitute for a bond. Approximately 8,000 loans (74%) in the sample are from Dealscan and 2,800 loans (26%) are from CapitalIQ. DealScan tracks new issuance of large loans; the median loan size in our sample is equivalent to \$294 million, and the mean is equivalent \$1,052 million.⁹ CapitalIQ reports bank loan balance by type of loan (term loans and revolving lines) on an annual basis. We infer that a new term loan has been issued when the balance of term loans increases from one report to the next. This procedure will miss new term loans which are not associated with an increase in loans outstanding.

⁸ A revolving line would be comparable to commercial paper, but we do not observe commercial paper issues for European firms. Becker and Ivashina (2014) find that in US data, revolving loans and commercial paper produce similar results to those obtained using term loans and bonds with this methodology.

⁹ 91% of loans in the Eurozone and 30% of loans in the rest of Europe are denominated in Euro. Here all amounts are converted to dollars using issue date spot exchange rate. The variable of interest for us is the choice of debt (a dummy), as opposed to the issue amount.

Additionally, we are unsure in which quarter a loan was issued. We have tried a number of approaches in our regressions to evaluate the sensitivity of our findings to this issue, including randomizing quarter assignment, assigning all CapitalIQ loans to a particular quarter, or simply analyzing the data at an annual frequency. All these approaches give similar results to the ones reported here, which spread loans evenly across quarters.

The data used in the analysis is organized as a panel of firm-quarter observations. Multiple loan issues in the same quarter are counted as one, and we count bond issues the same way. We define the dependent variable for our regressions (bank credit) as one if a firm issues a new term loan but no bonds, and as zero if it issues a bond but no term loans. We exclude any quarters with issuance of both types of debt (2,507 firm-quarters).¹⁰

Table 1 summarizes the composition of the sample by country and by year. Our starting sample has 13,609 firm-quarters. (Since firm quarters where no new debt was issued are excluded, the panel is unbalanced.) Italy and Germany have the lowest incidence of bank debt issuance; 26.5%, and 32.0%, respectively, of their debt issues were bank loans. As reported in Becker and Ivashina (2014), 32.3% of U.S. firms issued bank debt over the same period. Some of the variation at the high end of the bank debt issuance spectrum might be driven by a small number of observations; excluding these outliers, approximately 55-60% of firms issuing new debt choose bank debt.

[TABLE 1]

¹⁰ An alternate way of dealing with such observations is to set the dependent variable equal to the share of new debt that comes from bank loans, or when no amounts are available, the number share. This increases our sample size by around a fifth, but doesn't change our results in any important way.

II. The cyclicalness of European bank lending

We start by validating a connection between loan and bond substitution and common proxies of bank lending conditions. The results are reported in Table 2.¹¹ We use six different proxies:

Tightening in lending standards is a survey-based variable collected by central banks, which is available for eleven Eurozone countries in our sample. A higher value indicates that more banks report tighter credit standards (contraction in bank credit). For seven countries, the data is available from 2003 onward; for the other four countries, that data is available after 2007:Q2.¹² This explains the relatively small size of the sample in specification (1). Although the surveys' data is not always methodologically comparable across countries, this is not an issue for our analysis given that we focus on debt issuance choices within firms.

The next three variables are constructed using Bankscope and use bank balance-sheet information. The first, *Aggregate lending growth*, is measured as a four-quarter rolling-window growth in outstanding loans for all banks in a country. The *Non-performing loans* variable is based on realized losses and is defined as the ratio of non-performing loans to total loans, also for the entire banking sector. *Loan allowances*, a forward-looking measure of bank-portfolio quality, is defined as the ratio of loan allowances to total loans. We use asset-weighted averages by quarter to consolidate the data across different banks within a country. Both measures of bank portfolio quality should be negatively associated with bank-credit conditions: a higher value is likely to be associated with a contraction in bank-credit supply.

¹¹ All results estimated using ordinary least squares (OLS). Using logit or probit regressions does not affect our conclusions.

¹² More information about country level reporting can be found at <http://www.ecb.europa.eu/stats/money/surveys/lend/html/index.en.html>.

The last two variables, *GDP growth* and *Bank stock-index*, are based on the credit supply and are important for the evolution of the business cycle as postulated in the theoretical literature including Bernanke and Gertler (1989), Holmström and Tirole (1997), Kiyotaki and Moore (1997), and Diamond and Rajan (2005). Stronger economic growth—as measured by either of the proposed proxies—is likely to be associated with an expansion of bank credit. *GDP growth* is real change in per capita gross domestic product, at quarterly frequency (but relative to the year prior to avoid seasonality), collected from the Eurostat website. We form a stock price index of domestic banks in each country (equally weighted), and we use the log of the stock index as an independent variable.

In complement to the results for the U.S. reported in Becker and Ivashina (2014), we find strong cyclical substitution from loans into bonds in periods that should be characterized by low credit supply. More firms switch from loans to bonds in periods when a large percentage of banks are tightening credit standards, bank credit growth is low, balances of non-performing loans and loan allowances are large, economic growth is low, and stock prices are depressed. The signs are as predicted, and all coefficients are statistically significant at the conventional levels. The coefficient estimate of .858 for GDP growth implies that a one standard deviation decrease in GDP growth is associated with a 2.06 percentage point decrease in probability that a firm gets a loan, conditional on receiving debt financing (a 5.3% decrease over the sample mean.) A bank's stock price is also strongly linked with new corporate debt being issued as bank loans rather than bonds. A 50% increase in the stock price of domestic banks is associated with a 2.25 percentage point increase in the fraction of new debt issued as loans.

The result using survey-based tightening in lending standards (specification (1)) is particularly interesting because this is the most direct measure of credit conditions. Furthermore,

this only includes Eurozone countries. Given that member countries do not have national currencies, the result cannot be explain by cross-country variation in monetary policy.

[TABLE 2]

III. Main results

A. Sovereign debt on bank balance sheets

Our main result establishes that contraction in corporate loan supply is a byproduct of higher bank investment in domestic sovereign bonds during periods that are likely to be characterized by financial repression. The most direct test is to look at the sovereign debt holdings of domestic banks and firms' debt issuance, the results are reported in Table 3, specifications (1) through (3).

The data for bank holdings of local government debt comes from the European Banking Authority's (EBA) 2011 Stress Tests, 2011/2012 Capital Exercise and 2013 Transparency Exercise. The information is available at the bank level and covers the period between December 31, 2010 and June 30, 2013 with semiannual frequency (four snapshots). The specific variable in the stress tests that we look at is "Gross Direct Long Exposures (accounting value gross of specific provisions)"; it is reported by country which allows us to measure domestic sovereign debt holdings. Country-level variables correspond to a value-weighted average across all banks covered by the EBA test (the largest banks) in a given country. We consider two alternative ways to scale bank holdings of domestic sovereign debt: (i) by risk-weighted assets, and (ii) by common equity.

The result in column (1) indicates that countries where banks hold more domestic sovereign debt on their balance sheets are the countries where bank lending, as a fraction of overall debt issuance drops the most. The economic magnitude of the effect is large: a one standard deviation increase in domestic sovereign exposure (14.5%) implies a reduction in the likelihood of new

corporate debt being a loan by 13.5 percentage points, which is very large compared to the coefficients for macro variables reported in Table 2.

Increasing sovereign risk—and, subsequently, the cost of government debt—are important parts of the financial repression mechanism. Local banks' holdings of domestic government debt (holdings of the captive audience) increase as a result of drop in traditional demand as the sovereign risk rises. Also, relatively safe sovereign debt can be used as collateral to rise additional funding, and therefore may not necessary be associated with a contraction in corporate lending. To capture the role of sovereign risk, we look at how local government debt interacted with country credit default swaps (CDS) spreads. CDS are a market-based measure of country risk, and capture the cost at which banks could insure themselves against sovereign default. The CDS data comes from Markit. We use logarithmic transformation of the 5-year CDS spread, measured as of the calendar year-end preceding the timing of the EBA data. As reported in columns (2) and (3), regardless of scaling, the association between domestic sovereign debt risk and lending is significantly negative. As before, the economic magnitude of the estimated coefficients is large.

[TABLE 3]

To extend our sample to a longer period, in specifications (4) to (6), we look at total—domestic and foreign—sovereign assets held by the banking sector expressed as a percentage of total assets. The data is obtained from Bankscope, and corresponds to the annual aggregate holdings of all domestic banks. The advantage of this data is that it covers a longer period. However, a drawback is that it does not distinguish between domestic and foreign sovereign debt. Since accounting conventions may not agree precisely across countries, we normalize sovereign debt holdings with bank assets rather than equity or risk-weighted assets, variables for

which variation in accounting treatment may matter more. Specification (4) uses the full Bankscope sample, which extends back to 1997. The coefficient is negative and significant, implying that high debt holdings of sovereign debt are associated with low loan availability for firms. In column (5), the focus is on the most recent period, when sovereign debt may be more important. The coefficient is now much larger and highly significant. (The coefficient estimate for the 1997-2006 period alone, not reported, is insignificant). The result is robust to year fixed effects, so the identification is only driven by within-country changes in sovereign debt holdings on bank balance sheets. The findings in columns (4) to (6) is consistent with the results in earlier specifications, but it simultaneously picks up general preference for sovereign debt during the European crisis documented in Drechsler et al. (2013). (These effects are not mutually exclusive.)

