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Better the Devil you Know: Home and Sectoral Biases in Bank Lending

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Better the Devil you Know: Home and Sectoral Biases in Bank Lending

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This paper empirically investigates bank lending decisions and the extent to which they are influenced by specific preferences in terms of geographical location and industry. We study whether banks develop a field of expertise and focus on it, or whether they prefer to diversify during both normal and crisis times. We manually built an original database of syndicated loans for banks in the four major banking systems in the eurozone, to estimate the determinants of loans' amounts between 2005 and 2013. We show that bank lending is influenced by both the geographical location and the industry of the borrower. Our findings highlight a domestic bias and a sectoral bias with banks lending more to their domestic borrowers and to industries they are specialized in.

Keywords: Credit supply, home bias, sectoral bias, syndicated loan market, financial crisis

JEL Classification: F34, G01, G21

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Financial institutions are key players in financial markets. They provide information-based financial services to facilitate trades, improve risk management and contribute to efficient capital allocation. They also benefit from cost and expertise advantages by collecting and processing information to evaluate firms and projects. Financial institutions build their expertise on their ability to interpret subtle signals and to reuse the information through time and across customers. Stomper (2006) argues that banks use their industry expertise to adjust funding rents according to their exposure to industry-specific credit risk. Kamp, Pfingsten, Memmel and Behr (2007) and Tabak, Fazio and Cajueiro (2011), among others, provide evidence that banks' returns increase with loan portfolio concentration. Hence, banks may have incentives to become experts in lending to specific borrowers and thus benefit from economies of scale by re-using the information previously collected and analyzed. However, this is in contradiction with the traditional banking theory which supports portfolio diversification to reduce the probability of default (Diamond, 1984; Shim, 2013). Diversification is one solution to information asymmetry and allows reducing the exposure of banks to economic downturns. As such, the question of how banks' level of expertise affects their lending behavior is far from being answered. Do banks focus on their field of expertise or do they prefer to diversify?

This paper empirically investigates bank lending decisions and the extent to which they are influenced by banks' level of specialization. The literature highlights two main biases that impact the allocation of loans in banks' portfolios. First, bank lending may vary depending on borrower's domiciliation. Van Nieuwerburgh and Veldkamp (2009) have developed a theoretical model to show that investors have an incentive to opt for domestic investments despite a context of global information access and capital mobility across borders. The authors rather highlight an issue of information immobility. Investors prefer learning more about domestic assets for which they already have a small competitive advantage over foreign investors, than learning more about foreign assets for which they have a competitive disadvantage. As such, when domestic investors anticipate an increase in the payoffs of home assets, the resulting increase in home asset prices will only reflect the information known by the average investor. Hence, domestic investors may record higher excess returns as they have more information about the domestic assets than the average investor. Méon and Weill (2007) have focused their empirical analysis on a large number of mergers that have occurred in the European banking sector since the 1990s to investigate banks' diversification motive. The authors highlight significant gains in risk diversification resulting from cross-border mergers. However, they

do not find evidence that diversification is the objective pursued by banks. They rather show a strong bias in loan portfolios. In addition, Giannetti and Laeven (2012), among others, have argued that banks located in a country experiencing a banking crisis extend loan origination to domestic borrowers regardless of both their credit risk (hence a flight-to-home effect) and the quality of domestic financial institutions. The assessment of credit risk seems easier when dealing with domestic companies thanks to geographical proximity. This trend worsens in the context of a banking crisis as banks face a confidence problem with exacerbated information acquisition costs (Epstein, 2001). Second, the industry of the borrower also seems to be a significant determinant of banks' lending strategies. As financial intermediaries, banks collect information and develop expertise in specific sectors they are used to lending to or that they consider as being strategic. As such, they can build on this expertise to adjust their lending behavior either to focus more on these sectors and benefit from the reduction of information asymmetry or to better diversify their portfolios across industries (Acharya, Hasan and Saunders, 2006). Giannetti and Saidi (2018) even show that banks with a high concentration of loans in specific industries are more likely to provide liquidity to industries in trouble, to limit the risk of costly fire sales during periods of distress.

Given the strong relationship between banks' lending and economic activity, we underline the importance of investigating the determinants of bank lending to better understand the role of credit institutions in supporting economic growth. The main question addressed in this paper concerns how banks' lending behavior changes according to borrowers' characteristics. Do we observe a home bias[1] and/or industry bias in bank lending? This question is important to financial intermediation because it sheds additional light on the determinants of loan supply. It is also crucial for corporate finance as loans are a major source of external funding; borrowers may thus find important insights into potential changes in loan amounts depending on debtors' domiciliation and the industry in which they operate. Finally, regulators also need a deeper understanding of bank lending behavior.

To address these questions, we manually combine seven databases to build a rich and original set of variables for the syndicated loan market in four eurozone countries – France, Germany, Italy, and Spain – between 2005 and 2013. This period, centered on a financial shock, enables us to investigate both normal and crisis times and to

[1] The term "home bias" is well known in the international finance literature and refers to investors disproportionately overweighting domestic assets in their portfolios relative to weights suggested by optimal diversification models. Carey and Nini (2007) argue that risk neutrality, which stands at the basis of these models, is not obviously applicable for banks, but for the sake of convenience one can use the term "home bias" even in this context.

examine whether bank lending changed post-Lehman Brothers' bankruptcy. In Europe, the collapse of Lehman Brothers is considered the starting point of the subprime crisis. It highlighted the high exposure and involvement of European banks in the trading of subprime mortgage-backed securities (Laeven and Valencia, 2008, 2010).

Our results highlight a significant home bias in bank lending notwithstanding the crisis. We provide evidence of banks' willingness to lend more to domestic companies. This lending behavior ultimately leads to an increase in the share of domestic loans, typical of a flight-to-home effect. In line with the literature, we argue that banks may find the assessment of credit risk easier if they operate in geographical proximity (Epstein, 2001).[2] As such, these banks become experts of their local market, developing a competitive advantage over foreign banks that may result in higher profits (Van Nieuwerburgh and Veldkamp, 2009). Regarding the sectoral bias, our results show that banks remain focused on the same industries, pre and post-crisis, to which they allocate larger amounts. Banks lend more to industries they are specialized in because they have more incentives and a competitive advantage to collect information and to monitor the loan. This ultimately leads to better credit quality as banks benefit from costs and expertise advantages (Acharya, Hasan and Saunders, 2006; Hauswald and Marquez, 2006).

Our analysis contributes to the literature on international banking and the syndicated loan market. A large number of papers use this market to investigate diverse topics such as the transmission of financial crises (De Haas and Van Horen, 2013), the impact of new regulations (Aiyar, Calomiris, Hooley, Korniyenko and Wieladek, 2014), liquidity issues (Gupta, Singh and Zebedee, 2008) or the settlement of new accounting standards (Chan, Hsieh, Lee and Yueh, 2015) on cross-border lending. Giannetti and Yafeh (2012) also use this market to analyze how cultural differences between decision makers affect loan contracts and show that cultural distances not only between the lender and the borrower but also across lenders of one syndicate impact loan terms and risk sharing respectively. The use of the syndicated loan market is widely popular as it represents one of the major sources of international corporate financing in addition to bonds and stocks. As such, we complement these works by using the syndicated loan market to examine the characteristics of banks' lending behavior in the four most significant banking systems of the eurozone.

