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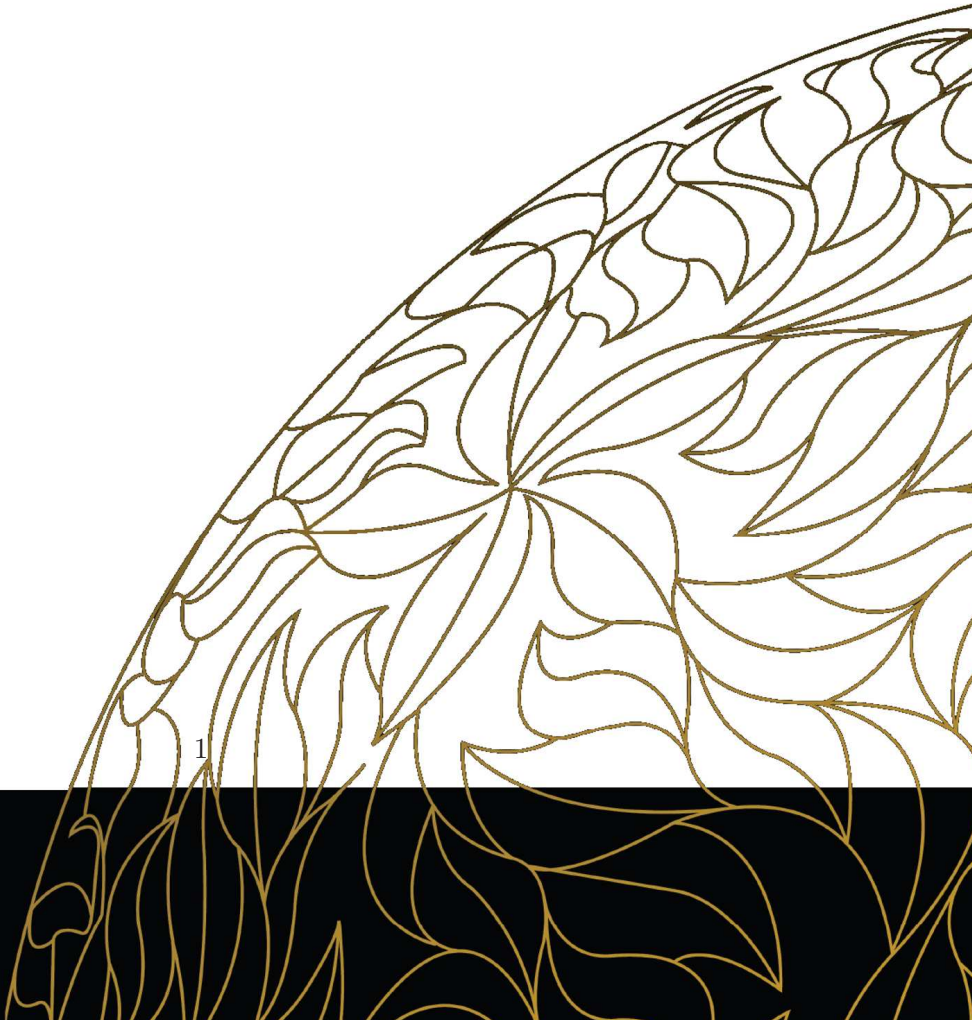
*Firm Credit in Europe:
A Tale of Three Crises*

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Firm credit in Europe: A tale of three crises

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Abstract

This paper analyses the effects of the recent euro area economic, financial and debt crisis on SMEs' access to bank finance. We use a survey on access to finance of SMEs in the euro area carried out by the European Central Bank during 2009 and 2010 to examine the impact of macroeconomic factors on developments in loan applications and approvals as well as changes in credit terms and conditions. At the country level, we identify three distinct aspects of the recent crisis in Europe affecting firm credit through different channels. A weak real economy is found to affect the demand for bank financing. Financial conditions (proxied by the median credit default swap for banks in each country and sovereign yields) predominantly affect the probability of loan rejection and the terms and conditions of credit rather than the demand for credit. We interpret this as evidence of a bank balance sheet channel negatively impacting credit provision. Crucially, the level of debt overhang affects all aspects of SME financing, with suggestive evidence that the effect on credit rejection operates through the bank balance sheet channel, as opposed to being due to the borrower balance sheet.

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Non Technical Summary

This paper analyses the effects of the recent euro area economic, financial and debt crisis on SMEs' access to bank finance. We use a survey on access to finance of SMEs in the euro area (SAFE) carried out by the European Central Bank (ECB) during 2009 and 2010, which allows us to separate banks' supply of loans from firms' demand for credit. It also provides a distinction between firms' perception of the availability of finance and their actual experience obtaining credit and the terms and conditions at which they receive it. We can then test what micro level firm characteristics and macroeconomic factors affect each of these different components of credit access.

We consider a range of real, financial and debt stock variables that can influence access to finance and discuss their possible impact on supply, demand, and credit conditions. We delineate the European crisis into three distinct components: the real economy, the sovereign/financial sector, and private sector debt overhang. We use GDP growth to capture real economic effects, and use sovereign bond yields and banks' credit default swaps (CDS) to capture the impact of financial variables on credit conditions and loan supply. We also include total private sector indebtedness and sector level debt measures to capture debt overhang. These two distinct measures represent different aspects relating to banks' and firms' balance sheets.

Overall, we find that larger and older firms face the lowest risk of having loan applications rejected, but that age and size are less important for firms' perceptions of credit availability than they were for actual experience of obtaining a loan. Two key variables in explaining perceptions of a reduction in credit availability were if the firm reported a deterioration in profits or negative prospects.

The real economy is shown to affect demand for credit, but not the supply or conditions. We also find that sovereign yields and bank CDS levels affect both the quantity supplied as well as the terms and conditions such finance. Of the macroeconomic variables, most significantly we find that the level of private sector indebtedness affects all aspects of SME financing: credit supply (captured by loan rejections and terms and conditions) and demand.

The importance of the measure of debt overhang points to the hugely damaging and long-lasting effect of credit booms which has been identified previously by authors such as Reinhart and Rogoff (2009). From a policy perspective, one can conclude that the sovereign and financial crisis is spilling over into the real economy through tougher credit supply conditions being imposed on potential borrowers. In this way it is likely to be causing a credit crunch unexplained by borrower-level characteristics. However, the chief culprit in the decline of credit, from a supply and demand perspective, has been the credit bubble of the last decade which created a large and debilitating debt overhang in many euro area economies. This over-indebtedness is affecting borrowers' demand for financing and is affecting supply decisions through a bank balance sheet channel and terms and conditions of financing through

a borrower balance sheet channel. The findings point to a worrying and potentially long-lasting impact of the credit boom on countries with highly indebted private sectors.

1 Introduction

Europe has been experiencing serious economic turmoil in recent years putting financial markets and sovereign debt markets under almost unprecedented pressure. This paper looks at how these events have affected firms' financing across the euro area by examining loan applications, rejection rates and changes in the terms and conditions of lending. Our paper exploits cross-country micro-level data on European Small and Medium Enterprises (SMEs) to identify country-level characteristics that have driven changes in credit supply and demand. We identify three separate but connected aspects of the European crisis that have affected lending: a real economic crisis (measured by real GDP), a financial/sovereign crisis (sovereign bond yields, banks' CDS) and a private sector debt overhang crisis (private credit to GDP and sector debt to output).

Past studies have emphasised the importance of separating supply and demand drivers of credit growth (Adrian and Shin, 2009) and analysed the extent to which credit provision is affected by bank and firm balance-sheet strength. Changes in credit supply related to banks' balance sheets are classified as the bank lending or pure supply side channel and those related to firms' balance sheets are often referred to simply as the balance sheet channel (Bernanke and Gertler, 1995). Recent literature using loan application data identifies evidence of this bank lending channel that operates independently of firms' balance sheet quality (Jiménez, Ongena, Peydró, and Saurina (Forthcoming)), and that this becomes more active during times of crisis (Jiménez, Ongena, Peydró, and Saurina, 2012).

As comparable micro data across countries is rarely available, it has been difficult to examine the relative impact of macroeconomic factors and the channels through which they operate on the supply and demand for credit. The survey data we use allow us to separate supply and demand, while the cross-country nature of our data allows us to identify specific country and time-varying drivers of crisis-era shifts in credit supply and demand, thus filling this gap. We focus on bank credit as it has been shown to be the chief form of financing available to SMEs (Beck, Demirguc-Kunt, and Maksimovic, 2008).

One striking finding relates to the notable impact of debt overhang on all aspects of SME financing (the supply side measures of loan rejection and credit terms and condition, and also demand for loans). This suggests that countries with the largest accumulated pre-crisis debt levels will face more credit rationing and tightened supply-side conditions.¹ A high ratio of private credit to GDP can lead to bank and borrower-level deleveraging requirements through the bank lending and borrower balance sheet channels respectively (both Ciccarelli, Maddaloni, and Peydro (2010) and Jiménez, Ongena,

¹Similar to Stiglitz and Weiss (1981) we mean credit rationing as the excess demand for loanable funds which is not satisfied as "banks deny loans to borrowers who are observationally indistinguishable from those who receive loans."