To compare the financial repression hypothesis to risk shifting shown by Dreschsler et al. (2013), we perform a placebo test. If European banks like to buy risky sovereign debt in order to risk-shift, a stronger predictor of lending than *domestic* sovereign debt ought to be the sovereign debt that carries the most risk. In the period in question, the country with the riskiest sovereign debt is Greece. In fact, Dreschsler et al. (2013), specifically focus on the divergence between Greek sovereign risk and its credit rating. Credit ratings were used as a base for a haircut applied by the ECB to the sovereign debt used as collateral to access its lending facility. Under the financial repression hypothesis, holding of foreign sovereign debt is not expected to have the same effect on lending as holdings of domestic sovereign debt. Whereas home debt has been forced upon unwilling banks, holding of foreign sovereign debt is voluntary. This is important, because it implies that home debt may be associated with missed lending opportunities, whereas other sovereign debt will not.

To distinguish domestic and general sovereign debt effect we reexamine the results in Table 3 with an extra control: the holdings of Greek debt by domestic banks. (Greek firms are excluded from this sample.) The results are reported in Table 4. Both with and without the CDS adjustment (specifications 1 and 2), holdings of domestic debt are negatively associated with the propensity to issue banks debt, whereas holdings of Greek debt have no effect on the choice of debt.

Greece is typically the country with the highest CDS spread in the period we study. However, several other countries also have very high CDS spreads in some periods. The bonds of such countries would be a natural target for any banks that wishes to take advantage of the subsidy embedded in the ECB funding facility (or exercise risk-shifting in a category favored by regulation). To generalize our result, in columns (3) and (4) we look at holdings of top-3 riskiest EURO-area sovereign bonds. That is, for any country, we add up holdings of sovereign bonds of the three countries with the highest spreads at the previous year-end. For example, for 2012, we use holdings of Greek, Cypriot, and Portuguese sovereign debt (the highest three CDS spreads at year end 2011). For banks from one of these countries, we use Irish debt instead (Ireland had the fourth highest CDS spread). So for Greek banks in 2012, Greek sovereign debt is the domestic debt, and the sum of holding of Cypriot, Portuguese and Irish sovereign debt is the exposure to the top-3 riskiest EURO-area countries. These results show that the effect that we measure is specific to the local debt, and so our earlier findings do not reflect risk shifting.

[TABLE 4]

An additional point in Dreschsler et al. (2013) is that undercapitalized banks are more likely to engage in risk-shifting. In Fig. 6 we use EBA 2011 Stress Test to look at the relation between bank capitalization and fraction of sovereign debt holdings that is in domestic debt. The figures

plot the cross-section of 90 banks that had information disclosed following the Stress Test. The point of this figure is that there is no clear association between bank health and relative preference for the domestic sovereign debt. Excluding outliers, this association is actually positive: banks with higher capital buffer (better banks) are more likely to hold domestic sovereign debt.

[FIGURE 6]

The lack of correlation between banks' health and propensity to hold domestic sovereign debt is also important in distinguishing financial repression from capitalization shock or liquidity shock. In a traditional bank lending channel, banks need to recapitalize and one way of doing it is by lowering its risk-weighted-assets by shifting to safe (zero-weight) securities. Given that bailout mechanism is primarily local, banks in distress should prefer domestic sovereign debt. In this case, contraction in credit is not due to the pressure to absorb local sovereign debt—there is no government pressure—the effect is a result of banks increasing their demand for local sovereign debt. Similarly, in downturns distressed banks are likely to have higher need for liquidity (run on deposits; simply less deposits or more withdrawals; or, alternatively, higher draw-downs on the revolving lines) the rest of the mechanism is the same. Again, in this case the fall in credit would be initiated by banks and not by local government. The fact that our results are not explained by weaker banks allows us to rule out these alternative explanations.

B. Sovereign debt and the crowding out of private credit

Data for bank holdings of domestic government debt is only available after 2010. To extend our result to a longer period we look at the relationship between the evolution of local government debt, its risk, and debt choice at the firm level. We capture a longer period, but we can no longer use the most direct measure of financial repression. The results are reported in

Table 5. In Panel A, the variable of interest is the level of local government debt as a percentage of GDP, measured at end of the preceding year. We expect to find a negative coefficient: as more debt is issued by the local government, a larger fraction of firms issuing debt face a higher relative cost of bank credit and, consequently, *switch away* from loans to bonds. This is exactly what we find.

Specifications (1) through (3) correspond to different time periods. The negative association between government debt and bank lending is strongest in the crisis period (2007-2013), which is the period over which rising financial repression became a concern. The estimated magnitude for this period implies that a ten percentage point increase in the ratio of public debt to GDP predicts a 3.5 percentage point lower likelihood of new debt being bank loans.

In specifications (4) through (6) we focus on the linearity of the effects of financial repression for highly levered countries. This builds on the idea in Reinhart and Rogoff (2009) that, beyond a certain level, public debt can be damaging to a country's economic growth. We focus on country-quarters with public debt to GDP levels between 60% (the limit specified in the European fiscal rules) and 90%, 90% to 120%, and above 120%. We find that the crowding out of bank credit is largely concentrated in country-quarters with public debt to GDP levels in excess of 90%. The incremental effect is positive, economically large, and statistically significant at the 1% level for country-quarters with 90% to 120% debt to GDP, and above 120% debt to GDP. This finding is consistent with the use of financial repression as an indirect form of government debt restructuring. It is also helpful for aggregate welfare assessments of our finding, given the result from a number of approaches summarized in Reinhart, Reinhart, and Rogoff (2012) show that very high levels of public debt have a negative effect on economic growth.

In Panel B the variable of interest is the sovereign CDS spread. Given that the frequency of the data is now quarterly, CDS is measured as of the quarter preceding the quarter of the analysis. The results are very similar to an increase in debt: an increase in the risk of local debt leads to a larger fraction of firms substituting from loans to bonds. Over the crisis period, a one standard deviation change in the CDS spread corresponded to a 2.2 percentage point contraction in a firm's likelihood of obtaining a bank loan.

[TABLE 5]

Because the regressions above estimate based on variables that vary by country and quarter, we cannot saturate the regression with country-times-quarter fixed effects, which would otherwise be a simple way to control for any country-specific business cycle and similar effects. Instead, we examine second order implications of the hypothesis that sovereign debt may squeeze out private credit. Specifically, we attempt to isolate firms that are more affected by local (i.e., domestic) loan supply. Any variable that predicts tight lending conditions should impact these firms more.

We look at three different measures that identify firms that are more likely to be more exposed to local bank-credit conditions: (i) firms whose latest bank loan was not syndicated, (ii) firms with the last debt funding below 250 million Euro; and (iii) firms that do not pay dividends. Results are reported in Table 6. We combine an identifier for exposed firms with either sovereign debt or the log of the sovereign CDS spread. In each case, the average effect of sovereign debt or CDS is not identified as we include country-times-year fixed effects.

[TABLE 6]

In four out of six columns, the coefficients are negative and significant, suggesting that the debt mix of exposed firms is more strongly correlated with sovereign debt problems. This

confirms that our main regressions pick up loan supply. Additionally, these results are consistent with an even larger impact of swings in loan supply due to sovereign debt for those firms that completely lack access to the bond market (and which therefore do not appear in our samples).

C. Mechanism of financial repression

As mentioned earlier, there are multiple mechanisms through which government can pressure domestic banks to take on its debt. As illustrated in Fig.6, it is unlikely that implicit bailout guarantee is the primary source of pressure on the banks in our sample. Direct channels, such as board seats or direct ownership are likely to be at play as well. In Fig. 7 we look at share of local banks with the majority equity stake controlled by the government. The data is from the World Bank 2013 Global Financial Report. The sample is conditional on countries with CDS spreads above 100 basis points as of December 2010. The idea is that only countries with rising sovereign risk are likely to use the financial repression. As the figure illustrates there is a positive relation between depth of government control over the banking sector and likelihood that the local government debt will primarily show up on the balance sheet of the domestic banks.

While suggestive, this unlikely to be the full picture of channels for financial repression is exercised. For example, although according to World Bank there no Spanish banks which are majority owned by the government, it is well known that government had large influence over the banking sector (Santos, 2013).