[2] Grinblatt and Keloharju (2001) document that familiarity attributes such as language, culture and geographical distance play a role in explaining investors' portfolios. Thus, home bias may be integrated into a more general phenomenon of preference for familiar companies.

Our study also adds to the 'focus versus diversification' debate. This issue is highly relevant in the context of financial intermediation as it confronts banks' capital requirements to the theory of agency costs. On the one hand, the composition of banks' loan portfolio is regulated and does not depend exclusively on banks' loan selection. The requirements are calibrated mainly with respect to the geographical location of firms and to the exposure to different industries, which may create incentives to diversify. On the other hand, banks may want to focus on strategic borrowers and industries to save time and costs. Méon and Weill (2007) highlight banks' incentive to keep home-biased loan portfolios. Moreover, Acharya, Hasan and Saunders (2006), Hauswald and Marquez (2006), and Van Nieuwerburgh and Veldkamp (2009) show that the focus strategy improves the quality of loans and lenders' returns thanks to their expertise. We extend these analyses by combining both the home and the sectoral biases in our analysis to explore deeper whether strategic borrowers do indeed benefit from the support of the banking system.

Finally, this paper complements the literature that seeks to identify the impact of the financial crisis on cross-border lending (Chui, Domanski, Kugler and Shek, 2010; Kleimeier, Sander and Heuchemer, 2013; Howcroft, Kara and Marques-Ibanez, 2014). De Haas and Van Horen (2013) argue that funding-constrained banks significantly reduced the volume of loans to companies located abroad after 2008. Cerutti, Hale and Minoiu (2015) find that the stock of syndicated loans increased during the crisis, not because of new issues of loans but rather due to drawdowns on existing loans granted before the crisis. We differ from these analyses by considering banks' lending strategies in terms of borrower's country and industry during both normal and crisis times.

The rest of the paper is structured as follows. The next section presents the theory and our main hypotheses, section 2 describes our empirical strategy. In section 3 we present our data, and in section 4 we discuss the results and their interpretation. Section 5 provides several robustness checks, while section 6 concludes.

1. Background Theory and Hypotheses

a. Biases in banks' lending and informational asymmetries

Coeurdacier and Rey (2013) provide a general categorization of the potential causes behind the home bias in portfolio management. They identify three major classes of explanations: exchange rate risk, transaction costs, and informational asymmetries. As argued by Saka (2019), given the specific case of the eurozone, with increased

financial integration, European common legislation, and no foreign exchange rate risk, the informational asymmetries explanation may be prevailing.

Bank loans are heavily dependent on private information; the amount of a loan and its cost are established by a lender on the basis of both "soft" and "hard" information (Berger and Udell, 1995; Petersen and Rajan, 1994, 2002; Houston and James, 1996; Dennis and Mullineaux, 2000; Berger, Dai, Ongena and Smith, 2003). Information frictions may thus affect both terms of a loan. Houson, Itzkowitz and Naranjo (2017) underline that these information asymmetries may be aggravated in the context of cross-border lending. The existence of differences in the informational set of domestic and foreign agents and the associated costs of information acquisition, as well as investors' better judgement of local conditions and management practices are among the arguments set forth in explaining home bias in portfolio compositions, even those of more sophisticated investors such as mutual funds or banks (Brennan and Cao, 1997; Van Nieuwerburgh and Veldkamp, 2009; Dziuda and Mondria, 2012). The informational distance that may induce home bias can be caused by physical or geographical distance (Coval and Moskowitz, 1999, 2001) but also by cultural distance (Grinblatt and Keloharju, 2001; Hau, 2001).

In order to isolate the informational channel, one has to be aware of other potential factors, even within a quite homogeneous financial space as the eurozone. Ciccarelli, Maddaloni and Peydro (2013) for example show that even if banks belong to the European Monetary Union (EMU) with a unique monetary policy, the transmission of this policy is heterogeneous across members. De Santis and Surico (2013) explain this heterogeneity by a large number of banks in Germany and Italy compared to France, where the banking system is more concentrated. Finally, after the Lehman collapse, several governments intervened to support their banking system, but the measures and their magnitude differed across countries (Ureche-Rangau and Burietz, 2013) with a significant influence on credit supply and the choice of borrowers (Caliendo, Guo and Smith, 2018). All these parameters have to be controlled for if one aims to capture a home bias effect due mainly to informational asymmetries.

Our first analysis tries to investigate whether banks' lending behavior differs according to borrower's location (Hypothesis 1 – Home bias).

As argued previously, banks are financial intermediaries in the context of asymmetric information and act as delegated monitors in the sense of Diamond (1984). Acquisition of information about the firms and monitoring

costs are key factors. Thus, when providing a loan, a bank may select firms in familiar industries to save monitoring costs. Acharya, Hasan and Saunders (2006) as well as Hauswald and Marquez (2006) provide evidence that the expansion of banks into industries where they lack experience or into more competitive sectors may worsen credit quality because of factors such as less effective monitoring and adverse selection. Giannetti and Saidi (2018) even show that lenders specialized in distressed industries will provide them with more loans to limit the negative spillovers from a potential disruption of the whole supply chain.

We thus also investigate whether banks' lending behavior differs according to borrower's industry (Hypothesis 2 – Sectoral bias).

The existence of such biases on the syndicated lending market could be seen as puzzling. Indeed, as bank lending activities are mainly domestic, syndicated lending provides an opportunity for diversification. Nevertheless, even on this market, banks may continue to privilege particular borrowers, e.g. domestic and operating in specific industries.

b. Biases in banking lending and financial crises

Previous literature also suggests that the flight-to-home effect, particularly in the case of banks, seems to be crisis-related and is consistent with the funding risk that banks may experience during a financial institution crisis. Epstein (2001) uses the concept of "ambiguity aversion" when banks allocate more resources to domestic companies because geographical proximity makes it easier for them to quantify the credit risk on domestic assets. This behavior is even more striking during a banking crisis when banks suffer from a confidence problem.

Giannetti and Laeven (2012) use data on the syndicated loan market to analyze the lending behavior of banks in 55 crisis-hit countries. The authors provide evidence that home bias in bank lending is a partial explanation of the credit crunch observed during the 2008 financial crisis. Firms' credit quality is also an important parameter, even if loan origination seems more significant. In addition, the flight-to-home effect seems unconnected either to the relationship a bank may have established with its debtors or to the impact of government intervention. As such, the risk of foreign loans seems to be a significant determinant of banks' credit allocation. Giannetti and Laeven (2012) argue that investors are unable to properly assess the credit risk of foreign assets. Hence, banks that experience a decrease in wealth during a banking crisis tend to reduce the weight of foreign assets in their own portfolio (Epstein, 2001).

Cetorelli and Goldberg (2011) focus on cross-border lending and examine the transmission of a financial crisis from developed countries to emerging markets. They highlight a flight-to-home effect during the 2008 crisis, both as banks in crisis-hit developed countries reduced their cross-border lending to emerging markets and as branches in those emerging markets also cut their lending volume. However, De Haas and Van Horen (2013) argue that the conclusions developed by Cetorelli and Goldberg (2011) on cross-border lending cannot be generalized to all banks. They observe that cross-border lending in some countries can remain stable, even if a crisis occurs.

Our third investigation seeks to set forth whether the occurrence of financial crises affects bank lending (Hypothesis 3).

