

Who Lends Before Banking Crises? Evidence from the International Syndicated Loan Market*

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Abstract. We show that foreign lenders and low market share lenders extend more credit in comparison to other lenders during lending booms leading to banking crises, but not during other credit expansions. Less established lenders also increase the amount of credit they extend to riskier borrowers without asking for collateral or imposing covenants and higher interest rates. Our results suggest that taking lenders' characteristics into account could provide a useful barometer for macroprudential policies.

Keywords: Foreign banks, crises, credit booms

JEL codes: G21, F3

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Substantial evidence shows that credit expansions often lead to banking crises with significant negative consequences for the real economy (Reinhart and Rogoff, 2009; Schularick and Taylor, 2012). The common explanation is that excessive lending is associated with an increase in leverage and the funding of poor-quality borrowers (Gourinchas and Obstfeld, 2012). However, while crises tend to be preceded by credit growth, credit growth may also be driven by an increase in investment opportunities or by an improvement in the financial sector's ability to intermediate funds towards productive investment (Levine, 2005). For this reason, macroprudential policies face a trade-off between financial stability and financial deepening (Ayyagari, Beck and Martinez Peria, 2017).

Finer predictions on the characteristics of credit booms that are likely to lead to financial crises could provide a useful barometer for macroprudential policies, which typically focus on aggregate credit growth. In particular, there is limited information on whether during credit expansions that end up in banking crises there is any heterogeneity in the propensity to take risk between lenders.

This paper takes up this challenge and investigates the characteristics of the lenders that provide more credit in the years preceding banking crises and that appear to contribute to a larger extent to deteriorating credit quality. In particular, we explore the role of foreign lenders and banks with low market shares, which are relatively new to the local credit market. We also explore whether there are any differences between credit booms that end up in crises and other credit expansions.

Exploring the role of new lenders can help to understand the mechanisms leading to banking crises. Some consider connected lending by well-established banks as the main factor behind the accumulation of bad loans and, consequently, of banking crises (e.g., Krugman, 1998).

On the other hand, new lenders may face more information asymmetry during credit booms and, being less experienced, become victims of optimistic expectations, which end up to be deluded when the boom ends up in a bust.

Theoretical models imply that credit booms arise because atomistic agents do not internalize the externalities of excessive debt on collateral prices and defaults (e.g., Lorenzoni (2008), Farhi and Werning (2016), Korinek and Simsek (2016)) and provide another rationale for why new lenders may be more prone to lend during credit booms that end up in busts. Besides being less informed, less established lenders, such as foreign banks and new lenders, having limited prior exposure to a country, are likely to behave as atomistic agents and place no weight on the spillover effects of their decisions. Their behavior may contrast that of high-market-share lenders that may partially internalize the negative spillovers of their actions on the economy through the effects on their current exposure.

We conjecture that, fearing the negative spillovers of excessive risk taking and having better information, high-market-share banks lend relatively less and take less risk during periods preceding banking crises. We expect the contrary for foreign lenders and in particular new lenders that enter in a country in the period immediately preceding the banking crisis.

To test these conjectures, we rely on the chronology of banking crises of Baron, Verner and Xiong (2020) and exploit lenders' differential behavior in the syndicated loan market. After establishing that international syndicated bank loans increase during booms and then sharply contract at the onset of the banking crisis, we show that in the years preceding the banking crisis well-established banks, which in the past had extended a large proportion of the loans in a country, provide less credit than other lenders. An increasing proportion of credit appears to be provided by foreign banks and first-time lenders, in particular. We also observe that foreign lenders and

low-market-share banks increase the amount of loans they grant to borrowers that appear riskier on the basis of observable characteristics, without asking for higher interest rates. If anything, foreign lenders offer less restrictive contracts asking for less collateral and not including covenants. Importantly, we find no differences in lending behavior between high-market-share banks and other lenders during credit booms that do not end up in banking crises.

Our findings have important implications for macroprudential policies. Evidence that some lenders are more likely to over-extend credit than others suggests not to focus macroprudential policies merely on the quantity of credit, but also on the type of lenders. A higher proportion of credit provided by less established banks could be used as an indicator that risk is accumulating in the economy, providing a rationale to increase capital requirements for all lenders that end up being directly or indirectly exposed.