[FIGURE 7]

IV. Conclusions

The EU countries have experienced two financial crisis episodes in rapid succession: first, the financial crisis that spread from the US; and second, a longer and in some ways deeper crisis associated

with sovereign debt problems. Especially in the second crisis, when sovereign debt issuance has been very challenging for many countries (yield spreads to German debt as well as CDS spreads have reached historic highs), much of newly issued sovereign debt has been absorbed by domestic banks. This is especially true in some of the countries with the highest debt levels and the most dramatic increase in spreads, such as Greece and Italy. We apply a methodology from Becker and Ivashina (2014)—which avoids credit demand variation by comparing new loans to new bond issuance—to assess the impact of sovereign debt on private credit formation. We document that sovereign debt holdings in domestic banks are strongly negatively associated with new loans to banks (as a share of new debt financing for firms).

Our results are consistent with financial repression, i.e. sovereign governments using various means to induce banks to take on sovereign debt. The results are less consistent with risk shifting or gambling for resurrection (although a combination is possible). We do not document the means by which sovereigns under pressure induce banks to buy bonds. These may include regulation (e.g., setting low capital requirements on sovereign debt), moral suasion and ownership influence.

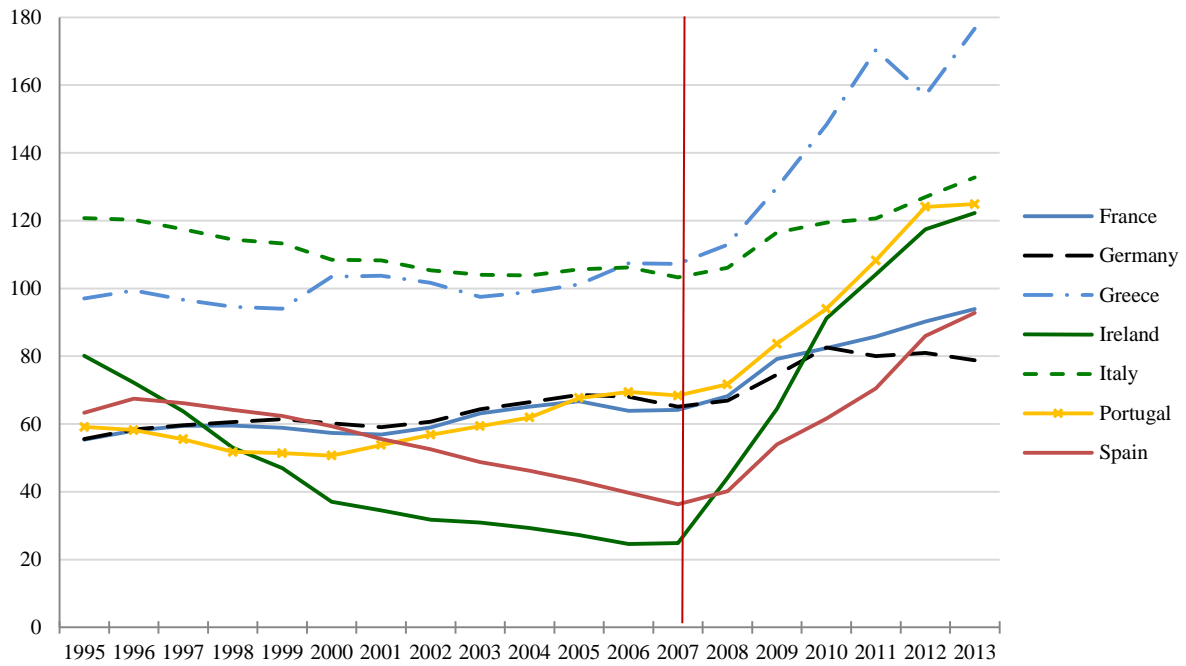
References

- Barth, J.R., Caprio Jr., G., Levine, R., 2001, "Banking systems around the globe: do regulations and ownership affect performance and stability?" *Prudential Supervision: What Works and What Doesn't*, Mishkin, F.S., ed., University of Chicago Press, Chicago, IL.
- Becker, B., and V. Ivashina, 2014, Cyclicity of Credit Supply: Firm Level Evidence, *Journal of Monetary Economics* 62, 76-93.
- Bernanke, B. and M. Gertler, 1989, "Agency Costs, Net Worth, and Business Fluctuations." *American Economic Review* 79, 14-31.
- Bolton, P. and O. Jeanne, 2011, "Sovereign Default and Bank Fragility in Financially Integrated Economies,"
- Cooper, R. and K. Nikolov, 2014, "Government Debt and Banking Fragility: The Spreading of Strategic Uncertainty," NBER Working Paper No 19278.
- Diamond, D., 1984, "Financial Intermediation and Delegated Monitoring," *Review of Economic Studies* 51, 393-414.
- Diamond, D., 1991, "Monitoring and Reputation: The Choice between Bank Loans and Directly Placed Debt," *Journal of Political Economy* 99, 689-721.
- Diamond, D. and Rajan, R., 2005, "Liquidity Risk, Liquidity Creation, and Financial Fragility: A Theory of Banking," *Journal of Political Economy* 109, 287-327.
- Drechsler, I., T. Drechsel, D. Marques-Ibanez, and P. Schnabl, 2013, "Who Borrows from the Lender of Last Resort?" Working paper.
- Holmström, B. and J. Tirole, 1997, "Financial Intermediation, Loanable Funds, and the Real Sector", *Quarterly Journal of Economics*, 112, 663-691.
- Iannotta, G., G. Nocera and A. Sironi, 2013, "The impact of government ownership on bank risk," *Journal of Financial Intermediation*, 22, 152-176.
- Kashyap, A., J. Stein, and D. Wilcox, 1993, "Monetary Policy and Credit Conditions: Evidence from the Composition of External Finance," *American Economic Review*, 83, 78-98.
- Kiyotaki, N. and Moore, J., 1997. Credit Cycles. *Journal of Political Economy* 105, 211-248.
- Myers, S., 1977, "The Determinants of Corporate Borrowing", *Journal of Financial Economics*, 5(2), 1977, 147-175.

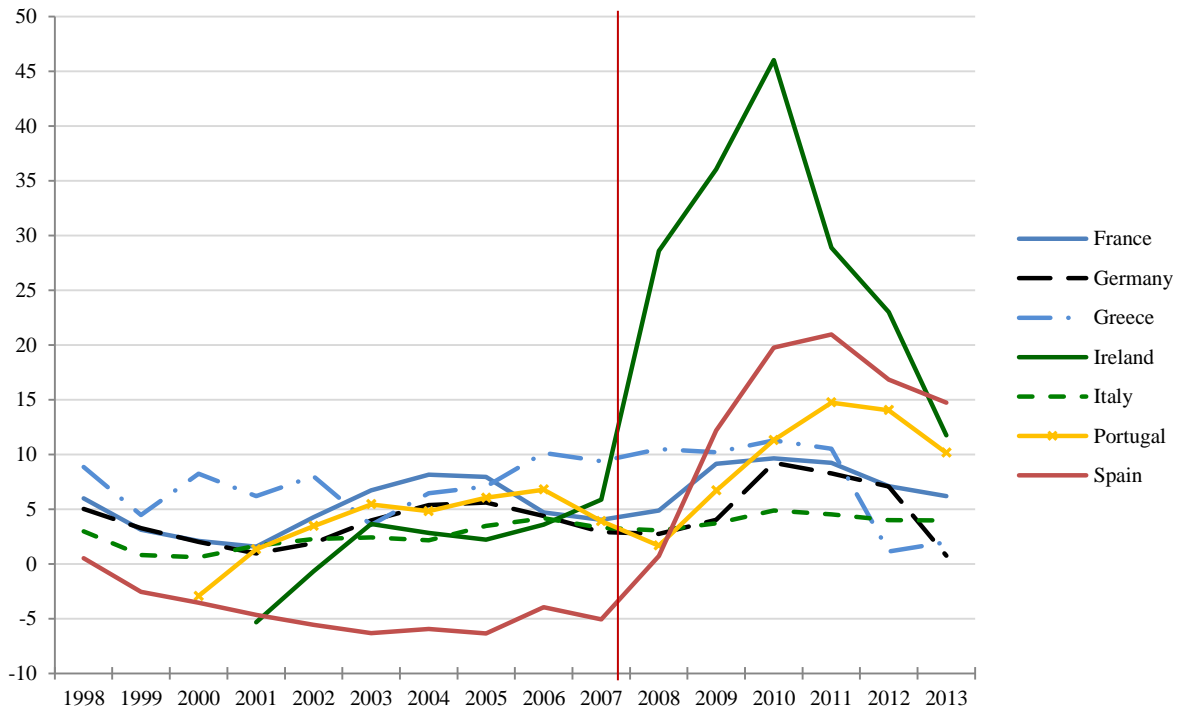
- Peek, J. and E. Rosengren, 2000, “Collateral Damage: Effects of the Japanese Bank Crisis on Real Activity in the United States”, *American Economic Review* 90, 30-45.
- Popov, A. and N. Van Horen, 2013, “The Impact of Sovereign Debt Exposure on Bank Lending: Evidence from the European Debt Crisis,” Working Paper.
- Reinhart, C. and B. Sbrancia, 2011, “The Liquidation of Government Debt,” NBER Working Paper 16893.
- Reinhart, C., V. Reinhart and K. Rogoff, 2012, “Public Debt Overhangs: Advanced-Economy Episodes since 1800”, *Journal of Economic Perspectives* 26, 69-86.
- Reinhart, C. and K. Rogoff, 2009, *This Time is Different – Eight Centuries of Financial Folly*, Princeton University Press.
- Santos, T., 2013, Antes del Diluvio: The Spanish Banking System in the First Decade of Euro,” Working Paper.