2. Empirical Strategy

We aim to identify whether the borrower's geographical location and industry impact credit supply proxied by the loan amount banks grant. The main challenge is to disentangle credit supply from credit demand effects as both of them can explain the final amount agreed between the borrower and the lender (Gan, 2007; Khwaja and Mian, 2008; Cetorelli and Goldberg, 2011; Jiménez, Ongena, Peydró and Saurina, 2012; Amiti and Weinstein, 2018). First, the financial position of the lender may affect its capacity to lend money. De Jonghe, Dewachter and Ongena (2019) show that credit supply varies according to banks' capital level and that an increase in capital requirements lowers the supply of credit to firms. Focusing on a banking crisis, Antoniades (2016) argues that banks with higher funding risk tighten their credit offer, especially by raising costs or imposing tougher requirements (Panetta, Faeh, Grande, Ho, King, Levy, Signoretti, Taboga and Zaghini, 2009); they reduce risks by favoring domestic companies. Second, the economic environment strongly impacts firms' investment opportunities and sales, and thus their propensity to apply for loans, i.e. credit demand (Fazzari, Hubbard, Petersen, Blinder and Poterba, 1988; Panetta, Faeh, Grande, Ho, King, Levy, Signoretti, Taboga and Zaghini, 2009). As such, the influence of both the borrower's domicile and the lender's specialization on bank lending can be either supply- or demand-driven.

Regarding the domicile of the borrower, geographical proximity streamlines credit assessment procedures and reduces agency costs. Moreover, loan terms can also be affected by the structure of the national banking system in terms of competition, institutional arrangements, and the existence of credit registries. From this point of view, the impact will be supply-driven only (Behr and Schmidt, 2015). However, the geographical proximity with banks,

the largely bank-oriented credit culture in Europe, and the monetary and economic conditions may also impact loan demand. More specifically, changes in firms' net worth, the cost of financing and expectations for investment all impact loan amounts (Xiao, 2011).

Regarding the industry of the borrower, the effect can be supply-driven, influenced by the lending strategy for example. A bank may either decide to adopt a focus strategy by lending more to a specific industry in order to save agency and monitoring costs rather than diversifying its loan portfolio, or to internalize any spillover effects from negative shocks (Acharya, Hasan and Saunders, 2006; Giannetti and Saidi, 2018). Nevertheless, there may be situations where a serially correlated sectoral productivity shock shifts credit demand from firms in that particular industry. The serially correlated nature of the shock implies that higher credit yesterday is followed by higher credit today; therefore, the total amount lent by bank in the previous year would be correlated with how much the borrower is requesting today. In this case, the impact would be totally demand-driven and could directly affect the amount of the loan because of a change in investment opportunities.

We address this identification challenge using two alternative specifications of our baseline model. First, we control for credit demand using borrowers' observable time-varying characteristics as well as macroeconomic conditions, borrower and time fixed effects. We then replace all these variables by borrower × time fixed effects to capture all borrower's time-varying characteristics, i.e. observable and unobservable (Khwaja and Mian, 2008). We run a cross-section analysis per loan to investigate the determinants of its amount and study bank lending behavior.[3] Our model is specified at the tranche level of a syndicated loan. We manually matched the amount granted by each bank with the associated explanatory variables to estimate the following equation:

$$Amount_{iblt} = \alpha + \theta_1 HB_{iblt} + \gamma_1 SB_{iblt-1} + \beta X_{iblt} + \delta_b + \delta_l + \delta_t + \varepsilon_{iblt} \qquad (1)$$

where $Amount_{iblt}$ is the natural logarithm of the amount of loan i issued by borrower b and purchased by lender l at time t. HB_{iblt} is the home-bias variable, i.e. a dummy variable equal to one if borrower b is located in the same country as lender l when loan i is issued. We also run the estimation of Equation (1) using an alternative measure of home bias, i.e. the total amount lent by lender l during the year of loan i to all borrowers located in the same country than lender l, as a percentage of the total amount lent by the same lender to all borrowers over the

[3] A loan-by-loan analysis allows to study each loan separately; time series analysis would have involved aggregating the loans for a specific time-period.

same year. The standalone variable tests for the presence of a flight-to-home effect (Hypothesis 1). SB_{iblt-1} is the sectoral bias variable, i.e. the total amount lent by lender l during the year before loan i was issued to the same industry as that of borrower b, measured as a percentage of the total amount lent by the same lender to all industries over the same year. In line with the home-bias hypothesis, the standalone variable tests for the presence of a sectoral bias (Hypothesis 2).

The vector X_{iblt} contains the borrower's observable time-varying characteristics to control for loan demand. We argue that a firm's willingness to apply for a loan is more likely to be influenced by firm-specific factors. As such, we include five yearly determinants to assess the borrower's financial position: the natural logarithm of total assets, the natural logarithm of the borrower's long-term debt, its return on equity, its share of fixed assets (the ratio of plant, property, and equipment to total assets) and its sales growth. We consider data for the year preceding the loan. We also control for the crisis period with a dummy variable equal to 1 post-Lehman, and for the change in economic conditions through the change in the annual GDP in the borrower's country. We saturate our model with borrower (δ_b) and time (δ_t) fixed effects.[4] We argue that the borrower's financial position, as well as accelerator terms such as sales, capture investment demand and motivate changes in capital spending (Fazzari, Hubbard, Petersen, Blinder and Poterba 1988 among others). We expect these variables to have a positive impact on the amount, except for the long-term debt coefficient and the coefficient of the crisis dummy (Hubbard, Kuttner and Palia, 2002; Brick and Palia, 2007; Chakravarty and Yilmazer, 2009). A borrower with an above-average financial position and benefiting from a good economic environment should be able to obtain a larger loan.

We also control for bank characteristics. A well-capitalized and liquid bank with high-quality assets, substantial earnings, stable funding sources, and independent managers and supervisors will perform better than its peers and will thus be able to better support lending supply.[5] We thus use a vector of nine explanatory variables that are consistent with both the CAMEL model and the Basel regulation in addition to bank fixed effects (δ_l). First, to account for the bank's capital, we use the Tier 1 ratio of common equity and retained earnings to risk-weighted assets, in line with a large strand of the literature (Gambacorta, 2008; Acharya and Steffen, 2012; Kapan and

[4] We also estimate an alternative version of Equation (1) with borrower × time fixed effects.

[5] Peek and Rosengreen (2000), Hubbard, Kuttner and Palia (2002), Beltratti and Stulz (2009), Ivashina and Scharfstein (2010), Altunbas, Manganelli and Marques-Ibanez (2011), Cetorelli and Goldberg (2011, 2012), Fahlenbrach and Stulz (2011), De Haas and Van Horen (2012, 2013), Fahlenbrach, Prilmeier and Stulz (2012), Giannetti and Laeven (2012), Popov and Udell (2012), Antoniades (2016).

Minoiu, 2015; Drechsler, Drechsel, Marques-Ibanez and Schnabl, 2016). For asset quality, we employ the ratio of loan loss reserves to gross loans, provided by Bankscope.[6] To measure the management aspects of the bank, we build the variable Total Lending, which is the natural logarithm of the total amount lent in the previous year. Calomiris and Pornrojnangkool (2009) argue that this variable describes the lender's reputation and a potential size effect as it highlights the lender's ability to capture a larger share of the syndicated loan market. The level of earnings is proxied by two variables: interest income as a percentage of total income and the bank's return on assets. Finally, three measures account for liquidity: the interbank ratio of the lender -"due from banks" over "due to banks" -, the liquid asset ratio - liquid assets as a percentage of deposits and short-term funding -, and the ratio of core deposits to total assets (Ivashina and Scharfstein, 2010; Cornett, McNutt, Strahan and Tehranian, 2011; Antoniades, 2016). For all these variables, when a loan is signed at time t, we take into account data at time $t-1$. The vector of bank characteristics also includes a dummy variable equal to 1 when the government intervenes to support the supply of credit of one specific bank during the banking crisis. We expect all coefficients to be positively correlated with the loan amount, except for the asset quality variable (Hubbard, Kuttner and Palia, 2002; Gambacorta, 2008).