Peydró, and Saurina (Forthcoming) distinguish between these channels). Our evidence suggests that the effect of debt overhang on credit mainly comes through the banks' balance sheets (pure supply channel) rather than the borrowers' balance sheet, as it is total bank credit to the private sector that has a statistically significant effect on supply, and not the levels of debt in the specific sectors.

Beyond our findings on debt overhang, we also find distinct effects of the real and sovereign/financial crises. A weaker real economy is primarily associated with lower credit demand. Financial and sovereign factors mostly lead to tighter supply conditions, both through credit rationing and higher interest rates and lower available loan amounts. This provides evidence of a micro-level lending channel through which sovereign and financial problems can cause heterogeneity in monetary policy transmission in the euro area and can exacerbate recessions by constraining credit provision to the real economy. The concern that “transmission is threatened” in countries where “sovereign debt and bank funding markets have virtually seized up” (Bini Smaghi, 2011) appears to be validated by our findings.

Our identification of supply side drivers of adverse credit conditions which are not explained by borrower-level characteristics has implications outlined in a large literature on the impact of such problems on the real economy. Campello, Graham, and Harvey (2010) show that firms that are financially constrained planned lower employment and technology, capital and marketing expenditure than matched unconstrained firms, while Mach and Wolken (2011) show that credit constraints are of vital importance in predicting which small firms exit the market.

The paper is organised as follows: Section 2 discusses the literature and section 3 describes the data used. Section 4 reports results on the firm and country characteristics affecting different elements of credit access and section 5 concludes.

2 Literature, Theory and Testable Hypotheses

In this section, we briefly review some of the literature on the credit channel of monetary policy and the theories relevant to the supply and demand of credit to provide a framework for understanding which macroeconomic explanatory variables may affect either supply of credit, demand for credit, or both, before we test our hypotheses in Section 4.

2.1 Credit Channel literature and disentangling credit supply and demand

The credit channel literature deals with “imperfect information and other “frictions” in credit markets” and is concerned with the effectiveness of the monetary policy transmission mechanism in providing finance to the real economy (Bernanke and Gertler (1995)). The credit channel includes two other channels already mentioned, namely the bank lending channel and the balance sheet channel which

deal with the impact of banks' and borrowers' balance sheets respectively on the supply of credit. Peek and Rosengren (1995) provide an overview of the bank lending channel and highlight the effect of banking structures on lending to firms.

One of the challenges faced by this literature relates to problems in delineating between supply and demand effects in analysing movements in credit (Kashyap and Stein, 2000). Certain contributions have focused on distinguishing between these supply and demand effects, using firm level data (Kashyap, Stein, and Wilcox, 1993), firm and bank data together (Albertazzi and Marchetti, 2010) and bank lending survey data (Hempell and Kok Sorensen (2010), Ciccarelli, Maddaloni, and Peydro (2010) and Del Giovane, Eramo, and Nobili (2010)). Using loan application data for Spain, which includes information on both firm and bank balance sheets, Jiménez, Ongena, Peydró, and Saurina (2012) find evidence that the bank lending channel is strongest since the onset of the global financial crisis.

Our paper adds to this literature by identifying country level factors which impact on supply and demand and by showing that weaker sovereigns and banks, as well as a more indebted private sector, are associated with tighter credit conditions being imposed on SME borrowers. Both Mishkin (1995) and Bernanke and Gertler (1995) highlight that because "asymmetric information can be particularly pronounced for small companies" they are more likely to be "bank-dependent". This makes the bank lending channel all the more relevant for SMEs, as emphasised by Beck, Demirguc-Kunt, and Maksimovic (2008).

2.2 Factors affecting supply and demand

We examine three groups of macroeconomic effects on the SME credit market - developments in the real economy, financial and sovereign variables and the effect of private sector debt overhang. This subsection reviews previous research on how these aggregate factors can influence supply and demand for credit at the firm level.

Real economy: The importance of the link between finance and the real economy is well documented. Previous work has identified the role of the banking sector in propagating real economy crises (Bernanke, 1983) and in contributing to real economy growth (see Rajan and Zingales (1998) for the effect of finance on growth and Wurgler (2000) for the role of finance in efficiently allocating capital to growth sectors). To capture the importance of the real economy we look at changes in economic activity in each country, which could affect both the supply of and the demand for loans, as well as credit conditions. Changes in economic growth can affect firms' output expectations and their expected returns on investment, which will alter their demand for credit (Lown and Morgan, 2006). GDP growth will also affect the supply of credit to firms. A negative GDP growth shock can adversely affect firms' asset values, income and prospects and so would make lending riskier. As these factors

may impact the quality of the private sector balance sheet and affect their credit worthiness they could be classified as the balance sheet channel (Bernanke and Gertler, 1995). If an economic shock affects banks' balance sheets and their ability to lend to other sectors, the impact could be through the bank lending channel.

Financial and sovereign: Financial and sovereign variables are also thought to have an important impact on monetary transmission and the credit channel. Sovereign bonds are expected to impact the supply and terms and conditions of credit offered by banks. Gonzalez-Paramo (2011) outlines three main channels by which sovereign bonds affect bank financing. First the yield on sovereign bonds serves as a benchmark, either explicitly or implicitly, for interest rates on loans charged by banks, and are generally seen as a floor for private sector funding costs (price channel). Secondly, given that sovereign bonds are the predominant source of collateral used in refinancing operations with the Eurosystem and in the interbank market, when the value of banks' collateral declines they must either reduce the amount they borrow or provide more collateral. Restricted access to funds for banks will have implications for their ability to finance the private sector (liquidity channel). Finally a decrease in the price of sovereign bonds held by banks causes a decline in the value of their assets, and reduces their capital base, which could ultimately restrict the supply of credit to the private sector (balance sheet channel). Therefore we would expect the yields of government bond yields to have an effect on the supply and conditions of firm financing, particularly from banks, which is the focus of this paper.

When banks' risk and costs of funding rise, they impact the price and quantity of credit they can provide to the real economy. For this reason we use credit default swaps spreads on bank bonds to capture stress in financial markets and the banking sector. CDS is expected to impact the supply and terms and conditions of bank financing as funding costs will be higher for banks with high CDS prices.

Debt overhang: To capture the effect of indebtedness levels in different countries we use the outstanding stock of credit to the private sector over GDP. Private debt to GDP can impact either the supply of or the demand for credit. As stated in the introduction, debt overhang can create a need to deleverage, thus decreasing the incentive to invest and reducing demand for credit (Rogoff, 2011). On the supply side, banks that have a large loan book and need to reduce the size of their balance sheet in order to improve their capital ratios will have to deleverage, "by selling some of their assets or reducing their lending" (Blanchard, 2008). If the latter is the method used by banks, we should see that debt overhang leads to supply restrictions and tough credit conditions through the banks balance sheets. Alternatively, the accumulation of debt may lead to uncreditworthy borrowers being rejected in their loan applications. In this instance, the "borrower balance sheet channel" is said to be operating.

Given that our measure of debt overhang is at the country level, it is not possible to distinguish between the aforementioned bank and borrower balance sheet effects. We therefore use an additional measure of debt overhang at the sector-country level, under the assumption that this helps capture

problems on the borrower side. This measure allows for a more specific classification of corporate indebtedness than private debt to GDP, which gives an aggregate picture of debt overhang in the banking and general private sector. If we find that, controlling for this measure on the borrower side, there is still an effect of debt overhang (at the country level) on credit supply or conditions, the suggestion is that the bank balance sheet channel is in operation. If on the other hand we only see an effect of the sector-country-time varying measure of debt overhang, this would indicate that supply restrictions are being driven by borrower balance sheet problems.

3 Data

3.1 Survey on Access to Finance of Small and Medium Enterprises (SAFE)

Since 2009, the ECB has conducted half-yearly waves of the SAFE survey of euro area SMEs. The aim of the survey is to provide information on the financing needs of SMEs, their experience in attempting to access finance, along with information on their perceptions of current economic and financial conditions. The survey also asks firms about changes in their turnover, employment, ownership type, age and sector of activity. As one can see from Table 1, the majority of the sample comes from four countries: Germany, Spain, France and Italy, for whom the sample of firms is representative. The overall sample for all countries is also representative of euro area SMEs, but for individual countries apart from those already mentioned, the samples are not representative.²

Figures 1 and 2 give an indication of the breakdown of the data. We see that over a third of firms can be categorised as service firms, with a quarter in manufacturing and a quarter in retail. In terms of size, one third of firms can be considered micro and small respectively, with a quarter of the sample being medium firms and 8% large firms.³ In Figure 2, the age profile of firms is detailed. We see that almost three quarters of firms have been in existence for over ten years. In terms of ownership, half of firms in the sample are owned by multiple owners who are either family members or business partners, while a further quarter are sole traders. Public shareholding, venture capital and “other firms or business associates” make up the other quarter of the sample.