FIGURE 1. THE EVOLUTION OF PUBLIC DEBT, 1995-2013

A. Public debt/GDP (%)



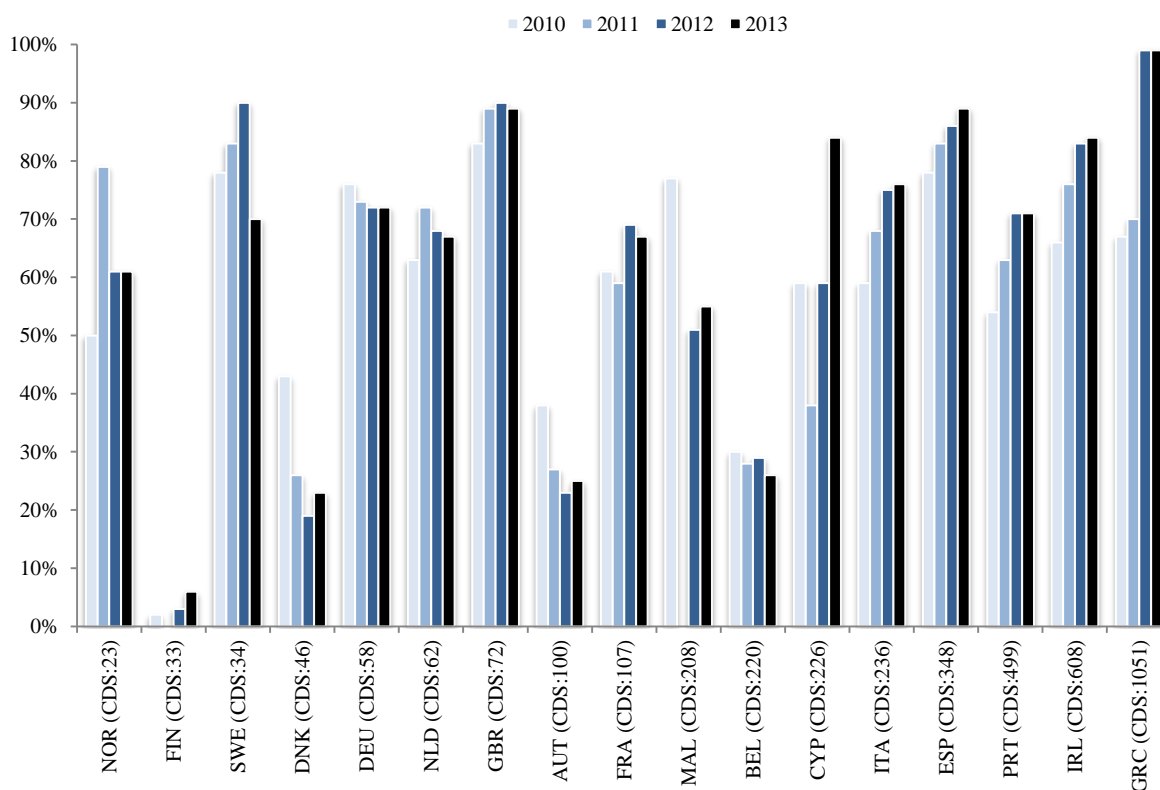
B. Public debt growth, national currency, 3-year rolling average (%)



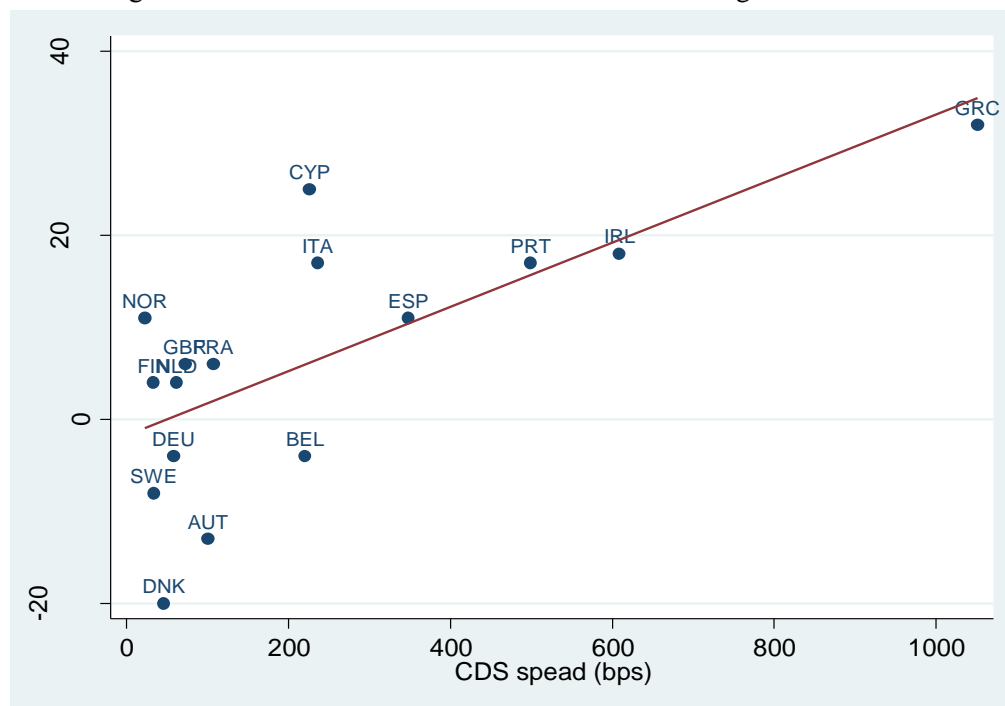
Notes: For public debt we use general government gross debt according to the convergence criteria set out in the Maastricht Treaty which comprises currency, bills and short-term bonds, other short-term loans and other medium- and long- term loans and bonds, defined according to ESA 95 and available through <https://stats.oecd.org/>.

FIGURE 2. FRACTION OF BANK-HELD SOVEREIGN BONDS HELD BY DOMESTIC BANKS

A. Domestic Banks' Share of Bank-Held Sovereign Bonds



B. Change in Domestic Banks' Share of Bank-Held Sovereign Bonds, 2013 vs. 2010



Notes: The figure is compiled from the European Central Bank, 2013 Transparency Exercise Summary Report. Countries are ranked based on CDS spreads measured in basis points as of December 2010.