We use ten variables to describe the loan's characteristics: (i) the natural logarithm of its spread, (ii) the natural logarithm of its maturity, (iii) a dummy equal to 1 if the loan is denominated in euro, its type - (iv) revolving or (v) term loan -, and its objective - (vi) intended for corporate purposes or (vii) for debt repayment -, (viii) a variable to control for the size of the syndicate, (ix) a dummy equal to 1 when the deal issued by the borrower contains more than one facility, and (x) the Value-at-Risk (VaR) to assess the risk of the industry in which the borrower operates (Hubbard, Kuttner and Palia, 2002; Calomiris and Pornrojnangkool, 2005; Brick and Palia, 2007). We use industry indices produced by Datastream to compute a VaR per industry and per year. Then, we manually match the SIC code of the borrowing company provided by the DealScan database with the indices from Datastream to be able to associate one VaR per loan and also take into account the timing of the loan. Finally, we include three dummy variables to account for the potential influence of a relationship between the bank and its customers: a dummy variable equal to 1 if the same company has contracted a loan during the year before the loan

[6] Popov and Van Horen (2014) show that banks' exposure to distressed sovereign bonds is also a significant determinant of the issuance of new syndicated loans. However, due to data availability, we are not able to include this control variable in our estimations.

under consideration was granted, a dummy variable to account for the fact that the previous loan(s) have been contracted with the same bank, and a dummy variable to consider the borrower's opportunity to have more than one credit source. The latter variable is equal to 1 when the company borrows from at least two banks.

We use the ordinary least squares (OLS) approach with standard errors clustered at the bank level. We start by testing the impact of domiciliation and industry separately, before running the regression with both effects, each time with all the control variables.

We then investigate the impact of the financial crisis (Hypothesis 3) on our conclusions using the following Equation (2):

$$Amount_{iblt} = \alpha + \theta_1 HB_{iblt} + \theta_2 HB_{iblt} \times C + \gamma_1 SB_{iblt-1} + \gamma_2 SB_{iblt-1} \times C + \beta X_{iblt} + \delta_b + \delta_l + \delta_t + \varepsilon_{iblt} \quad (2)$$

where we complement Equation (1) with two interaction terms between HB_{iblt} and SB_{iblt-1} on one side and C, a dummy equal to 1 for the post-Lehman period, on the other side. The collapse of Lehman Brothers (September 15, 2008) is our breaking point as it highlighted the high exposure and involvement of European banks in the trading of subprime mortgage-backed securities (Laeven and Valencia, 2008, 2010).

3. Data description

This paper studies how the geographical and sectoral orientation of the borrower affect credit supply. For this purpose, we build a rich set of variables combining seven databases for the four most significant banking systems of the eurozone, France, Germany, Italy, and Spain, from 2005 to 2013. We thus contribute to the literature mainly based on U.S. datasets.

a. Loan characteristics: LPC DealScan

First, we use LPC DealScan to obtain information on all syndicated loans provided by banks in the four countries under study between 2005 and 2013. A syndicated loan is a financial transaction between a company and a group, or syndicate, of banks.[7]

[7] In a syndicated loan, also called a deal or package, one borrower can receive several loans, also called facilities or tranches. The differences between two tranches depend on the type of the loan, its maturity, spread, etc. We, therefore, decided to run our analysis at the loan level rather than the deal level to integrate the different characteristics and risk level of each separate tranche of one syndicated loan. We might use the DealScan terminology: facility, borrower, lender, to refer to the loan, company, and bank respectively.

Following Lim, Minton and Weisbach (2014), we consider bank-type institutions only, commercial banks, investment banks and thrift institutions,[8] and leave aside non-bank institutional investors such as hedge funds, due to differences in the cost of providing debt capital. We then assign each bank to one of the four countries under study, using the following procedure. First, we keep only banks with an ultimate parent situated in France, Germany, Italy, or Spain. We develop a unique ID to refer to the ultimate parent bank and assign it to all the banks and subsidiaries belonging to the same holding structure. Second, for each country, we consider the geographical location of each bank and identify three categories of branches: national, European and international. In this study, we use only the first category, so that national banks and subsidiaries are grouped under the same ID as the ultimate parent. The final sample of banks includes not only lead lenders, who administer and monitor the loan, but also participating lenders, because both groups decide whether or not to participate in the loan, based on specific determinants. As our objective is to highlight these determinants, we need both categories in our sample.

We run our analysis on the full sample of banks. We filter these four national groups, keeping only those which lent on the syndicated loan market between 2005 and 2013 and for which we have information on bank allocation, i.e. the amount lent.[9] From the list of loans in LPC DealScan, we obtain information on the borrowing company, such as its domiciliation and industry, the name of the bank or banks providing the loan, as well as additional loan characteristics. Each loan is associated with one or several national groups of banks according to the nationality of the syndicate members. As such, the same loan may be included in both French and German sub-samples if one French bank and one German bank have participated in the loan. We then consider each bank's loan participation as a loan itself and control for the characteristics of the syndicate, as described in the next section.

b. Bank characteristics: Bankscope

Using the list of banks' ultimate parents, we use the Bankscope database to find their annual financial characteristics. We manually look for each ultimate parent to select only lenders with available data and to update

[8] We started by filtering DealScan data to keep only the three categories clearly defined in the database. Then, we manually checked for the Standard Industrial Classification (SIC) code of each remaining financial institution and selected only the appropriate ones (in 6011-6082, 6211, 6712 and 6719 categories).

[9] When comparing the characteristics of loans with and without bank allocation information, we can observe that the two samples remain similar in terms of geographical breakdown (both from the lender's and the borrower's point of view), sector, maturity, and distribution method, with a majority of term loans and revolving lines of credit.

the list of loans according to the new list of banks. The database also provides the financial history of each bank, allowing us to identify any mergers occurring during the period under study and to adjust our sample over time.

c. Borrower characteristics: Compustat, Orbis, and Diane

From the updated list of loans in LPC DealScan, we extract the list of borrowing companies. To collect the borrower's characteristics, we combine three different but complementary databases—Compustat, Orbis, and Diane—to obtain the largest sample possible. Compustat mainly provides data on listed companies worldwide, with a significant share in North America. To combine LPC DealScan and Compustat, we start by using the file built by Chava and Roberts (2008), who exploited the GVKEY, the unique ID in Compustat, to match the information available in the two databases. More precisely, each company in LPC DealScan is assigned a unique GVKEY in Compustat. Hence, if a company contracts more than one loan, the same GVKEY will be used. However, the link file is established at one point in time, based on the then-current state of the market. In other words, if two companies merge while the file is being built, they will have the same GVKEY even if they were previously two separate entities. For example, if each of them contracted a loan before the merger, both loans would have the same GVKEY even though the borrowers are two separate companies. Therefore, to ensure a correct match between LPC DealScan and Compustat, we simultaneously combine the borrower IDs from LPC DealScan with the unique GVKEY. We then control for the lending date to obtain the relevant information about the borrower at the time of the loan. If companies cannot be matched automatically with this process, we look for them manually in Compustat, using their name and controlling for the country and sector. For the remaining unmatched companies, we use two other databases, Orbis for European (but not French) firms, and Diane, which mainly focuses on the French market. One advantage of combining these three databases is to limit the selection bias.