There are a number of questions that we use as dependent variables in our analysis, all of which are outlined in Table 2. Firms are asked the following question, which we use as a measure of changes in loan demand:

For each of the following types of external financing, please tell me if your needs increased,

²The sample was stratified by firm size class, economic activity and country.

³A micro firm in this instance is a firm with less than 10 employees. Small firms have between 10 and 49 employees, medium firms have between 50 and 250 employees, while large firms have over 250.

remained unchanged or decreased over the past 6 months.

We focus on the reported demand for bank loans and define a dummy variable that equals 1 if demand has decreased and 0 if demand has remained unchanged or has increased.

On loan supply, firms are asked:

If you applied and tried to negotiate for this type of financing over the past 6 months, did you: Receive all the financing you requested; receive only part of the financing you requested; refuse to proceed because of unacceptable costs or terms and conditions; or have you not received anything at all?

We code as “Rejected” all firms who received less than 75% of the requested financing, refused to proceed or received nothing at all. Only firms that received all or more than 75% of requested financing are coded as “Not Rejected”. This is our measure of credit supply that will be used in the next section.

Firms were also asked to give their opinion on the availability of finance. This question is useful in that it allows us to include credit perceptions from firms that did not formally apply for a loan and therefore captures any potentially discouraged borrowers. This is based on a question for bank loans, with firms asked:

Would you say that their availability has improved, remained unchanged or deteriorated for your firm over the past 6 months?

We use a dummy variable equal to 1 if firms report a deterioration in loan availability, and 0 otherwise.

Firms are also asked two questions about lending conditions:

We will now consider the terms and conditions of the bank financing (including bank loans, overdraft and credit lines) available to your firm. For each of the following items, could you please indicate whether they were increased, remained unchanged or were decreased over the past 6 months?

We will utilise the answers to this question for “level of interest rate” and “size of loan available” as two measures of lending conditions.

Finally, we also consider the perception of firms. Firms are asked:

For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past 6 months? - Willingness of banks to provide a loan.

Table 3 gives the share of firms in each country that take a 1 for each dummy that will be used as a dependent variable in our analysis. For example, 40.9% of Irish firms were rejected for a loan

according to the data. Increases in interest rates on loans appear to be a very prevalent constraint, with roughly 60% of respondents reporting an increase in Portugal, Ireland, Greece and Spain.

The firm characteristics used as explanatory variables include indicators of firm size (measured by employment), an indicator of profits, a dummy if the firm is a subsidiary (as opposed to a stand-alone business), age, perception of future prospects as improving or unchanged, ownership structure, measures of access to public funds, and change in capital. Details of these explanatory variables are provided in Tables 4 and 5.

3.2 Country-level Explanatory Variables

To capture the effect of economic activity we use the percentage change in seasonally adjusted GDP for each country over the 6 month period for each survey wave (GDP Change). For sovereign yields, we use the average level of the 10 year benchmark government bond yield for each country over the 6 month survey periods (GB10Y). To capture the extent to which stress in the financial sector affects firms' access to finance, we use the log of the price of the median Credit Default Swap (CDS) on bank bonds in different countries (Log CDS (Median)) for each period. This variable is collected from Thompson Reuters. We use two measures to capture the effect of indebtedness levels; we use the outstanding stock of credit to the private sector over GDP (Private Debt to GDP) in different countries. To capture variation in debt across sectors, we use the percentage of outstanding loans in each sector relative to the total output of the sector (Debt to Output). Summary statistics for the macroeconomic variables along with the dependent variables are shown in Table 7.

4 Results

4.1 Empirical Methodology

For each question on credit supply and demand reported in Table 2, our base specification is a probit regression including all of the explanatory variables of Tables 4 and 5. In the initial specification we include a vector of country dummies to control for unobserved country specific factors that may influence firms' responses. We then replace the country dummies in the second specification with the macroeconomic variables outlined in Table 6.

The inclusion of all the above explanatory variables in a single regression poses multicollinearity concerns. Hendry (1995) recommends that in such circumstances the most reliable approach is by beginning with "the most general model entailed by the available theoretical and data information, and sequentially testing to see whether or not the claimed restrictions are satisfied by the evidence." For this reason, the stepwise procedure that we adopt begins with the most general form of the model,

including all of the possible explanatory variables and then systematically tests the effect of dropping each variable and combination of variables to move to a limited set of variables with minimal loss of information. The firm-level characteristics of Tables 4 and 5 were included in all specifications with the stepwise algorithm only being applied to the set of macroeconomic variables, with a significance level of 5 per cent used as the level at which regressors were excluded. Additional specifications (reported in the Appendix) show results from models entering each macroeconomic variable separately initially followed by a specification with all of the variables entered simultaneously to examine which remain statistically significant.

For the analysis we pool all the observations from the 11 countries outlined in Table 1 across the 4 survey periods during 2009 and 2010. This gives a total of 23,724 observations. It is likely that there is correlation between the observations from specific countries and time periods. For this reason all standard errors are clustered at the country-time level.

4.2 Firm Characteristics and Variation Across Countries

Table 8 reports the results of the probit regressions for all five dependent variables regressed on just the country dummies and the firm level characteristics. Column (1) shows that larger and older firms were the least likely to have their application for a bank loan rejected. Access to other sources of funds, either from a public source or in terms of the firm's own capital, also reduced the probability of loan rejection. Firms that were subsidiaries or that had unchanged prospects (relative to deteriorated) were also less likely to have been rejected. The country dummies in the loan rejection regression are mostly significant - they are positive for five countries (Spain, Ireland, Greece, Netherlands and Portugal), showing a higher probability of credit being refused to firms from these countries relative to Germany even after controlling for firm performance.

Column (2) of Table 8 analyses firms' credit perceptions. This is a useful exercise as it includes firms that did not formally apply for a loan and therefore captures any potentially discouraged borrowers. As we can see, contrary to the results for firms' experience, size is not a significant characteristic for firms' perceptions of credit availability and age is much less important than it is for actual experience of obtaining a loan. This echoes the findings of Artola and Genre (2011). A decline in profits over the previous six months is significantly related to a firm reporting a reduction in credit availability, as are negative firms prospects. Access to alternative funds and own capital position have similar effects on perception as on actual rejection. Only Greek and Irish firms are significantly more likely to report deteriorations in credit availability relative to Germany.

We analyse changes in demand for bank loans in column (3) of Table 8. We can see that smaller firms are the least likely to have reduced their demand for loans, whereas older firms are more likely

to have reduced their demand. This perhaps suggests that smaller, younger firms may have higher growth potential and need more finance to invest in growth, as suggested in Becchetti and Trovato (2002). Firms that have had an improvement in their capital positions are also more likely to have had a decrease in credit demand. Firms in Spain, Ireland, Finland and the Netherlands are more likely to have had a decrease in demand relative to Germany.

In relation to the terms and conditions of credit which are shown in columns (4) and (5) of Table 8, we can see that improved access to public funds makes it less likely that a firm has had an increase in their interest rate and more likely that they have had an increase in the size of loan facilities available to them. One of the only other relevant firm indicators is that a fall in profits is associated with an increase in interest rates, but only marginally so. Of all the country dummies that are significant for the terms and conditions of credit in columns (4) and (5), they all indicate more adverse conditions than in Germany, in that they are more likely to have seen increases in interest rates and less likely to have seen increases in loan sizes.

4.3 Effects of the Macroeconomic Variables

Table 9 focuses on country-level determinants of credit supply, demand and conditions. Column (1) shows that the variables that significantly explain rejection of loan applications are the government bond yield and private sector debt to GDP. If we look at Table A1 in the appendix, we find that, when entered separately, all the macro variables are significant. When all of the macroeconomic indicators are entered simultaneously in the final column, however, we see that the debt overhang effect dominates, with private debt to GDP the only variable that remains significant. The results of the pooled and stepwise specifications therefore do not give dramatically different results, with debt overhang coming through clearly in both as a key variable. The stepwise approach differs in also emphasising the effect of the bond yield, which had been insignificant when combined with the full range of country variables. The findings suggest that there are credit market tensions related to the banking crisis, unexplained by borrower-level determinants.

The perceived deterioration in lending is associated primarily with higher levels of bank funding costs, as the CDS spread is the only significant macro variable in Column (2) of the stepwise results. When all of the macroeconomic measures are entered together, in Table A2, no one factor dominates. The stepwise approach, on the other hand, allows us to single out the bank CDS variable as the most significant factor indicating that problems in the financial sector are associated with perceptions. This may reflect the fact that banks that had performers, reflected in the CDS are not lending to the real economy and this is impacting firms' perceptions.

Turning to demand for credit, Column (3) of Table 9 shows that, as expected, lower GDP growth

and high levels of outstanding debt in the economy have a significant dampening effect on demand for credit. In addition, we see that the sector's debt to output ratio has an unexpected negative coefficient, indicating that sectors with large outstanding debt are least likely to have decreased this demand. It is possible that this is due to an ongoing need in these sectors to roll-over loans. In Column (6) of Table A3, when the country level variables were entered together, the most significant effect comes from the change in GDP and from the outstanding debt stock. We thus find that economic prospects and over-indebtedness are primarily impacting firms' appetite for financing, rather than the sovereign and financial crisis.