Our results provide a new rationale for why credit market concentration can enhance financial stability. The original argument is that competition distorts lenders' risk-taking decisions by lowering their profit margins (Keeley, 1990). Our results suggest that in the absence of barriers to entry, an increase in lender dispersion may indicate greater risk taking and higher probability of banking crises. We also find that higher bank competition, as captured by a lower concentration in the provision of credit, is associated with lower lending standards on average, as for instance in Ruckes (2004). Differently from existing theories, however, we highlight that it is important to consider differences between lenders.

By focusing on differences in lending between banks with different market shares, our work is related to Favara and Giannetti (2017) and Giannetti and Saidi (2019), who show both theoretically and empirically that during episodes of distress high-market-share banks internalize the negative spillovers associated with defaults and fire sales. Consequently, high-market-share

banks are more likely to renegotiate defaulting mortgages (Favara and Giannetti, 2017) and to provide liquidity to old and new clients in distressed industries as well as to their customers and suppliers (Giannetti and Saidi, 2019). We explore how lenders' market shares affect their behavior during credit booms.

We also contribute to a growing literature showing that the geography of bank lending changes in boom and crisis times. Lenders' propensity to extend syndicated loans to foreign borrowers depends on the financing conditions in their home country (Giannetti and Laeven, 2012a). In particular, lenders experiencing a banking crisis in their home country exhibit a flight home effect, meaning that they rebalance their portfolios towards domestic borrowers (Giannetti and Laeven, 2012b).¹ Relatedly, Granja, Leuz and Rajan (2018) document that domestic lenders in the U.S. grant more loans to distant and lower quality entrepreneurs during U.S. business cycle expansions and attribute this behavior to a strong competitive environment in the lenders' original markets. While these studies focus on financing and competitive conditions in the lenders' markets, we focus on the host country and consider how the characteristics of lenders vary in periods preceding banking crises.

Finally, our paper is related to work showing that a deterioration in the average quality of firms with high debt issuance predicts poor performance of corporate bonds relative to Treasury bonds of similar maturity (Greenwood and Hanson, 2013). We focus on the type of lenders rather than on the quality of borrowers, which may be harder to ascertain *ex ante* in credit markets.

¹ Consistent with these findings, De Haas and Van Horen (2013), Presbitero, Udell, and Zazzaro (2014) and Bord, Ivashina and Tagliaferro (2018) show that banks experiencing greater losses retreat to their local markets.

1. Data Sources and Variable Definitions

1.1 Dating Banking Crises

We identify periods of excessive lending ex post, using the chronology of crises of Baron, Verner, and Xiong (2020), who consider episodes of bank equity returns declines in a country in excess of 30% during a year. Their approach allows us to consider episodes with salient crisis symptoms, such as panics and government interventions, and quieter periods of banking sector distress. As a result, the number of crises is larger than the number of crises identified by previous narrative accounts.² Our sample includes 64 crises in 46 countries during 1986-2016. The various episodes are listed in Table 1.

Baron, Verner and Xiong (2020) show that the episodes of crises they identify are followed by credit contractions and output drops, but they are silent on the origins of these crises. Our objective is to document the characteristics of the lenders that make more credit available and contribute to building up risk during these periods. We are equally agnostic on whether the crises originate from bad lending policies or from a shock to fundamentals that reversed itself. In either case, it is relevant to explore who contributed most to the build-up of debt and risk that amplifies the negative effects of the bust.

We explore lending in the four years preceding the banking crisis. If another banking crisis occurs within four years, we consider the years between two banking crises. Our results do not depend on the specific interval we choose and are robust if we consider the pre-crisis period to be three years before the crisis.

We also contrast the behavior of different types of lenders during other periods of credit expansions, which do not end up in a crisis. We identify other credit booms as years in which a

² Our results are invariant if we date banking crises using a narrative approach as in Baron and Xiong (2017).

country's annualized change in private credit to GDP ratio over three years is in the top 25% of the country's credit to GDP growth and no banking crisis occurred. The sample includes 214 country-years as credit booms in 40 countries.