d. Additional characteristics

According to the literature, the frequency of borrowing on the syndicated loan market as well as the relationship between the company and the bank(s) may impact the credit terms (Brick and Palia, 2007; Jiangli, Unal and Yom, 2008; De Haas and Van Horen, 2013; Aiyar, Calomiris, Hooley, Korniyenko and Wieladek, 2014, among others). These authors all argue that costs in the syndicated loan market are higher for new borrowers than for existing ones. In addition, in line with Calomiris and Pornrojnangkool (2009), when a bank provides more than one loan

to the same company over a given time period, a relationship can be established. Chakravarty and Yilmazer (2009) use the number of credit sources as a proxy for the lender-borrower relationship. Accordingly, we introduce three variables into our model to control for the relationship between the lender and the borrower as well as for the company's frequency of borrowing.

In addition, previous literature underlines the role of government intervention and its impact on bank lending (Laeven and Valencia, 2013; Aiyar, Calomiris and Wieladek, 2014a, 2014b). Intervention may support bank lending during a confidence crisis, reinforcing the home bias by the political pressure on banks to lend more to domestic companies. To incorporate this information into our model, we use the database developed by Ureche-Rangau and Burietz (2013). In their paper, the authors explain the increase in sovereign debt spreads using capital injections and guarantees from European governments, as well as the liquidity measures implemented by the European Central Bank. Based on their dataset, we extract only explicit financial support given to banks at the nation-state level so that we can control for potential political pressure on their lending activities. We build a dummy equal to 1 over the period during which the government of one of our four countries intervenes to provide one specific bank with liquidity. In our sample of banks, 32% received financial support from their governments through capital injections (EUR 96 billion between August 2007 and October 2011) and guarantees (EUR 332 billion between October 2008 and October 2011). Finally, we use the World Economic Outlook Database provided by the International Monetary Fund to collect data on the change in borrower's gross domestic product (GDP) and use it to control for the macroeconomic context.

4. Empirical evidence

In our final sample, we have 62 ultimate lenders providing 1,948 borrowers with a total of 3,735 loans between 2005 and 2013. One characteristic of the syndicated loan market is that several banks participate in a single loan albeit investing a different amount. As a result, a loan may appear several times in our database, resulting in a sample of 11,598 observations. Table 1 provides descriptive statistics for the main variables of interest in our analysis.

Insert Table 1 here.

On average, one bank lends 69.10 million USD to one company while the median is equal to 26.10 million USD. The large difference between the two statistics is explained by several loans of large amounts, up to 7.83 billion USD for example. Regarding our three main explanatory variables (the two proxies for the home bias and the one for the sectoral bias), we observe that one-third of banks' loans are granted to domestic companies over the period under study. These domestic loans represent, on average, 22% of the annual amount lent by banks. In terms of the industry of the borrower, the average annual amount of loans to industries banks are specialized in amounts to 6.21%. On average, the level of specialization in banks' loan portfolios remains relatively small. However, we notice that some banks may be highly specialized, with their entire loan portfolio dedicated to domestic borrowers and/or to industries they became experts in, while others prefer to diversify.

The main results obtained from the estimations of Equation (1) are reported in Table 2. We first focus on the home bias (Hypothesis 1) with the first four specifications, i.e. two with the dummy variable accounting for the geographical positions of both the lender and the borrower and two based on the share of loans granted to domestic borrowers. We then investigate the sectoral bias separately (Hypothesis 2) in the next two specifications. Finally, the last four specifications combine both biases (Hypotheses 1 and 2). The odd specifications gather the borrower's observable time-varying characteristics, the macroeconomic conditions, the borrower and the time fixed effects while the even specifications consider only the borrower × time fixed effects.

Insert Table 2 here.

Our first major question relates to the existence of a home bias in the lending behavior of banks located in the four major banking systems of the eurozone. The home bias signals banks' willingness to favor access to credit for domestic companies, for which credit risk assessment is easier and more profitable (Epstein 2001; Van Nieuwerburgh and Veldkamp, 2009; Houson, Itzkowitz and Naranjo, 2014). One main result is that bank behavior is significantly domestically oriented. In the first four specifications, the coefficient is positive and statistically significant at the 1% risk level, independently of the proxy used for the home bias, highlighting that larger credit amounts were granted to domestic borrowers.

The second major question we ask in this paper is whether banks apply a particular lending strategy in terms of amounts depending on the industry of the borrower. More specifically, we analyze banks' specializations per industry by using the total amount lent in the previous year to companies in the same industry as the borrower

under study, expressed as a percentage of the total amount lent by the same lender over the same year. We show that the sectoral bias is significant, as the coefficient of the proxy we used for the sectoral bias is positive and statistically significant at the 1% confidence level. Banks in the four major countries of the eurozone tend to grant loans with larger amounts to borrowers that belong to industries these banks know very well. This is in line with the literature highlighting a banks' preference for the focus strategy to save monitoring costs and benefit from expertise advantage.

When we jointly assess the role of the two biases, the conclusions remain strictly identical providing evidence of significant biases in banks' lending behavior both towards domestic borrowers and industries banks are specialized in.

Table 3 below provides the results of the estimations of Equation (2) which investigates the impact of the financial crisis on bank lending. We first estimate the crisis impact on the two biases separately, before combining them. The structure of Table 3 is similar to the one of Table 2, with borrower's observable time-varying characteristics, the macroeconomic conditions, borrower and time fixed effects in the odd specifications, and borrower × time fixed effects in the even ones.

Insert Table 3 here.

The presence of home and sectoral biases in credit amounts lent by banks remains significant, disregarding the specification. However, no significant changes during the crisis period seem to appear. Indeed, all the coefficients associated with the variables used to proxy the crisis impact are not statistically significant. Our results show that banks' level of specialization strongly influences their lending behavior and there is no adjustment during distressed periods.

5. Robustness

In the following section, we run several tests to assess the robustness of our results.

a. The Financial Crisis versus the Sovereign Debt Crisis

In our main analysis, we considered the collapse of Lehman Brothers as the breakpoint to study how this event, and the subsequent financial crisis, have impacted bank lending in France, Germany, Italy, and Spain. Between 2008 and 2013, however, eurozone economies suffered not only one, but two different types of financial turmoil:

a financial institution crisis followed by a sovereign debt crisis. Disentangling these two periods may be particularly relevant for banks in the eurozone, as the supply of credit from Spanish and Italian banks might be based on loans that they themselves contracted from banks in the two core countries, Germany and France. Omitting this episode may, therefore, lead to an underestimation of the credit supply in the core countries in our sample, coupled with an overestimation of loan supply in the two peripheral countries.[10] In addition, the two crises may have had different effects on bank lending activities, leading policymakers to implement different solutions depending on the type of crisis. On the one hand, the financial institution crisis may lead to credit rationing, while firms may also refrain from investing because of economic instability. On the other hand, the sovereign debt crisis highlights excessive levels of government borrowing, requiring fiscal consolidation that could potentially amplify the financial institution crisis. The implied rise in tax burdens reduces the income of both households and firms, thus lowering credit demand and increasing the private-sector default risk. A highly indebted government, looking for additional funds, may also exacerbate banks' weaknesses. Indeed, banks may be pressured to increase domestic sovereign bond holdings and thus reduce the credit supply for private borrowers (Lane, 2012; Acharya, Drechsler and Schnabl, 2014; Saka, 2016). Hence, subdividing the crisis period to estimate Equation (2) allows us to deepen the analysis and provides a better understanding of the determinants of credit supply.