Country and sector measures of debt overhang are associated with higher interest rates being charged, as is a higher cost of bank funding (column (4) of Table 9). High government bond yields are the sole significant macro variable in reducing loan size (column (5) of Table 9). In the pooled results for interest rates in Table A4, the same results hold, with the dominant effect coming from the outstanding debt measures, particularly the country level debt stock, and from the bank CDS measure. This indicates that banks' increased costs of funding (captured by CDS) are being passed on to firms through higher rates. Table A5 showing results for loan size is also consistent with the stepwise results, as the final column when all variables are jointly entered into the specification shows that the negative effect of the government bond yield dominates. This finding shows a liquidity channel through which movements in sovereign yields, which are exogenous to firms themselves, can restrict access to finance.

The effects of the three crises identified in the introduction can be summarised thus: weakness in the real economy is shown to most robustly affect demand for credit; a weak sovereign or banking sector affects the supply and terms of conditions of credit, but does not impact on demand; an over-indebted private sector affects credit flows through supply, demand and conditions.

5 Conclusions

This paper assesses the effect of three aspects of the recent euro area crisis on supply and demand (through rejection rates and terms and conditions) of bank credit for small and medium firms. It combines firm micro data from the ECB's SAFE survey with macroeconomic variables, focusing on simultaneous crises in the real economy (proxied by GDP), the financial/sovereign market and the effects of private sector indebtedness. The cross-country dimension of the data allows us to contribute to the literature on firm level determinants of financing obstacles by highlighting how country level factors influence firms' interactions with the credit market. In particular, it allows us to identify the country-level characteristics behind the literature's finding that the supply side of the bank lending channel becomes more active during times of crisis.

In line with previous studies, we find that larger and older firms face the lowest risk of having loan

applications rejected. Firms that have potential access to other sources of funds also encountered a reduction in the probability of loan rejection. Age and size are less important for firms' perceptions of credit availability than they were for actual experience of obtaining a loan. Two key variables in explaining perceptions of a reduction in credit availability were if the firm reported falls in profits over the previous six months or negative prospects for the forthcoming six months.

We find that the level of private sector indebtedness negatively affects all aspects of SME credit: demand, supply and terms and conditions of financing. We also find that, as predicted, the financial variables, namely sovereign yields and bank CDS levels, affect the supply and terms and conditions of bank financing. The real economy is shown to have an effect on demand for credit only.

From a policy perspective, one can conclude that the sovereign and financial crisis did affect the transmission of monetary policy in the euro area over the period in question and that tensions are spilling over into the real economy through tougher credit conditions being imposed on potential borrowers. The literature has already identified a number of detrimental effects on growth potential of such constraints. We thus have identified a potential negative feedback effect that will hamper recovery in the euro area. Our results on debt overhang point to the hugely damaging and long-lasting effect of credit booms which has been identified previously by authors such as Reinhart and Rogoff (2009).

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Figure 1: Composition of the survey across 4 waves

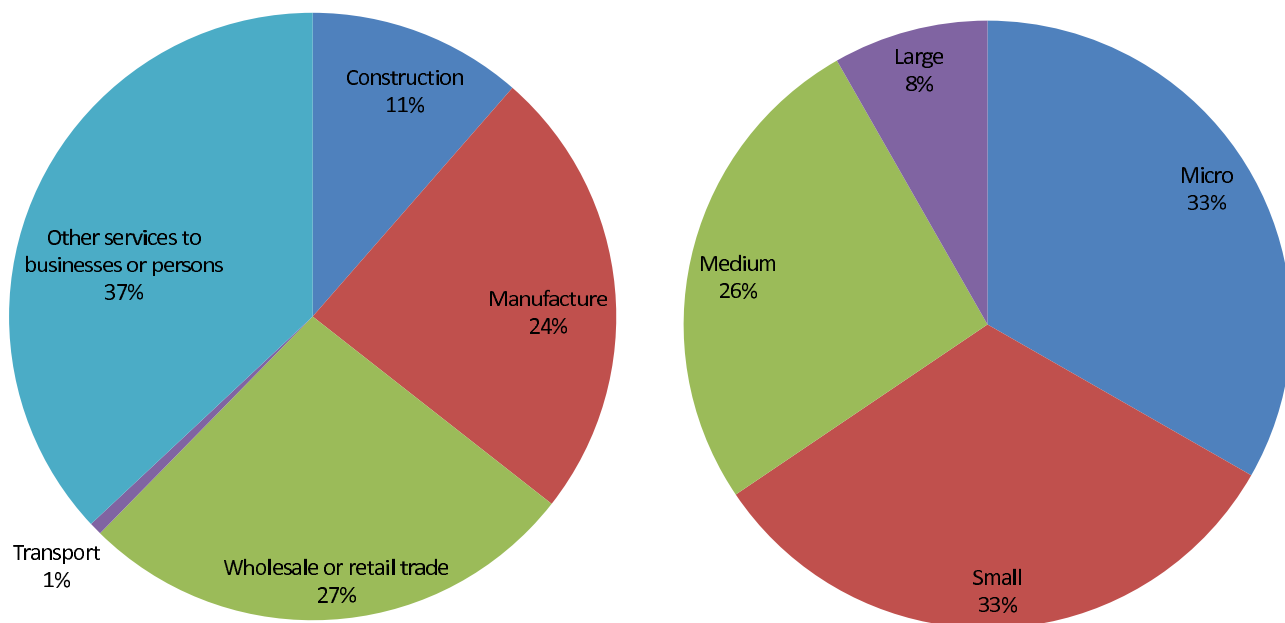


Table 1: Sample size by survey wave and country.

	H1 2009	H2 2009	H1 2010	H2 2010	Total
Austria	224	203	200	500	1,127
Belgium	220	202	203	517	1,142
Germany	1,003	1,001	1,000	1,000	4,004
Spain	1,012	1,004	1,000	1,000	4,016
Finland	111	100	100	500	811
France	1,000	1,001	1,003	1,004	4,008
Greece	220	200	200	500	1,120
Ireland	110	101	100	500	811
Italy	1,006	1,004	1,000	1,000	4,010
Netherlands	323	252	256	502	1,333
Portugal	327	252	250	509	1,338
Total	5,556	5,320	5,312	7,532	23,720