FIGURE 3. EVOLUTION OF EUROPEAN CORPORATE CREDIT SUPPLY

A. Share of bank debt as a percentage of total new corporate debt financing

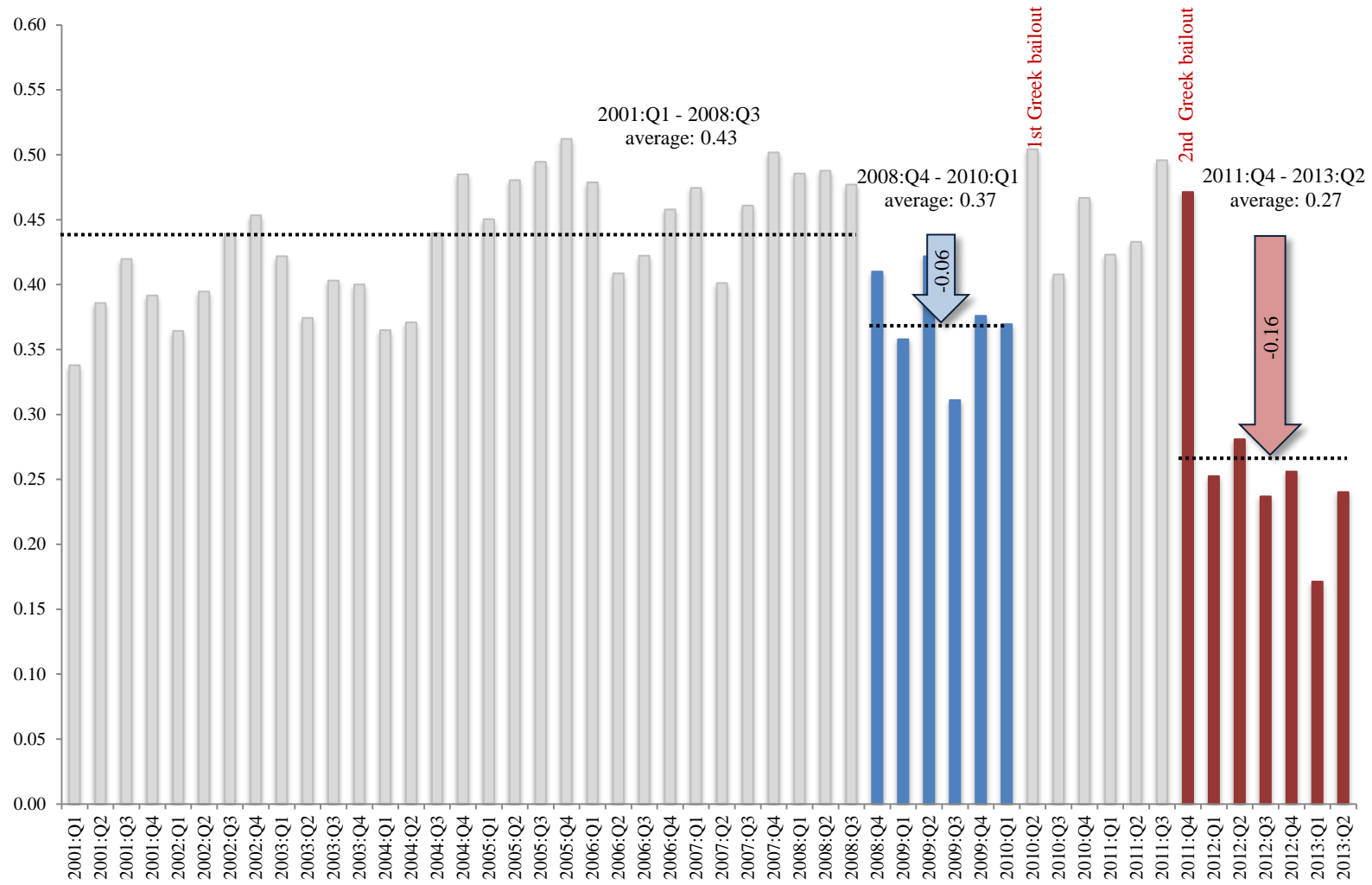
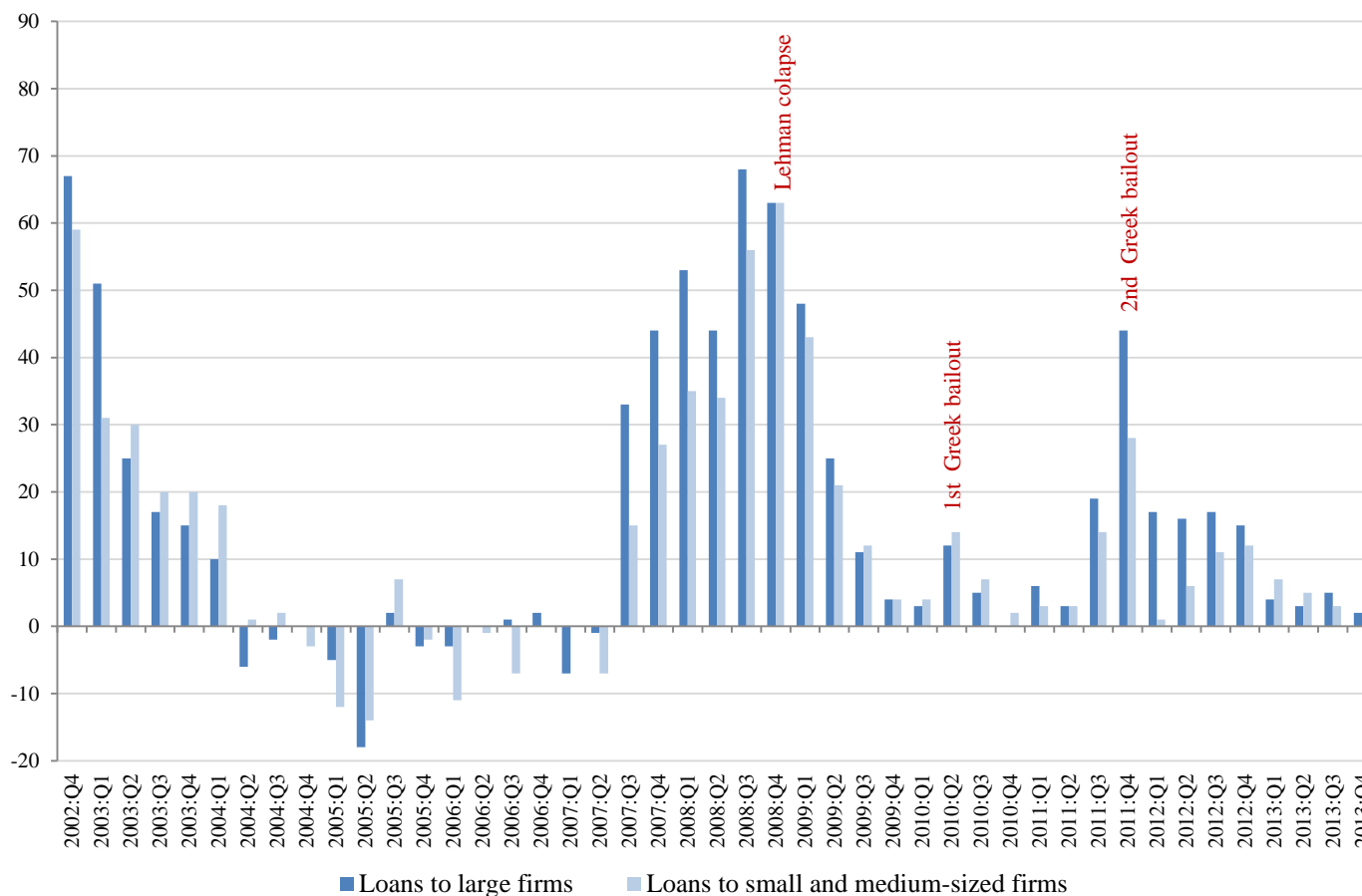