Insert Table 4 here.

Previous conclusions on potential home bias in bank lending remain unchanged when we split the crisis period as explained in the preceding paragraph. The flight-to-home effect is still statistically significant, highlighting a preference of banks for local companies. The impact of home bias on bank lending persists during both normal time and crisis periods. We thus confirm the null effect of the crisis on banks' behavior, as the coefficients remain insignificant when considering the interactions with the two different crisis dummies, e.g. financial and sovereign debt crises.

In terms of industry bias, the results reported previously also hold. Banks located in France, Germany, Italy and Spain offer larger loans to industries in which they specialize, with no specific impact of crisis times and no distinction between the types of crisis. The four groups of banks remain specialized in the sectors to which they

[10] We also run Equation (2) over the period 2005-2010 to remove the potential influence of the sovereign debt crisis. The results remain similar and are available upon request.

used to lend before the Lehman collapse, taking advantage of their expertise and saving monitoring costs. Having banks granting credit to industries in which they have extensive experience contributes to more efficient monitoring of companies, reduces the risk of adverse selection, and ultimately improves credit quality (Acharya, Hasan and Saunders, 2006; Hauswald and Marquez, 2006). Nevertheless, we notice one exception. The sectoral bias seems to disappear during the sovereign debt crisis and even experiences a reversing trend, with banks lending less to industries they are specialized in. The negative and significant coefficient signals banks' objective to improve the level of diversification of their loans portfolios in order to reduce their exposure to economic downturns. However, this result does not hold when considering the specification with borrower × time fixed effects. The latter controls for all borrower's time-varying characteristics, observable and unobservable. We argue that this particular specification is more complete than the model with only some borrower's observable time-varying characteristics, the macroeconomic conditions, borrower and time fixed effects, which may explain the difference in results.

b. <u>Different benchmark rate</u>

The loan spread in our sample is provided as a markup over different benchmark rates, among the most common of which are the London InterBank Offered Rate (LIBOR) and the Euro InterBank Offered Rate (EURIBOR). Altunbas, Gadanecz and Kara (2006) argue that several factors, such as spreads and fees, may differ according to the benchmark rate for the loan. More specifically, the authors underline that fees are more significant for loans based on EURIBOR than on LIBOR. This differentiation may potentially impact our results because we use all-in spreads. Hence, following Gaul and Uysal (2013), we estimate our equations on a subsample of loans with a single reference rate, EURIBOR, to assess whether differences in the two base rates influence our results. This choice is justified by our sample of eurozone banks. The results are qualitatively similar, except for a slight decrease in loan amounts during the crisis for loans to specialized industries. However, this exception does not hold when we run the model with borrower × time fixed effects.

Insert Table 5 here.

c. <u>Results are not driven by borrowers in one country</u>

As explained in Section 2, our analysis may suffer from selection bias with a large share of loans to North American companies. Carey and Nini (2007) for example, report that U.S. borrowers' share of the global syndicated loan

market is about 67% and that European lenders granted 39% of their syndicated lending volume to U.S. borrowers between 1992 and 2002. We thus check whether our results are driven by these loans, running our estimations on a subsample that excludes U.S. borrowers. Our conclusions remain strictly similar. The only exception is again the decrease in loan amounts to specialized industries during the crisis which holds only for the model with borrower's observable time-varying characteristics, the macroeconomic conditions, borrower and time fixed effects. Otherwise, our conclusions do not change.

Insert Table 6 here.

6. Conclusion

The aim of this paper is to investigate bank lending decisions and the extent to which they are influenced by banks' level of geographic and sectoral expertise. We analyze the credit supply of four eurozone bank samples: France, Germany, Italy, and Spain. The approach to these issues is innovative; it confirms previous results provided by the literature while also expanding on the potential sectoral bias.

Combining seven databases enables us to develop a rich dataset on the syndicated loans provided by banks in four major eurozone countries for the period 2005-2013. We collected information about the different stakeholders in these financial transactions, namely the bank and the borrowing company, and about their relationship, the loan and the macroeconomic context. The period under study is centered on the collapse of Lehman Brothers to integrate both a normal and a crisis period. The modeling set-up consists of one estimated equation, describing one credit term of the loan, namely the amount. Our main variables of interest are the domiciliation of the borrowing firm with respect to the domiciliation of the bank, and the industry the company belongs to with respect to industries in which the bank specializes. Two alternative specifications of our model allow us to control for borrowers' observable time-varying and unobservable time-varying characteristics.

The results can be summarized as follows. We argue that bank lending behavior is significantly biased by the geographical position and the industry of the borrower as pointed out by former studies and that this behavior is not affected by the crisis. Banks favor companies that are closer geographically and in industries in which they specialize, both before and after the crisis. They thus allocate larger amounts to such firms. This strategy relies on the expertise banks develop in their activities of collecting and interpreting information about companies,

industries, and national economies. Moreover, this strategy provides banks with monitoring cost advantages allowing them to save time and money.

Further developments of this analysis could allow us to enrich further our conclusions. For example, enlarging the sample to include lenders' foreign branches inside and outside Europe could provide additional evidence on the flight-to-home effect. This can be done with access to more detailed information on the stakeholders involved in financial transactions, allowing to obtain even clearer results on the impact of a bank's characteristics on its capacity to lend during crisis times.

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TABLE 1

DESCRIPTIVE STATISTICS

Variables	Definition	Unit	Observations	Mean	Median	Std. Dev.	Min	Max
		Dependent variable						
Amount	The share of the amount of loan i issued by borrower b and purchased by lender l	Million USD	11,598	69.10	26.10	222.00	0.00	7,830.00
		Bank lending biases						
Home bias (HB_{ibl})	Loan i extended by a lender l to a domestic borrower b	Dummy	11,598	0.33	0	0.47	0	1
	Total amount lent by lender l during the year of the issuance of loan i to the same country as that of lender l, as a percentage of the total amount lent by the same lender to all borrowers over the same year	%	11,598	22.05	0.00	36.33	0.00	100.00
Sectoral bias (SB_{ibl})	Total amount lent by lender l during the year preceding the issuance of loan i to the same industry as that of borrower b, as a percentage of the total amount lent by the same lender to all industries over the same year	%	11,553	6.21	2.26	10.19	0.00	100.00

Notes: This table provides descriptive statistics for the main variables of interest included in the empirical analysis. The dependent variable, i.e. the amount of the loan, in addition to the two main explanatory variables (i.e. HB_{ibl} and SB_{ibl}) are computed by the authors using data from LPC DealScan database. Our final sample consists of 62 ultimate lenders providing 1,948 borrowers with a total of 3,735 loans. One characteristic of the syndicated loan market is that several banks participate in a syndicated loan, meaning that one loan may appear several times in our database. Hence, a total of 11,598 observations.