Figure 2: Other characteristics across 4 waves

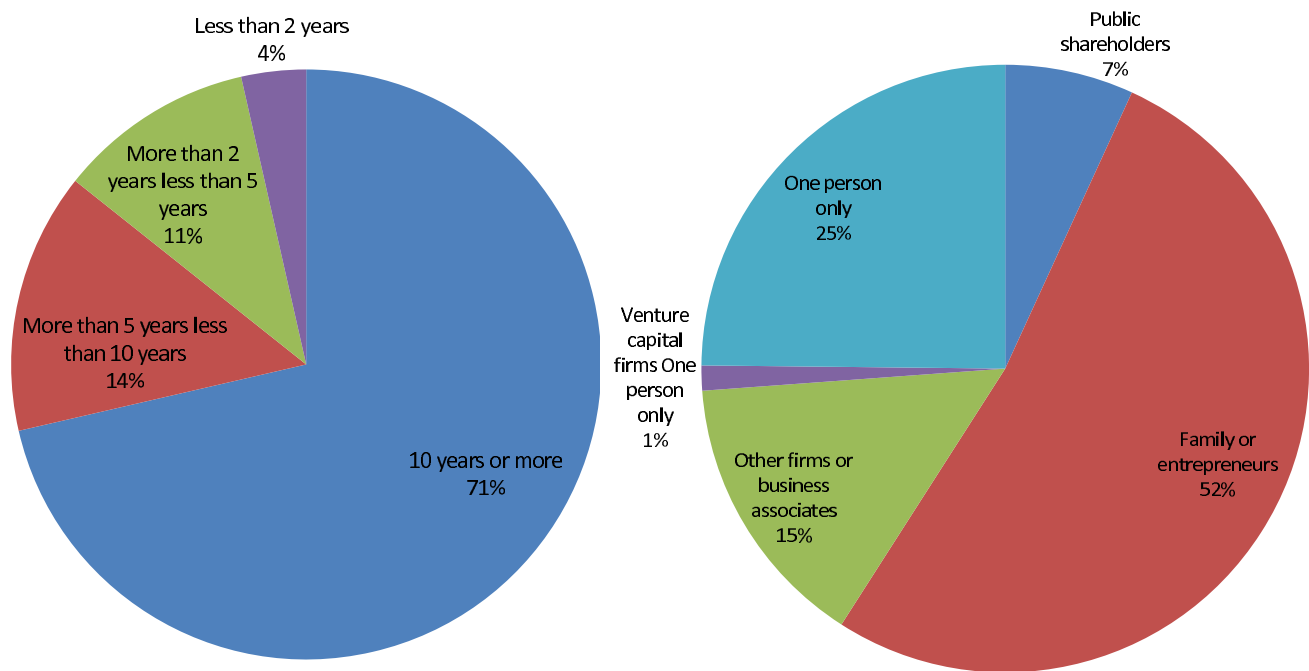


Table 2: Dependent variables

Variables	Source	Coding
Loan Rejection dummy	If you applied and tried to negotiate for a bank loan in the past 6 months, did you: 1. Got everything 5. Got most (between 75% and 99%)** 6. Only got a limited part of it (between 1% and 74%)**; 3. Refused because the cost was too high; 4. Rejected 2. Got part*; *only included in the first 2 surveys **only included from the third survey on	Binary variable: 0 = if applied and got all (1)or most(5) 1 = got less than 75%, Refused because the cost was too high(3), rejected(4)
Perceived loan avail- ability deterioration dummy	For bank loans, would you say that their availability has: 1. Improved 2. Remained unchanged 3. Deteriorated	Binary variable: 0 = if improved (1), remained unchanged (2) 1 = deteriorated(3)
Loan demand de- crease dummy	For bank loans, please tell me if your needs have: 1. Increased 2. Remained unchanged 3. Decreased	Binary variable: 0 = increased(1), remained unchanged (2) 1 = decreased (3)
Interest rate increase dummy	We will now consider the terms and conditions of the bank financing available to your firm, for the level of interest rates, were they: 1. Increased by the bank 2. Remained unchanged 3. Decreased by the bank	Binary variable: 0 = remained unchanged(2), decreased (3) 1 = increased by the bank (1)
Loan size increase dummy	We will now consider the terms and conditions of the bank financing available to your firm, for the size of loan or credit line, was it: 1. Increased by the bank 2. Remained unchanged 3. Decreased by the bank	Binary variable: 0 = remained unchanged(2), decreased (3) 1 = increased by the bank (1)

Table 3: Percentage of total responses per country with dependent variable equal to one.

Country	Loan Rejection	Perceived Deterioration	Demand Decrease	Int Rate Increase	Loan Size Increase
Austria	9.9	23.5	20.2	33.5	20.5
Belgium	11.2	18.8	17.3	37.5	23.9
Germany	16.4	25.2	20.2	26.4	21.8
Spain	31.2	37.4	19.3	68.4	19.0
Finland	7.5	11.7	21.9	44.8	16.7
France	14.4	20.9	42.0	28.2	20.4
Greece	32.3	43.7	18.9	61.9	14.2
Ireland	40.9	47.8	19.9	59.4	10.7
Italy	18.0	25.0	16.2	40.8	16.9
Netherlands	32.9	32.9	23.6	43.8	21.7
Portugal	23.0	31.5	18.7	60.5	13.6
Total	20.8	28.3	18.2	44.8	18.8

Table 4: Explanatory variables: firm level

Variables	Source	Coding
Firm size	How many persons does your company currently employ in full time or part time in your country in all locations?	Categorical variable: 1. From 1 to 9 employees 2. From 10 to 49 employees 3. From 50 to 249 employees 4. From 50 to 249 employees 5. 250 or more employees
Age of firm	In which year was your firm registered?	Categorical variable: 1. 10 or more years 2. 5 years or more but less than 10 3. 2 years or more but less than 5 4. Less than 2 years
Profit fall	Please tell me whether your profit has: 1. Increased 2. Remained unchanged 3. Decreased	Binary variable: 0 = increased(1), remained unchanged (2) 1 = decreased (3)
Subsidiary dummy	How would you characterise your enterprise? Is it... 1. part of a profit-oriented enterprise (e.g. subsidiary or branch) not taking fully autonomous financial decisions 2. an autonomous profit-oriented enterprise, making independent financial decisions 3. a non-profit enterprise (foundation, association, semi-government)	Binary variable 0 = an autonomous profit-oriented enterprise (2), a non-profit enterprise (foundation, association, semi-government) (3) 1 = part of a profit-oriented enterprise (e.g. subsidiary or branch) not taking fully autonomous financial decisions
Prospects	For your firm-specific outlook with respect to your sales and profitability or business plan, insofar as it affects the availability of external financing would you say that over the past 6 months it has: 1. Improved 2. Remained unchanged 3. Deteriorated	Binary variables: Improved prospects: 0 = remained unchanged(2),deteriorated(3) 1 = Improved (1) Unchanged prospects: 0 = Improved(1), deteriorated (3) 1 = remained unchanged (2) Deteriorated prospects: 0 = improved (1), remained unchanged (2) 1 = deteriorated (3)

Table 5: Explanatory variables: firm level (continued)

Ownership	<p>Who are the owners of your firm?</p> <ol style="list-style-type: none"> 1. Public shareholders, as company is listed on stock market 2. Family or entrepreneurs 3. Other firms or business associates 4. Venture capital firms or business angels 5. A natural person, one owner only 	<p>Owner Shareholder:</p> <p>1 = Public shareholders (1)</p> <p>0 = otherwise</p> <p>Owner Family:</p> <p>1 = Family or entrepreneurs</p> <p>0 = otherwise</p> <p>Owner Associates:</p> <p>1 = Other firms or business associates (3)</p> <p>0 = otherwise</p> <p>Owner VC:</p> <p>1 = Venture capital firms or business angels (4)</p> <p>0 = otherwise</p> <p>Owner individual</p> <p>1 = A natural person, one owner only (5)</p> <p>0 = otherwise</p>
Public fund access	<p>The availability of external financing depends on various factors, which are in part related to the general economic situation, your firm-specific situation and to lenders attitudes.</p> <p>In relation to access to public financial support including guarantees, over the past 6 months has it:</p> <ol style="list-style-type: none"> 1. Improved 2. Remained unchanged 3. Deteriorated 	<p>Improved public fund access:</p> <p>1 = Improved (1)</p> <p>0 = otherwise</p> <p>Unchanged public fund access:</p> <p>1 = unchanged (2)</p> <p>0 = otherwise</p> <p>Deteriorated public fund access:</p> <p>1 = deteriorated (3)</p> <p>0 = otherwise</p>
Capital	<p>The availability of external financing depends on various factors, which are in part related to the general economic situation, your firm-specific situation and to lenders attitudes.</p> <p>In relation to your firm's own capital, would you say that over the past 6 months it has:</p> <ol style="list-style-type: none"> 1. Improved 2. Remained unchanged 3. Deteriorated 	<p>Improved capital:</p> <p>1 = Improved (1)</p> <p>0 = otherwise</p> <p>Unchanged capital:</p> <p>1 = unchanged (2)</p> <p>0 = otherwise</p> <p>Deteriorated capital:</p> <p>1 = deteriorated (3)</p> <p>0 = otherwise</p>

Table 6: Explanatory variables: macro level

GDP Change	Gross domestic product, Constant prices, seasonally adjusted, Eurostat	The percentage change in GDP over the half year period for each survey round
GB10Y	Yield of the benchmark 10 Year Datastream Government Index	6 months average over the half year period for each survey round
Log (Median) CDS	Credit default swaps on banks bonds in each country	Log of the price of the median bank CDS for each period.
Private Debt to GDP	Total stock of euro area private sector debt (loans and debt securities) from Monetary Financial Institutions' (MFIs excluding ECB) balance sheets in each country, Gross domestic product at market prices from ESA95 National Accounts, quarterly	The stock of debt at the end of each half year in question divided by total GDP in that half year
Debt to Output	Quarterly outstanding amount of loans to domestic non financial corporations by NACE classification for the following categories (with NACE definition in brackets): i)manufacturing, ii)construction, iii)wholesale and retail trade (wholesale and retail trade, repair of motor vehicles and motorcycles) iv) transport (transport and storage, information and communication) v) other (accommodation and food service activities and education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers; undifferentiated good) Annual output of non financial corporations by NACE classification for the following categories (with NACE definition in brackets): i)manufacturing, ii)construction, iii)wholesale and retail trade (wholesale and retail trade, repair of motor vehicles and motorcycles) iv) transport (transport and storage, information and communication) v) other (accommodation and food service activities and education; human health and social work activities; arts, entertainment and recreation; other service activities; activities of households as employers; undifferentiated good)	Loans to each sector outstanding at the end of each 6 month period divided by the output of that sector in that year, for each country

Table 7: Summary Statistics for Dependent and Macroeconomic Variables

Variable	Mean	Min	Max	Stand. Dev.
Loan Rejection	0.21	0.00	1.00	0.41
Perceived Deterioration	0.28	0.00	1.00	0.45
Demand Decrease	0.15	0.00	1.00	0.36
Interest Increase	0.45	0.00	1.00	0.50
Loan Size	0.19	0.00	1.00	0.39
GDP	-0.15	-6.96	3.35	1.81
GB10Y	3.92	2.49	10.75	1.29
Log CDS (Median)	5.06	4.40	6.75	0.53
Private Debt to GDP	7.60	4.27	14.04	2.72
Debt to Output	77.43	6.52	429.43	102.42