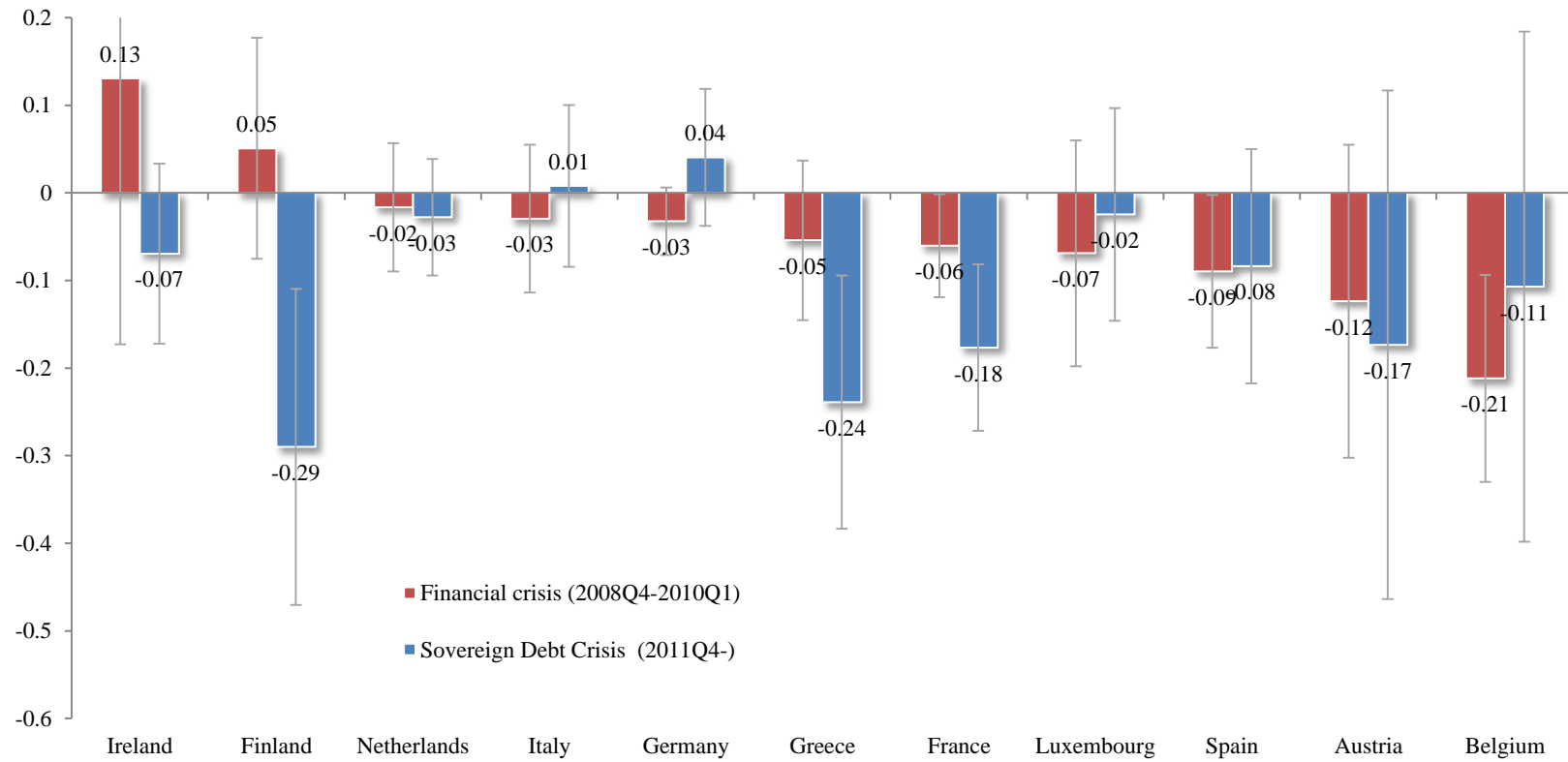
FIGURE 3. – CONTINUED

B. Net percentage of Banks Tightening Credit Standard for New Loans or Credit Lines to Enterprises



Notes: The figure shows two alternative measures of conditions of bank credit supply. Panel A plots number of firms issuing new bank loans as a fraction of all firms issuing new debt in a given quarter (Bank debt/Total debt). Data on tightening in lending standards comes from the ECB Euro area bank lending survey and corresponds to the net percentage of banks tightening credit standard for new loans or credit lines to enterprises.

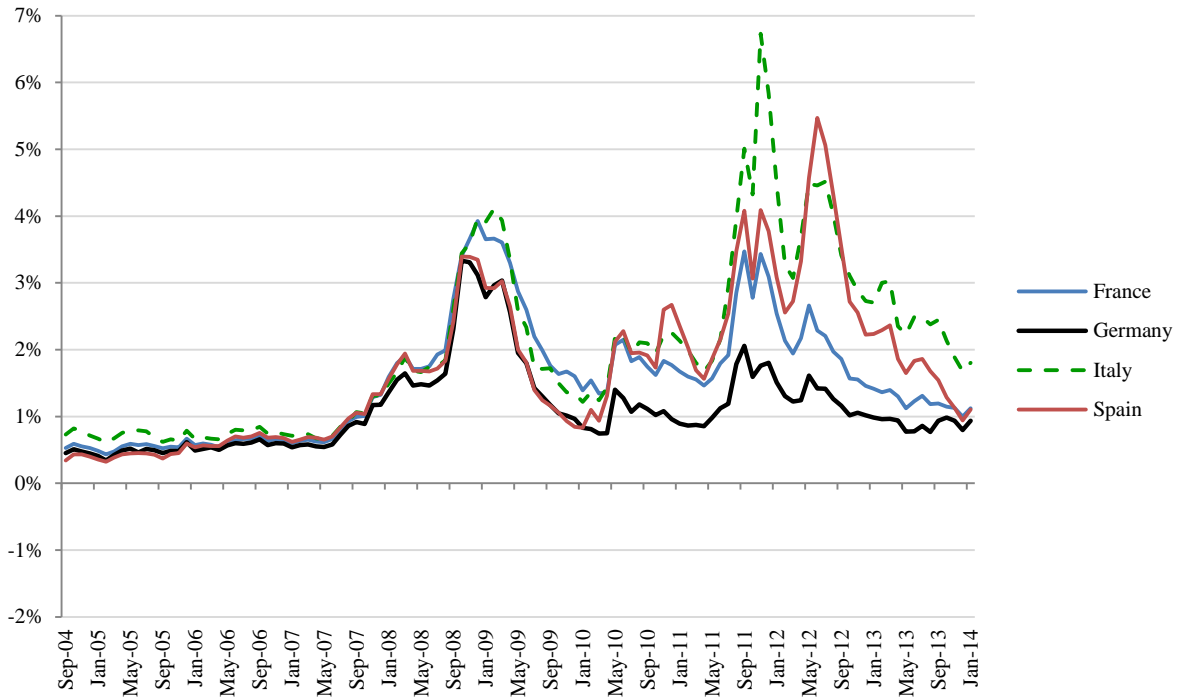
FIGURE 4. LOAN SUPPLY: CROSS-COUNTRY COMPARISON



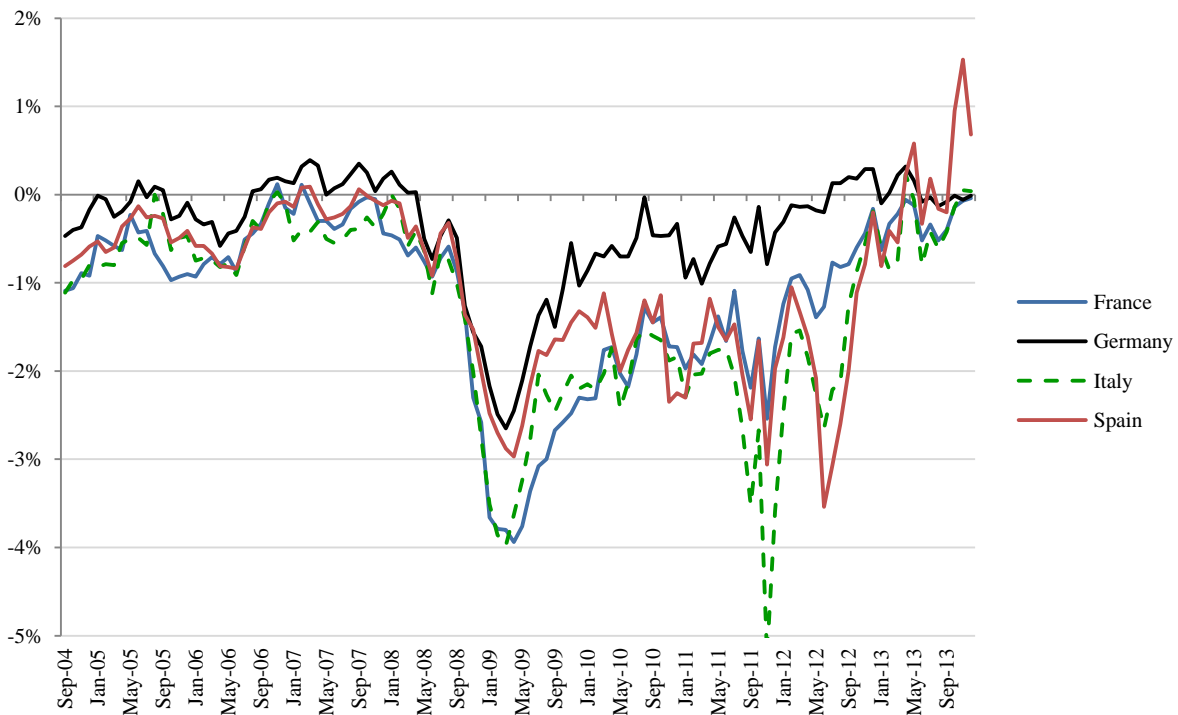
Notes: The figure shows coefficients on indicators for a country during two crisis episodes. Only EURO-area countries with sufficient data to estimate both coefficients are reported. Countries are sorted by the first coefficient.