TABLE 2
BASELINE MODEL

	Amount									
	Hypothesis 1				Hypothesis 2		Hypotheses 1 & 2			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
HB_{ibl} $(Dummy)$	0.291***	0.268***					0.291***	0.268***		
	(0.083)	(0.081)					(0.083)	(0.081)		
HB_{ibl} (%)			0.468***	0.378***					0.471***	0.379***
			(0.100)	(0.105)					(0.101)	(0.106)
SB_{ibl}					0.457**	0.405**	0.457**	0.406**	0.452**	0.399**
					(0.180)	(0.186)	(0.181)	(0.189)	(0.183)	(0.189)
Borrower characteristics	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Macroeconomic characteristics	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relationship characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Borrower FE x Time FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Observations	10,301	10,400	10,301	10,400	10,288	10,387	10,288	10,387	10,288	10,387
R-squared	0.767	0.817	0.767	0.817	0.766	0.816	0.767	0.817	0.767	0.817

Notes: The dependent variable is the amount of the syndicated loan taken as a natural logarithm. We run an OLS regression to estimate Equation (1). The main explanatory variables are the home-bias dummy (HB_{ibl} $(Dummy)$), the home-bias share (HB_{ibl} (%)), and the sectoral bias variable (SB_{ibl}) as defined in Table 1. We first estimate the two biases separately (columns 1 to 6) before running the regression with both biases (columns 7 to 10). In the odd specifications, we control for the observable time-varying characteristics of the borrower (natural logarithm of total assets and long-term debt, ROE, ratio of plant, property and equipment to total assets, and sales growth) in addition to the economic environment (crisis dummy, and change in GDP), borrower and time fixed effects while in the even specifications, we use borrower x time fixed effects to control for credit demand. In all specifications, we also control for the lender (Tier 1 ratio, loan loss reserves to gross loans ratio, natural logarithm of total lending, interest income, ROA, interbank ratio, liquid asset ratio, core deposits to total asset ratio, and government support), the loan (natural logarithm of spread, natural logarithm of maturity, currency, type, objective, syndicate size, deal, VaR), and the relationship (loan frequency, lender's previous relationship, and number of credit sources). Standard errors in parentheses are clustered at the bank level; ***Significant at 1%, ** Significant at 5%, * Significant at 10%.

TABLE 3
CRISIS IMPACT

	Amount									
	Hypotheses 1 & 3				Hypotheses 2 & 3		Hypotheses 1, 2 & 3			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
HB_{ibl} $(Dummy)$	0.316***	0.279***					0.318***	0.280***		
	(0.091)	(0.078)					(0.091)	(0.080)		
HB_{ibl} (%)			0.469***	0.340***					0.470***	0.337***
			(0.110)	(0.108)					(0.114)	(0.115)
SB_{ibl}					0.601***	0.576**	0.590***	0.572**	0.585**	0.577**
					(0.223)	(0.226)	(0.218)	(0.223)	(0.222)	(0.228)
HB_{ibl} $(Dummy)$ x C	-0.060	-0.026					-0.065	-0.029		
	(0.086)	(0.092)					(0.084)	(0.091)		
HB_{ibl} (%) x C			-0.002	0.086					-0.002	0.091
			(0.105)	(0.115)					(0.115)	(0.126)
SB_{ibl} x C					-0.493	-0.622	-0.459	-0.607	-0.456	-0.628
					(0.379)	(0.464)	(0.366)	(0.456)	(0.372)	(0.469)
Borrower characteristics	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Macroeconomic characteristics	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relationship characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Borrower FE x Time FE	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Observations	10,301	10,400	10,301	10,400	10,288	10,387	10,288	10,387	10,288	10,387
R-squared	0.767	0.817	0.767	0.817	0.766	0.816	0.767	0.818	0.767	0.817

Notes: The dependent variable is the amount of the syndicated loan taken as a natural logarithm. We run an OLS regression to estimate Equation (2). The main explanatory variables are the home-bias dummy (HB_{ibl} $(Dummy)$), the home-bias share (HB_{ibl} (%)), and the sectoral bias variable (SB_{ibl}) as defined in Table 1 as well as their interaction with the crisis dummy (C). We first estimate the two biases separately (columns 1 to 6) before running the regression with both biases (columns 7 to 10). In the odd specifications, we control for the observable time-varying characteristics of the borrower (natural logarithm of total assets and long-term debt, ROE, ratio of plant, property and equipment to total assets, and sales growth) in addition to the economic environment (crisis dummy, and change in GDP), borrower and time fixed effects while in the even specifications, we use borrower x time fixed effects to control for credit demand. In all specifications, we also control for the lender (Tier 1 ratio, loan loss reserves to gross loans ratio, natural logarithm of total lending, interest income, ROA, interbank ratio, liquid asset ratio, core deposits to total asset ratio, and government support), the loan (natural logarithm of spread, natural logarithm of maturity, currency, type, objective, syndicate size, deal, VaR), and the relationship (loan frequency, lender's previous relationship, and number of credit sources). Standard errors in parentheses are clustered at the bank level; ***Significant at 1%, ** Significant at 5%, * Significant at 10%.

TABLE 4

FINANCIAL CRISIS VERSUS SOVEREIGN DEBT CRISIS

	Amount							
	Baseline Model				Financial vs. Sovereign debt crises			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HB_{ibl} $(Dummy)$	0.318***	0.280***			0.323***	0.282***		
	(0.091)	(0.080)			(0.091)	(0.080)		
HB_{ibl} (%)			0.470***	0.337***			0.477***	0.344***
			(0.114)	(0.115)			(0.113)	(0.115)
SB_{ibl}	0.590***	0.572**	0.585**	0.577**	0.585**	0.575**	0.578**	0.579**
	(0.218)	(0.223)	(0.222)	(0.228)	(0.219)	(0.225)	(0.223)	(0.229)
HB_{ibl} $(Dummy)$ x C	-0.065	-0.029						
	(0.084)	(0.091)						
HB_{ibl} (%) x C			-0.002	0.091				
			(0.115)	(0.126)				
HB_{ibl} $(Dummy)$ x FC					-0.030	0.158		
					(0.085)	(0.117)		
HB_{ibl} $(Dummy)$ x SDC					-0.109	-0.142		
					(0.095)	(0.090)		
HB_{ibl} (%) x FC							0.005	0.215
							(0.148)	(0.178)
HB_{ibl} (%) x SDC							-0.046	0.005
							(0.111)	(0.119)
SB_{ibl} x C	-0.459	-0.607	-0.456	-0.628				
	(0.366)	(0.456)	(0.372)	(0.469)				
SB_{ibl} x FC					0.075	-0.600	0.062	-0.651
					(0.412)	(0.457)	(0.426)	(0.489)
SB_{ibl} x SDC					-1.485**	-0.860	-1.427**	-0.809
					(0.603)	(0.792)	(0.593)	(0.791)
Borrower characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Macroeconomic characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relationship characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	No	Yes	No	Yes	No	Yes	No
Borrower FE x Time FE	No	Yes	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Observations	10,288	10,387	10,288	10,387	10,288	10,387	10,288	10,387
R-squared	0.767	0.818	0.767	0.817	0.767	0.818	0.767	0.817