Table 8: Firm Characteristics and Country Effects Relative to Germany

	(1)	(2)	(3)	(4)	(5)
	Bank Reject	Perceived Deterioration	Demand Decrease	Interest Increase	Loan Size Increase
1 to 9 employees (d)	0.134*** (6.39)	0.0206 (1.21)	-0.0301*** (-2.70)	-0.0449 (-1.37)	-0.0272 (-1.54)
10 to 49 employees (d)	0.0465** (2.06)	-0.00502 (-0.39)	-0.00686 (-0.74)	-0.000228 (-0.01)	0.0151 (0.76)
Profit Margin Fall (d)	0.000917 (0.05)	0.0370*** (4.03)	-0.0162* (-1.74)	0.0397* (1.95)	-0.0119 (-0.77)
Subsidiary vs Independent (d)	-0.0508** (-2.24)	-0.0308 (-1.63)	0.00471 (0.37)	-0.00657 (-0.22)	0.0170 (0.80)
Age > 10 (d)	-0.0759*** (-4.20)	-0.0220* (-1.68)	0.0212*** (3.09)	0.0342 (1.14)	0.00179 (0.09)
Improved prospects (d)	0.0147 (0.55)	-0.0490** (-2.56)	-0.00307 (-0.21)	-0.0244 (-0.85)	0.0171 (0.87)
Unchanged prospects (d)	-0.0678*** (-3.30)	-0.119*** (-6.66)	-0.0152 (-1.47)	-0.0214 (-1.18)	-0.0223 (-1.25)
Owner Shareholder (d)	-0.00388 (-0.09)	-0.0312 (-1.62)	-0.00130 (-0.08)	-0.00710 (-0.15)	-0.000680 (-0.02)
Owner Family (d)	-0.0448* (-1.92)	-0.0376*** (-3.29)	-0.00389 (-0.37)	0.0186 (0.89)	-0.0176 (-1.10)
Owner Associates (d)	-0.0244 (-0.65)	-0.0462*** (-2.85)	-0.0106 (-0.86)	-0.0587* (-1.73)	-0.0474** (-2.29)
Owner VC (d)	0.00321 (0.07)	0.0575 (1.15)	-0.0101 (-0.37)	0.0527 (0.69)	-0.167*** (-11.14)
Improved public fund access (d)	-0.190*** (-11.87)	-0.217*** (-13.37)	0.0106 (0.64)	-0.164*** (-6.85)	0.0979*** (4.22)
Unchanged public fund access (d)	-0.182*** (-9.16)	-0.271*** (-18.26)	-0.0157* (-1.65)	-0.136*** (-7.58)	0.00539 (0.29)
Improved capital (d)	-0.130*** (-6.59)	-0.123*** (-8.50)	0.139*** (8.84)	-0.0416 (-1.50)	0.0367 (1.59)
Unchanged capital (d)	-0.0909*** (-4.21)	-0.131*** (-9.17)	0.0214** (2.16)	-0.0348 (-1.63)	-0.0184 (-1.15)
Austria (d)	-0.0823 (-1.33)	-0.00959 (-0.50)	0.0101 (0.44)	-0.00803 (-0.19)	-0.0471*** (-3.17)
Belgium (d)	-0.113*** (-4.30)	-0.0632*** (-3.35)	-0.00134 (-0.08)	0.0500 (1.36)	-0.0263 (-1.34)
Spain (d)	0.0607** (2.10)	-0.0347 (-1.10)	0.0325*** (2.88)	0.393*** (16.69)	-0.0208 (-1.32)
Finland (d)	-0.103*** (-3.64)	-0.0979*** (-2.60)	0.0503*** (3.57)	0.0853*** (2.62)	-0.0514*** (-3.00)
France (d)	-0.0538 (-1.54)	-0.0926*** (-3.13)	-0.0256** (-2.05)	-0.00103 (-0.04)	-0.0424*** (-2.93)
Greece (d)	0.156** (2.38)	0.0782*** (3.37)	0.0112 (0.33)	0.268*** (10.34)	-0.0706*** (-3.10)
Ireland (d)	0.0983* (1.89)	0.117*** (2.83)	0.0315** (2.27)	0.222*** (5.49)	-0.110*** (-6.07)
Italy (d)	0.0117 (0.38)	-0.0708*** (-5.20)	-0.0307*** (-2.58)	0.128*** (3.43)	-0.0307 (-1.39)
Netherlands (d)	0.171*** (3.69)	0.0198 (0.62)	0.0438** (2.00)	0.0920 (0.82)	-0.0296 (-0.80)
Portugal (d)	0.0700* (1.81)	0.0250 (0.56)	0.00873 (0.24)	0.312*** (11.22)	-0.112*** (-4.40)
N	2,999	8,041	9,168	4,019	3,994
r2_p	0.164	0.191	0.0474	0.148	0.0311

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

Table 9: Stepwise Method of Including Country Variables

	(1)	(2)	(3)	(4)	(5)
	Loan Rejection	Perceived Deterioration	Demand Decrease	Int Rate Increase	Loan Increase
GDP Change			-0.0115** (-2.47)		
GB10Y	0.0269*** (3.93)				-0.0145** (-2.25)
Log CDS Spread (Median)		0.0730*** (4.77)		0.105*** (3.50)	
Private Debt to GDP	0.0120*** (3.63)		0.00804*** (5.23)	0.0403*** (9.91)	
Debt to Output			-0.000312** (-1.98)	0.000805** (2.23)	
1 to 9 employees (d)	0.145*** (5.02)	0.0295 (1.60)			-0.0129 (-0.65)
10 to 49 employees (d)	0.0531** (2.27)	-0.000734 (-0.05)	0.0253** (2.28)	0.0292 (1.16)	0.0189 (1.08)
Profit Margin Fall (d)	-0.00288 (-0.14)	0.0435*** (3.08)	-0.0104 (-1.14)	0.0322 (1.52)	-0.0153 (-0.95)
Subsidiary Dummy (d)	-0.0486 (-1.63)	-0.00572 (-0.26)	-0.0148 (-1.16)	-0.0269 (-0.80)	0.0233 (0.86)
Age > 10 (d)	-0.0769*** (-3.49)	-0.0215 (-1.44)	0.0259*** (2.86)	0.0413* (1.88)	0.0151 (0.92)
Improved prospects (d)		-0.0581*** (-2.98)	0.00372 (0.28)	-0.0516* (-1.71)	0.0249 (1.06)
Unchanged prospects (d)	-0.0770*** (-3.00)	-0.124*** (-8.03)	-0.0190* (-1.80)	-0.0414* (-1.68)	-0.0144 (-0.77)
Owner Shareholder (d)	-0.0543 (-0.85)				0.384*** (2.89)
Owner Family (d)	-0.0988 (-1.44)	0.00516 (0.19)	-0.00535 (-0.32)	0.0292 (0.71)	0.253*** (3.24)
Owner Associates (d)	-0.0710 (-1.20)	-0.00784 (-0.26)	-0.0101 (-0.55)	-0.0527 (-1.14)	0.306** (2.43)
Owner VC (d)		0.121* (1.92)	-0.00977 (-0.28)	0.0346 (0.41)	
Improved public fund access (d)	-0.182*** (-10.46)	-0.209*** (-14.00)	0.0132 (0.89)	-0.144*** (-4.51)	
Unchanged public fund access (d)	-0.188*** (-9.78)	-0.271*** (-20.12)	-0.00891 (-0.94)	-0.122*** (-5.60)	-0.0834*** (-3.68)
Improved capital (d)	-0.126*** (-5.31)		0.140*** (7.40)	-0.0563* (-1.74)	
Unchanged capital (d)	-0.108*** (-4.82)	-0.0153 (-0.82)	0.0151 (1.34)	-0.0102 (-0.41)	-0.0607*** (-3.03)
N	2,309	5,876	6,847	3,043	3,025
R squared	0.151	0.178	0.0505	0.131	0.0281