FIGURE 5. EVOLUTION OF BOND AND LOAN RATES

A. Corporate Bonds Yield Spread

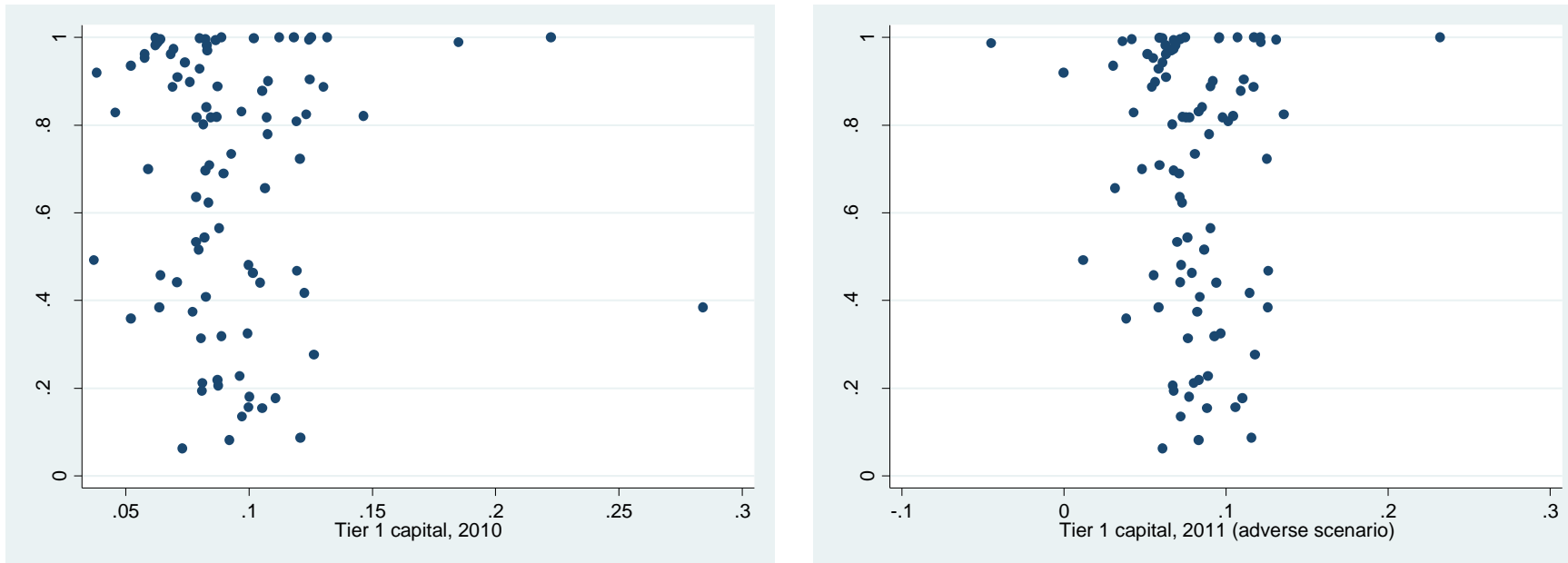


B. (Loan Rate – Corporate Bond Rate)



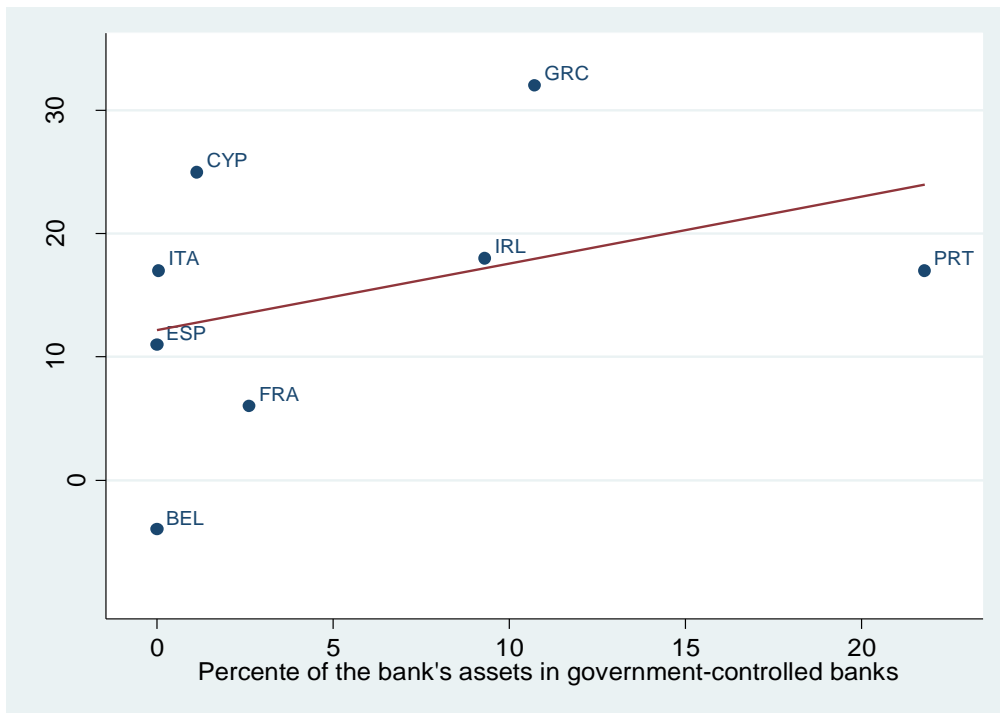
Notes: The figure plots corporate yield spread and loan spread over 5-year ECB yield curve spot rate. Corporate bond yield corresponds to Barclays Aggregate Corporate yield as reported by Morningstar Direct. Loan rates are rates on loans over 1 million euro at floating rate and up to 1 year initial rate fixation reported by ECB. Loans are typically priced as a fixed rate over an interbank overnight rate. We only show countries for which we could find corporate yields data.

FIGURE 6. BANK HEALTH AND LOCAL SOVEREIGN BONDS HOLDING



Notes: The data is from European Banking Authority's (EBA) 2011 Stress Tests. Each observation corresponds to a different bank.

FIGURE 7. THE ROLE OF GOVERNMENT-OWNED BANKS



Notes: The sample is constrained of European countries with CDS spread above 100 basis point as of December 2010. The figure plots change in domestic banks' share of bank-held sovereign bonds from 2010 to 2013 (vertical axis) against percent of the banking system's assets that is in government-controlled banks, i.e., where government owned 50% or more equity, (horizontal axis). Government ownership of banks is compiled from the World Bank Global Financial Development Report 2013. It is based on the survey data, and corresponds to the average for 2008-2010 period.

TABLE 1—SAMPLE DISTRIBUTION OF LOAN VS. BOND CHOICE

Country		Part of EBA stress testing	Loan officers survey data start	Bank share (mean)	Obs.
European Union (Eurozone):					7,762
Austria	AUT	Yes	--	0.432	125
Belgium	BEL	Yes	2010:Q4	0.544	153
Finland	FIN	Yes	--	0.496	330
France	FRA	Yes	2008:Q1	0.359	1,849
Germany	DEU	Yes	2003:Q1	0.320	1,954
Greece	GRC	Yes	--	0.472	289
Ireland	IRL	Yes	2003:Q1	0.394	117
Italy	ITA	Yes	2003:Q1	0.265	914
Luxembourg	LUX	Yes	2003:Q1	0.373	117
Netherlands	NLD	Yes	2003:Q1	0.348	1,042
Portugal	PRT	Yes	2003:Q1	0.432	139
Spain	ESP	Yes	2003:Q1	0.399	696
Slovenia	SVN	Yes	2007:Q2	0.844	18
Estonia	EST	--	2011:Q1	0.579	19
European Union (other):					4,460
Denmark	DNK	Yes	--	0.568	95
Hungary	HUN	Yes	--	0.583	55
Czech Republic	CZE	--	--	0.592	19
Poland	POL	Yes	--	0.710	61
Sweden	SWE	Yes	--	0.323	657
U.K.	GBR	Yes	--	0.445	3,573
Europe (other):					1,387
Switzerland	CHE	--	--	0.423	746
Norway	NOR	Yes	--	0.446	470
Russia	RUS	--	--	0.474	171
Total				0.392	13,609

Year	Bank share (mean)	Obs.
1996	0.324	556
1997	0.329	539
1998	0.318	598
1999	0.309	745
2000	0.305	802
2001	0.366	853
2002	0.411	830
2003	0.403	860
2004	0.455	895
2005	0.516	934
2006	0.420	929
2007	0.468	853
2008	0.464	671
2009	0.352	751
2010	0.441	783
2011	0.492	856
2012	0.268	815
2013	0.212	339
Total	0.392	13,609

Notes: These tables present distribution of our core dependent variable $L_{it} = 1$ if a firm i receives a loan and $L_{it} = 0$ if a firm issues a bond in quarter t . If in a given quarter a firm did not have a new loan or bond issue, it is not included in the sample.