Notes: The dependent variable is the amount of the syndicated loan taken as a natural logarithm. We run an OLS regression to estimate Equation (2). The main explanatory variables are the home-bias dummy (HB_{ibl} $(Dummy)$), the home-bias share (HB_{ibl} (%)), and the sectoral bias variable (SB_{ibl}) as defined in Table 1 as well as their interaction with 3 crisis dummies (C, FC, SDC). Columns 1 to 4 report the results of the baseline model with one crisis period (2008-2013) while columns 5 to 8 consider two crises (the financial crisis (FC) (2008-2011) and the sovereign debt crisis (SDC) (2011-2013)). In the odd specifications, we control for the observable time-varying characteristics of the borrower (natural logarithm of total assets and long-term debt, ROE, ratio of plant, property and equipment to total assets, and sales growth) in addition to the economic environment (crisis dummy, and change in GDP), borrower and time fixed effects while in the even specifications, we use borrower x time fixed effects to control for credit demand. In all specifications, we also control for the lender (Tier 1 ratio, loan loss reserves to gross loans ratio, natural logarithm of total lending, interest income, ROA, interbank ratio, liquid asset ratio, core deposits to total asset ratio, and government support), the loan (natural logarithm of spread, natural logarithm of maturity, currency, type, objective, syndicate size, deal, VaR), and the relationship (loan frequency, lender's previous relationship, and number of credit sources). Standard errors in parentheses are clustered at the bank level; ***Significant at 1%, ** Significant at 5%, * Significant at 10%.

TABLE 5
EURIBOR FOCUS

	Amount							
	Baseline Model				Euribor Focus			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HB_{ibl} $(Dummy)$	0.318***	0.280***			0.252***	0.244***		
	(0.091)	(0.080)			(0.078)	(0.076)		
HB_{ibl} (%)			0.470***	0.337***			0.263***	0.219**
			(0.114)	(0.115)			(0.093)	(0.093)
SB_{ibl}	0.590***	0.572**	0.585**	0.577**	0.487*	0.538*	0.499*	0.552**
	(0.218)	(0.223)	(0.222)	(0.228)	(0.266)	(0.271)	(0.267)	(0.270)
HB_{ibl} $(Dummy)$ x C	-0.065	-0.029			-0.013	-0.023		
	(0.084)	(0.091)			(0.078)	(0.083)		
HB_{ibl} (%) x C			-0.002	0.091			0.135	0.148
			(0.115)	(0.126)			(0.124)	(0.123)
SB_{ibl} x C	-0.459	-0.607	-0.456	-0.628	-0.850*	-0.800	-0.881*	-0.838
	(0.366)	(0.456)	(0.372)	(0.469)	(0.467)	(0.495)	(0.476)	(0.509)
Borrower characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Macroeconomic characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relationship characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	No	Yes	No	Yes	No	Yes	No
Borrower FE x Time FE	No	Yes	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Observations	10,288	10,387	10,288	10,387	4,532	4,534	4,532	4,534
R-squared	0.767	0.818	0.767	0.817	0.808	0.824	0.808	0.823

Notes: The dependent variable is the amount of the syndicated loan taken as a natural logarithm. We run an OLS regression to estimate Equation (2). The main explanatory variables are the home-bias dummy (HB_{ibl} $(Dummy)$), the home-bias share (HB_{ibl} (%)), and the sectoral bias variable (SB_{ibl}) as defined in Table 1 as well as their interaction with the crisis dummy (C). In the first four columns, we consider all benchmark rates while in the last four columns, we focus on loans associated with the Euribor. In the odd specifications, we control for the observable time-varying characteristics of the borrower (natural logarithm of total assets and long-term debt, ROE, ratio of plant, property and equipment to total assets, and sales growth) in addition to the economic environment (crisis dummy, and change in GDP), borrower and time fixed effects while in the even specifications, we use borrower x time fixed effects to control for credit demand. In all specifications, we also control for the lender (Tier 1 ratio, loan loss reserves to gross loans ratio, natural logarithm of total lending, interest income, ROA, interbank ratio, liquid asset ratio, core deposits to total asset ratio, and government support), the loan (natural logarithm of spread, natural logarithm of maturity, currency, type, objective, syndicate size, deal, VaR), and the relationship (loan frequency, lender's previous relationship, and number of credit sources). Standard errors in parentheses are clustered at the bank level; ***Significant at 1%, ** Significant at 5%, * Significant at 10%.

TABLE 6

U.S. BORROWERS EXCLUDED

	Amount							
	Baseline Model				U.S. Borrowers excluded			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HB_{ibl} $(Dummy)$	0.318***	0.280***			0.284***	0.262***		
	(0.091)	(0.080)			(0.083)	(0.074)		
HB_{ibl} (%)			0.470***	0.337***			0.405***	0.282***
			(0.114)	(0.115)			(0.101)	(0.100)
SB_{ibl}	0.590***	0.572**	0.585**	0.577**	0.577**	0.567**	0.576**	0.574**
	(0.218)	(0.223)	(0.222)	(0.228)	(0.221)	(0.227)	(0.223)	(0.230)
HB_{ibl} $(Dummy)$ x C	-0.065	-0.029			-0.027	-0.032		
	(0.084)	(0.091)			(0.075)	(0.081)		
HB_{ibl} (%) x C			-0.002	0.091			0.054	0.103
			(0.115)	(0.126)			(0.109)	(0.115)
SB_{ibl} x C	-0.459	-0.607	-0.456	-0.628	-0.815**	-0.735	-0.821**	-0.759
	(0.366)	(0.456)	(0.372)	(0.469)	(0.377)	(0.457)	(0.384)	(0.471)
Borrower characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Macroeconomic characteristics	Yes	No	Yes	No	Yes	No	Yes	No
Bank characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Loan characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Relationship characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Borrower FE	Yes	No	Yes	No	Yes	No	Yes	No
Time FE	Yes	No	Yes	No	Yes	No	Yes	No
Borrower FE x Time FE	No	Yes	No	Yes	No	Yes	No	Yes
Bank FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Clustered SE	Bank	Bank	Bank	Bank	Bank	Bank	Bank	Bank
Observations	10,288	10,387	10,288	10,387	7,400	7,475	7,400	7,475
R-squared	0.767	0.818	0.767	0.817	0.777	0.825	0.777	0.824

Notes: The dependent variable is the amount of the syndicated loan taken as a natural logarithm. We run an OLS regression to estimate Equation (2). The main explanatory variables are the home-bias dummy (HB_{ibl} $(Dummy)$), the home-bias share (HB_{ibl} (%)), and the sectoral bias variable (SB_{ibl}) as defined in Table 1 as well as their interaction with the crisis dummy (C). In the first four columns, we consider all borrowers while in the last four columns, we exclude U.S. borrowers. In the odd specifications, we control for the observable time-varying characteristics of the borrower (natural logarithm of total assets and long-term debt, ROE, ratio of plant, property and equipment to total assets, and sales growth) in addition to the economic environment (crisis dummy, and change in GDP), borrower and time fixed effects while in the even specifications, we use borrower x time fixed effects to control for credit demand. In all specifications, we also control for the lender (Tier 1 ratio, loan loss reserves to gross loans ratio, natural logarithm of total lending, interest income, ROA, interbank ratio, liquid asset ratio, core deposits to total asset ratio, and government support), the loan (natural logarithm of spread, natural logarithm of maturity, currency, type, objective, syndicate size, deal, VaR), and the relationship (loan frequency, lender's previous relationship, and number of credit sources). Standard errors in parentheses are clustered at the bank level; ***Significant at 1%, ** Significant at 5%, * Significant at 10%.