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

A Appendix

Table A1: Determinants of Loan Rejection

	(1)	(2)	(3)	(4)	(5)	(6)
1 to 9 employees (d)	0.129*** (6.23)	0.129*** (6.24)	0.136*** (6.36)	0.138*** (6.29)	0.134*** (5.52)	0.143*** (5.93)
10 to 49 employees (d)	0.0434* (1.93)	0.0437* (1.93)	0.0456** (1.97)	0.0454** (2.03)	0.0482** (1.97)	0.0528** (2.12)
Profit Margin Fall (d)	0.00420 (0.24)	0.00570 (0.33)	0.00426 (0.23)	0.00437 (0.24)	0.00248 (0.13)	-0.00392 (-0.20)
Subsidiary Dummy (d)	-0.0430* (-1.75)	-0.0434* (-1.75)	-0.0519** (-2.08)	-0.0480** (-2.00)	-0.0374 (-1.50)	-0.0479* (-1.87)
Age > 10 (d)	-0.0750*** (-4.04)	-0.0744*** (-4.18)	-0.0770*** (-4.30)	-0.0779*** (-4.23)	-0.0769*** (-4.63)	-0.0776*** (-4.45)
Improved prospects (d)	0.0177 (0.61)	0.0150 (0.52)	0.0189 (0.66)	0.0147 (0.50)	-0.000114 (-0.00)	0.0152 (0.44)
Unchanged prospects (d)	-0.0766*** (-3.64)	-0.0766*** (-3.65)	-0.0710*** (-3.31)	-0.0722*** (-3.25)	-0.0739*** (-3.01)	-0.0635*** (-2.62)
Owner Shareholder (d)	0.00988 (0.23)	0.00890 (0.21)	0.0101 (0.24)	0.0216 (0.53)	0.0219 (0.60)	0.00513 (0.14)
Owner Family (d)	-0.0364 (-1.55)	-0.0387 (-1.59)	-0.0411* (-1.73)	-0.0345 (-1.49)	-0.0266 (-1.20)	-0.0331 (-1.49)
Owner Associates (d)	-0.0312 (-0.86)	-0.0279 (-0.75)	-0.0308 (-0.84)	-0.0319 (-0.89)	-0.00497 (-0.14)	-0.0134 (-0.39)
Owner VC (d)	0.0176 (0.37)	0.0239 (0.50)	0.0245 (0.53)	0.0136 (0.32)	0.0709 (1.18)	0.0668 (1.12)
Improved public fund access (d)	-0.195*** (-12.01)	-0.196*** (-11.68)	-0.194*** (-11.27)	-0.194*** (-11.52)	-0.186*** (-10.71)	-0.182*** (-10.24)
Unchanged public fund access (d)	-0.198*** (-10.44)	-0.199*** (-11.05)	-0.186*** (-9.70)	-0.186*** (-8.95)	-0.197*** (-10.80)	-0.187*** (-8.76)
Improved capital (d)	-0.133*** (-6.39)	-0.133*** (-6.18)	-0.133*** (-6.49)	-0.126*** (-6.64)	-0.133*** (-5.61)	-0.126*** (-5.42)
Unchanged capital (d)	-0.0924*** (-4.23)	-0.0950*** (-4.30)	-0.0946*** (-4.30)	-0.0824*** (-3.83)	-0.106*** (-3.76)	-0.108*** (-3.99)
GDP Change	-0.0347*** (-4.86)					-0.0129 (-0.63)
GB10Y		0.0290*** (4.70)				0.0137 (0.73)
Log CDS Spread (Median)			0.102*** (6.23)			0.0103 (0.20)
Private Debt to GDP				0.0141*** (5.05)		0.0103** (1.97)
Debt to Output					0.000854*** (3.24)	0.0000917 (0.19)
N	2,999	2,999	2,941	2,999	2,353	2,309
R squared	0.151	0.151	0.150	0.150	0.147	0.152

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A2: Perceived Deterioration in Loan availability

	(1)	(2)	(3)	(4)	(5)	(6)
1 to 9 employees (d)	0.0234 (1.38)	0.0219 (1.31)	0.0224 (1.32)	0.0263 (1.54)	0.0306 (1.40)	0.0291 (1.30)
10 to 49 employees (d)	0.0000401 (0.00)	-0.00149 (-0.13)	-0.00236 (-0.20)	0.00148 (0.13)	0.0000609 (0.00)	-0.000576 (-0.04)
Profit Margin Fall (d)	0.0374*** (3.69)	0.0373*** (3.69)	0.0364*** (3.74)	0.0377*** (4.03)	0.0436*** (3.52)	0.0425*** (3.62)
Subsidiary Dummy (d)	-0.0169 (-0.92)	-0.0180 (-0.97)	-0.0213 (-1.12)	-0.0200 (-1.08)	-0.00279 (-0.15)	-0.00505 (-0.28)
Age > 10 (d)	-0.0135 (-1.11)	-0.0142 (-1.17)	-0.0223* (-1.73)	-0.0151 (-1.25)	-0.0157 (-1.33)	-0.0218* (-1.68)
Improved prospects (d)	-0.0436** (-2.17)	-0.0445** (-2.19)	-0.0459** (-2.20)	-0.0448** (-2.15)	-0.0567** (-2.32)	-0.0574** (-2.29)
Unchanged prospects (d)	-0.118*** (-6.49)	-0.119*** (-6.42)	-0.115*** (-6.02)	-0.118*** (-6.15)	-0.128*** (-6.09)	-0.124*** (-5.76)
Owner Shareholder (d)	-0.0365* (-1.86)	-0.0406** (-2.17)	-0.0458** (-2.43)	-0.0328 (-1.56)	-0.0407** (-2.12)	-0.0498** (-2.54)
Owner Family (d)	-0.0375*** (-3.36)	-0.0406*** (-3.68)	-0.0468*** (-4.45)	-0.0353*** (-3.02)	-0.0364*** (-2.89)	-0.0463*** (-4.21)
Owner Associates (d)	-0.0658*** (-4.48)	-0.0641*** (-4.28)	-0.0683*** (-4.62)	-0.0647*** (-4.51)	-0.0488*** (-3.30)	-0.0580*** (-3.50)
Owner VC (d)	0.0446 (0.93)	0.0462 (0.96)	0.0432 (0.88)	0.0455 (0.94)	0.0699 (1.19)	0.0642 (1.06)
Improved public fund access (d)	-0.219*** (-12.17)	-0.219*** (-12.75)	-0.214*** (-11.71)	-0.218*** (-12.27)	-0.217*** (-11.97)	-0.209*** (-10.73)
Unchanged public fund access (d)	-0.279*** (-16.03)	-0.279*** (-16.96)	-0.274*** (-15.98)	-0.276*** (-16.36)	-0.276*** (-18.49)	-0.270*** (-16.68)
Improved capital (d)	-0.117*** (-7.73)	-0.116*** (-7.61)	-0.115*** (-7.32)	-0.119*** (-8.19)	-0.124*** (-6.25)	-0.119*** (-5.85)
Unchanged capital (d)	-0.132*** (-9.92)	-0.132*** (-9.84)	-0.133*** (-9.74)	-0.131*** (-9.99)	-0.144*** (-8.55)	-0.142*** (-8.50)
GDP Change	-0.0228*** (-2.86)					-0.00423 (-0.24)
GB10Y		0.0226*** (3.51)				-0.00853 (-0.41)
Log CDS Spread (Median)			0.0801*** (3.60)			0.0762 (1.64)
Private Debt to GDP				0.00714 (1.49)		0.000582 (0.11)
Debt to Output					0.000541** (2.52)	0.000211 (0.60)
N	8,041	8,041	7,783	8,041	6,056	5,876
R squared	0.183	0.184	0.183	0.182	0.177	0.178

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A3: Decrease in Loan Demand

	(1)	(2)	(3)	(4)	(5)	(6)
1 to 9 employees (d)	-0.0301*** (-2.66)	-0.0301*** (-2.66)	-0.0339*** (-3.08)	-0.0282** (-2.48)	-0.0294*** (-2.90)	-0.0308*** (-3.21)
10 to 49 employees (d)	-0.00589 (-0.61)	-0.00599 (-0.62)	-0.0105 (-1.15)	-0.00469 (-0.48)	-0.00299 (-0.33)	-0.00679 (-0.79)
Profit Margin Fall (d)	-0.0154* (-1.81)	-0.0151* (-1.73)	-0.0144 (-1.60)	-0.0173** (-1.96)	-0.00772 (-0.92)	-0.0102 (-1.20)
Subsidiary Dummy (d)	0.0126 (0.92)	0.0118 (0.86)	0.0106 (0.79)	0.00982 (0.73)	-0.0128 (-1.05)	-0.0147 (-1.18)
Age > 10 (d)	0.0263*** (3.97)	0.0263*** (3.95)	0.0272*** (3.93)	0.0247*** (3.64)	0.0264*** (3.57)	0.0256*** (3.21)
Improved prospects (d)	-0.00281 (-0.20)	-0.00393 (-0.28)	-0.00449 (-0.31)	-0.00111 (-0.08)	-0.00192 (-0.12)	0.00382 (0.23)
Unchanged prospects (d)	-0.0176* (-1.72)	-0.0181* (-1.75)	-0.0179* (-1.71)	-0.0155 (-1.49)	-0.0227** (-2.07)	-0.0189* (-1.73)
Owner Shareholder (d)	-0.00131 (-0.08)	-0.000938 (-0.06)	0.00242 (0.15)	-0.00229 (-0.14)	0.00961 (0.49)	0.00611 (0.32)
Owner Family (d)	-0.00349 (-0.33)	-0.00304 (-0.28)	-0.00474 (-0.42)	-0.00479 (-0.44)	0.00423 (0.31)	0.000219 (0.02)
Owner Associates (d)	-0.0136 (-1.10)	-0.0125 (-0.98)	-0.00949 (-0.78)	-0.0152 (-1.23)	-0.000211 (-0.01)	-0.00500 (-0.33)
Owner VC (d)	-0.0117 (-0.44)	-0.0106 (-0.39)	-0.00685 (-0.25)	-0.0133 (-0.50)	-0.00346 (-0.11)	-0.00470 (-0.15)
Improved public fund access (d)	0.00736 (0.46)	0.00652 (0.40)	0.00941 (0.55)	0.0124 (0.75)	0.00719 (0.40)	0.0131 (0.68)
Unchanged public fund access (d)	-0.0221** (-2.34)	-0.0227** (-2.39)	-0.0182* (-1.92)	-0.0161* (-1.69)	-0.0182* (-1.66)	-0.00895 (-0.85)
Improved capital (d)	0.142*** (8.01)	0.141*** (8.03)	0.142*** (7.72)	0.143*** (8.38)	0.134*** (6.22)	0.139*** (6.49)
Unchanged capital (d)	0.0198** (2.02)	0.0193** (1.97)	0.0179* (1.83)	0.0201** (2.04)	0.0135 (1.25)	0.0152 (1.41)
GDP Change	-0.00977*** (-2.81)					-0.0144* (-1.81)
GB10Y		0.00573 (1.61)				-0.00448 (-0.45)
Log CDS Spread (Median)			0.0319*** (2.76)			0.00433 (0.19)
Private Debt to GDP				0.00634*** (4.17)		0.00758*** (3.08)
Debt to Output					-0.0000113 (-0.09)	-0.000293 (-1.44)
N	9,168	9,168	8,870	9,168	7,063	6,847
R squared	0.0422	0.0416	0.0436	0.0440	0.0432	0.0506