TABLE 2—WITHIN-FIRM EVIDENCE ON LOAN VS. BOND CHOICE

	(1)	(2)	(3)	(4)	(5)	(6)
Tightening in lending standards	-0.061** (0.025)	--	--	--	--	--
Aggregate lending growth	--	0.208*** (0.075)	--	--	--	--
Non-performing loans	--	--	-7.468*** (0.948)	--	--	--
Loan allowances	--	--	--	-28.265*** (5.411)	--	--
GDP growth	--	--	--	--	0.858** (0.264)	--
Bank stock-index	--	--	--	--	--	5.554*** (1.514)
Fixed effects						
Firm (D_i)	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	4,510	11,590	13,270	13,270	13,33	13,347
R-squared	0.48	0.43	0.40	0.42	0.39	0.39
Clusters (It)	97	331	376	376	377	358
Mean (L_{it})	0.385	0.399	0.397	0.397	0.390	0.390

Notes: The dependent variable is $L_{it} = 1$ if a firm i receives a loan and $L_{it} = 0$ if a firm issues a bond in quarter t . If in a given quarter a firm did not have a new loan or bond issue, it is not included in the sample. The table reports results of the linear regressions. Specifications (1) through (3):

$$L_{it} = c_i + \beta S_{it},$$

where c_i is firm fixed effects and S_{it} is a quarterly country-level measure of macroeconomic conditions. Data on tightening in lending standards comes from ECB and corresponds to the net percentage of banks tightening credit standard for new loans or credit lines to enterprises. Country-level measures of *Aggregate lending growth*, *Non-performing*, and *Loan allowances* are compiled from Bankscope. Lending growth is measured as a four-quarter rolling-window growth in aggregate loans outstanding. Non-performing loans and loan allowances are scaled by total loans, and correspond to assets-weighted average for the banks within a given country. *GDP growth* is real change in per capita GDP, at quarterly frequency (measured with respect to the same quarter the year prior to avoid seasonality); the data is collected from the Eurostat website. *Bank stock-index* is a logarithm of an equally weighted stock index. Errors are heteroskedasticity-robust and clustered by country*year.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 3—BANKS' BALANCE SHEETS AND BANK CREDIT SUPPLY

Sample:	2010-2013 (1)	2010-2013 (2)	2010-2013 (3)	1997-2013 (4)	2007-2013 (5)	2007-2013 (6)
Domestic government debt held by banks:						
(% of risk-weighted assets)	-0.933*** (0.186)	--	--	--	--	--
(% of risk-weighted assets) * Country CDS spread	--	-3.047*** (0.840)	--	--	--	--
(% of common equity) * Country CDS spread	--	--	-0.640*** (0.193)	--	--	--
All sovereign debt held by banks (% bank assets)	--	--	--	-1.570*** (0.617)	-11.141*** (1.450)	-33.652*** (3.903)
Fixed effects						
Firm (D_i)	Yes	Yes	Yes	Yes	Yes	Yes
Year (D_t)	No	No	No	No	No	Yes
Obs.	2,562	1,810	1,810	12,710	4,725	4,725
R-squared	0.61	0.68	0.66	0.41	0.57	0.58
Clusters	72	51	51	353	133	133
Mean (L_{it})	0.376	0.352	0.352	0.400	0.414	0.414

Notes: The dependent variable is $L_{it} = 1$ if a firm i receives a loan and $L_{it} = 0$ if a firm issues a bond in quarter t . If in a given quarter a firm did not have a new loan or bond issue, it is not included in the sample. Specifications (1), (4) and (5) corresponds to:

$$L_{it} = c_i + \beta B_{IT}$$

where c_i is firm fixed effects and B_{IT} is domestic bank-sector holding of sovereign debt measured on semiannual or annual frequency. Specification (6) also includes year fixed effects D_T . Specifications (2) and (3) correspond to:

$$L_{it} = c_i + \beta B_{IT} * CDS_{IT-1}$$

Local government debt holdings are from EBA. Total sovereign debt holdings are from Bankscope. CDS data is from Markit. Errors are heteroskedasticity-robust and clustered by country*year.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 4—FINANCIAL REPRESSION VS. RISK-SHIFTING

Sample:	2010-2013	2010-2013	2010-2013	2010-2013
	(1)	(2)	(3)	(4)
Bank holdings:				
Domestic government debt	-0.918** (0.363)	--	-0.890*** (0.263)	--
Greek government debt	2.416 (34.306)	--	--	--
3 riskiest EURO-area countries (except domestic)	--	--	-0.444* (0.254)	--
Domestic government debt held by banks * Country CDS spread	--	-0.918** (0.362)	--	-2.93*** (0.822)
Greek government debt * Greek CDS spread	--	2.416 (34.210)	--	--
3 riskiest EURO-area countries * Country CDS spread	--	--	--	0.970*** (0.217)
Fixed effects				
Firm (D_i)	Yes	Yes	Yes	Yes
Obs.	1,784	1,784	1,804	1,804
R-squared	0.68	0.68	0.68	0.67
Mean (L_{it})	0.349	0.349	0.349	0.349

Notes: The focus of this table is to distinguish the effect of holding local (financial repression hypothesis) vs. riskiest (risk-shifting hypothesis) sovereign debt. Specifications (1) and (2) are similar to specifications (1) and (2) in Table 3 but add holdings of Greek debt (Greek firms are excluded). In columns (3) and (4), instead of Greek debt, we measure the holdings by a country's banks of sovereign debt from the three highest CDS spread countries except the domestic sovereign. Sovereign CDS Spreads are measured at end of preceding year. Errors are heteroskedasticity-robust and clustered by country*year.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 5—GOVERNMENT DEBT AND BANK CREDIT SUPPLY

A. Government debt/GDP

Sample:	1996-2012	1996-2006	2007-2012	1996-2012	1996-2006	2007-2012
	(1)	(2)	(3)	(4)	(5)	(6)
Government debt/ GDP	-0.222** (0.086)	-0.261* (0.139)	-0.352*** (0.096)	--	--	--
Government debt > 60% GDP	--	--	--	-0.003 (0.020)	0.011 (0.023)	-0.050 (0.044)
Government debt > 90% GDP	--	--	--	-0.132*** (0.040)	0.002 (0.082)	-0.135*** (0.058)
Government debt > 120% GDP	--	--	--	-0.286*** (0.059)	--	-0.328*** (0.073)
Fixed effects						
Firm (D_i)	Yes	Yes	Yes	Yes	Yes	Yes
Quarter (D_t)	No	No	No	No	No	No
Obs.	12,217	7,645	4,572	12,217	7,645	4,572
R-squared	0.39	0.48	0.54	0.39	0.48	0.54
Clusters	340	210	131	341	210	131
Mean (L_{it})	0.392	0.388	0.391	0.387	0.381	0.396

B. Risk of government debt

Sample:	1996-2012	1996-2006	2007-2012
	(1)	(2)	(3)
Government CDS	-0.121*** (0.025)	-0.514* (0.268)	-0.114*** (0.028)
Fixed effects			
Firm (D_i)	Yes	Yes	Yes
Quarter (D_t)	No	No	No
Obs.	6,591	2,277	4,314
R-squared	0.38	0.65	0.56
Clusters	216	88	128
Mean (L_{it})	0.409	0.414	0.405

Notes: The dependent variable is $L_{it} = 1$ if a firm i receives a loan and $L_{it} = 0$ if a firm issues a bond in quarter t . If in a given quarter a firm did not have a new loan or bond issue, it is not included in the sample. The table reports results of the linear regressions. Specifications in this table correspond to:

$$L_{it} = c_i + \beta S_{jt},$$

where D_i is firm fixed effects and C_{jt} is a quarterly country-level measure of government debt or the sovereign CDS spread at the previous calendar year end. Debt indicators in columns (4) to (6) are equal to one if Government debt is more than or equal to 60%, but less than 90%, of GDP; between 90% and 120% of GDP; and above 120%. The omitted category is observations where Government debt is below 60% of GDP. Errors are heteroskedasticity-robust and clustered by country*year.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

TABLE 6—GOVERNMENT DEBT AND BANK CREDIT SUPPLY: CROSS-BORROWER VARIATION

Firm exposure measure:	No previous syndicated bank loan		Last debt funding less than €250M		No stock dividends	
	(1)	(2)	(3)	(4)	(5)	(6)
Government debt*Exposed	-0.216*** (0.050)	--	0.040 (0.026)	--	-0.311*** (0.117)	--
Government CDS*Exposed	--	-0.708** (0.374)	--	-0.661*** (0.151)	--	0.132 (0.096)
Fixed effects						
Firm (D_i)	Yes	Yes	Yes	Yes	Yes	Yes
Country*year (D_{jt})	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	13,263	7,169	12,701	6,738	3,660	2,773
R-squared	0.26	0.21	0.16	0.14	0.20	0.21
Clusters	340	216	333	213	168	146
Mean (L_{it})	0.390	0.409	0.372	0.397	0.463	0.446

Notes: The dependent variable is $L_{it} = 1$ if a firm i receives a loan and $L_{it} = 0$ if a firm issues a bond in quarter t . If in a given quarter a firm did not have a new loan or bond issue, it is not included in the sample. The sample includes all loans and bonds issued between 1996 and 2012. Specifications (1) through (6) correspond to:

$$L_{it} = c_i + D_t + \beta C_{jt} * Exposed_i,$$

where D_i is firm fixed effects and D_t is quarter fixed effects. C_{jt} is a quarterly country-level measure of government debt. $Exposed_i$ identifies firms likely to depend more on the local bank-credit conditions. Errors are heteroskedasticity-robust and clustered by country*year.

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.