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A4: Interest Rate Increase

	(1)	(2)	(3)	(4)	(5)	(6)
1 to 9 employees (d)	-0.0581*	-0.0598**	-0.0610*	-0.0377	-0.0489	-0.0349
	(-1.86)	(-2.00)	(-1.87)	(-1.18)	(-1.47)	(-0.98)
10 to 49 employees (d)	-0.00727	-0.00934	-0.00748	-0.00328	-0.0109	-0.00506
	(-0.34)	(-0.44)	(-0.34)	(-0.14)	(-0.46)	(-0.20)
Profit Margin Fall (d)	0.0681***	0.0690***	0.0553***	0.0530**	0.0577**	0.0322
	(3.14)	(3.06)	(2.59)	(2.57)	(2.29)	(1.34)
Subsidiary Dummy (d)	0.00189	-0.000361	-0.0170	-0.0186	-0.00791	-0.0260
	(0.06)	(-0.01)	(-0.61)	(-0.60)	(-0.25)	(-0.82)
Age > 10 (d)	0.0454	0.0454	0.0297	0.0328	0.0531*	0.0402
	(1.47)	(1.44)	(0.95)	(1.11)	(1.66)	(1.26)
Improved prospects (d)	-0.0520**	-0.0562**	-0.0397	-0.0392	-0.0864***	-0.0509*
	(-1.97)	(-2.01)	(-1.40)	(-1.33)	(-2.97)	(-1.70)
Unchanged prospects (d)	-0.0534***	-0.0553***	-0.0381*	-0.0327*	-0.0721***	-0.0410*
	(-3.04)	(-2.79)	(-1.95)	(-1.67)	(-3.22)	(-1.79)
Owner Shareholder (d)	0.0422	0.0335	0.0165	0.0423	0.0535	0.00679
	(0.78)	(0.68)	(0.35)	(0.86)	(1.00)	(0.14)
Owner Family (d)	0.0657***	0.0587***	0.0453**	0.0502**	0.0654***	0.0363*
	(2.79)	(2.68)	(2.27)	(2.41)	(2.83)	(1.65)
Owner Associates (d)	-0.0153	-0.00957	-0.0242	-0.0341	0.00503	-0.0480
	(-0.37)	(-0.24)	(-0.71)	(-0.99)	(0.11)	(-1.21)
Owner VC (d)	0.0898	0.0984	0.102	0.0688	0.0729	0.0380
	(1.29)	(1.46)	(1.41)	(0.86)	(0.94)	(0.44)
Improved public fund access (d)	-0.177***	-0.179***	-0.165***	-0.157***	-0.171***	-0.144***
	(-7.53)	(-7.94)	(-7.11)	(-6.84)	(-6.73)	(-5.49)
Unchanged public fund access (d)	-0.177***	-0.179***	-0.162***	-0.136***	-0.163***	-0.121***
	(-10.11)	(-9.95)	(-8.78)	(-7.63)	(-7.41)	(-5.48)
Improved capital (d)	-0.0625**	-0.0619**	-0.0589**	-0.0431	-0.0718**	-0.0568*
	(-1.98)	(-2.05)	(-2.08)	(-1.50)	(-2.32)	(-1.84)
Unchanged capital (d)	-0.0259	-0.0304	-0.0247	-0.0112	-0.0225	-0.00966
	(-1.16)	(-1.43)	(-1.18)	(-0.52)	(-0.84)	(-0.36)
GDP Change	-0.0700***					-0.0241
	(-2.97)					(-1.54)
GB10Y		0.0614**				-0.0251
		(2.28)				(-1.62)
Log CDS Spread (Median)			0.278***			0.128***
			(5.25)			(2.59)
Private Debt to GDP				0.0495***		0.0372***
				(8.82)		(6.03)
Debt to Output					0.00170***	0.000810*
					(3.17)	(1.92)
N	4,019	4,019	3,954	4,019	3,092	3,043
R squared	0.0939	0.0939	0.119	0.129	0.0839	0.132

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$

Table A5: Loan Size Increase

	(1)	(2)	(3)	(4)	(5)	(6)
1 to 9 employees (d)	-0.0300*	-0.0280	-0.0311*	-0.0315*	-0.0105	-0.0122
	(-1.76)	(-1.63)	(-1.81)	(-1.85)	(-0.60)	(-0.68)
10 to 49 employees (d)	0.0116	0.0125	0.0105	0.0117	0.0214	0.0194
	(0.59)	(0.64)	(0.53)	(0.59)	(0.94)	(0.83)
Profit Margin Fall (d)	-0.00963	-0.00870	-0.00843	-0.00972	-0.0145	-0.0155
	(-0.60)	(-0.54)	(-0.51)	(-0.61)	(-0.72)	(-0.76)
Subsidiary Dummy (d)	0.0177	0.0180	0.0138	0.0188	0.0309	0.0237
	(0.86)	(0.88)	(0.69)	(0.89)	(1.27)	(0.97)
Age > 10 (d)	0.00319	0.00394	0.00582	0.00372	0.0149	0.0131
	(0.16)	(0.20)	(0.29)	(0.18)	(0.70)	(0.59)
Improved prospects (d)	0.0158	0.0142	0.0203	0.0170	0.0185	0.0272
	(0.83)	(0.74)	(1.09)	(0.89)	(0.77)	(1.14)
Unchanged prospects (d)	-0.0243	-0.0260	-0.0264	-0.0239	-0.0152	-0.0123
	(-1.34)	(-1.44)	(-1.47)	(-1.33)	(-0.79)	(-0.66)
Owner Shareholder (d)	-0.00393	0.00421	0.000668	-0.00694	0.00898	0.00594
	(-0.13)	(0.14)	(0.02)	(-0.24)	(0.26)	(0.17)
Owner Family (d)	-0.0231	-0.0188	-0.0191	-0.0238	-0.0196	-0.0202
	(-1.48)	(-1.19)	(-1.22)	(-1.54)	(-1.16)	(-1.16)
Owner Associates (d)	-0.0478**	-0.0475**	-0.0442**	-0.0481**	-0.0408	-0.0413*
	(-2.22)	(-2.18)	(-1.99)	(-2.28)	(-1.61)	(-1.64)
Owner VC (d)	-0.167***	-0.166***	-0.166***	-0.166***	-0.167***	-0.167***
	(-10.42)	(-10.81)	(-10.50)	(-10.62)	(-8.69)	(-9.40)
Improved public fund access (d)	0.0949***	0.0937***	0.0964***	0.0945***	0.0769***	0.0803***
	(4.16)	(4.19)	(4.20)	(4.20)	(3.21)	(3.36)
Unchanged public fund access (d)	0.00583	0.00479	0.00279	0.00485	-0.0121	-0.00959
	(0.30)	(0.24)	(0.14)	(0.26)	(-0.51)	(-0.42)
Improved capital (d)	0.0371	0.0357	0.0391	0.0370	0.0400	0.0406
	(1.59)	(1.54)	(1.62)	(1.58)	(1.55)	(1.52)
Unchanged capital (d)	-0.0189	-0.0166	-0.0162	-0.0202	-0.0246	-0.0210
	(-1.15)	(-1.01)	(-0.95)	(-1.20)	(-1.34)	(-1.13)
GDP Change	0.00954*					-0.0234*
	(1.66)					(-1.95)
GB10Y		-0.0186***				-0.0346***
		(-3.22)				(-3.04)
Log CDS Spread (Median)			-0.0340**			0.0383
			(-2.15)			(1.30)
Private Debt to GDP				-0.00192		-0.00244
				(-0.65)		(-0.86)
Debt to Output					-0.000527**	-0.000402*
					(-2.16)	(-1.79)
N	3,994	3,994	3,930	3,994	3,074	3,025
R squared	0.0245	0.0269	0.0263	0.0241	0.0275	0.0300

Marginal effects; t statistics in parentheses

(d) for discrete change of dummy variable from 0 to 1

* $p < .1$, ** $p < .05$, *** $p < .01$