1.2 Bank Lending

To observe how individual banks extend credit in a variety of countries, we resort to data from the international syndicated loan market, which we obtain through Dealscan.

A syndicated loan is extended jointly by a group of banks, including one or sometimes a couple of lead banks and several participant banks. Prior to signing the loan contract, lead banks assess the quality of the borrowers and negotiate terms and conditions. Once the main terms are in place, lead banks invite participant banks to acquire a stake of the loan, but they remain responsible for monitoring the borrower.

Syndicated loans represent a significant part of international bank claims (Gadanecz and Von Kleist, 2002). More importantly, as shown by Figure 1, there are booms and busts in the syndicated loan market, which coincide with the banking crises in our sample. It is therefore relevant to ask which lenders contribute most to building up risk during the boom.

We extract data on all completed loans granted to publicly listed or privately held firms from 1986 to 2016. We consider the bank holding company as the ultimate provider of credit. Our final sample includes 3,667 lenders, which offer loans to borrowers in 46 countries. While 46% of the lenders are non-bank financial intermediaries, over 90% of the loans are arranged by banks. Hence, our results must be interpreted as driven by banks.³

³ In particular, our results hold if we control for the differential behavior of non-bank intermediaries in the pre-crisis period or exclude them from the sample.

Because our main objective is to explore differences in lenders' propensities to provide credit to borrowers in a country in periods preceding banking crises, we start by aggregating loans at the lender-country-time level. The variable $Loan_{b,c,t}$ captures the amount of loans that lender b extends to borrowers headquartered in country c during year t .

We consider two alternative measures of loan provision. First, following existing literature (e.g., Bharath et al. 2007; Ivashina and Scharfstein 2010), we consider lead arrangers to be the "lenders". Such an assumption reflects the fact that lead arrangers are responsible for traditional bank duties including due diligence, payment management, and monitoring of the loan. In addition, while both lead arrangers and participants commit capital, the average lead share is four times as large as the average participant share.

Second, we construct proxies for credit provision in which we consider all banks that committed capital using the loan shares in DealScan. Because this information is not reported for two-thirds of the sample, we follow a practice common in the literature of imputing loan shares when they are missing (see, e.g., Chodorow-Reich 2014). If loan shares are missing, we set the loan shares equal to the average lead share in country c for lead lenders and divide equally the remaining amount of the loan among the other syndicate participants. In these instances, for multiple lead arrangers, we attribute an equal fraction of the lead arrangers' total loan share to each lead arranger.

We also study how the proportion of loans that different lenders extend to borrowers with different characteristics in a given country varies over time. This allows us to capture whether differences in lending are indeed associated with differences in risk-taking.

Table 2 provides summary statistics for the main variables. Detailed variable definitions are in the Appendix A.

1.3 Lenders Types

We argue that episodes of excessive lending are driven by lenders that have less precise information or do not internalize the consequences of their actions on other borrowers and the overall economy. In this respect, being less informed, foreign lenders should be more likely to take excessive risk. As is common in the literature (see, e.g., Giannetti and Laeven, 2012), we define foreign lenders as banks whose headquarters are based in a foreign country.

We also consider any lenders who did not extend any syndicated loans in a country in the previous five years as new lenders in that country. All these lenders happen to be foreign and we label them first-time lenders. Having acquired less local knowledge and having the least assets and business at stake in the host country, first-time lenders are expected to be particularly inclined to take risks.

More in general, lenders with low market shares in a country should be the ones that have less information and internalize the spillovers of their actions to a lower extent and therefore take more risk. Similarly to Giannetti and Saidi (2019), we construct two proxies for a lender's market share in a country. Our first proxy captures that excessive risk taking may generate defaults, whose effects are amplified and affect other borrowers' ability to repay. Only lenders with a large fraction of the loans outstanding in a country on their balance sheets internalize the negative spillovers of defaults. We thus capture this effect using the share of outstanding loans retained by lender b in country c in year t , *Retained Share* $_{bct}$, defined as the dollar amount of loans committed and retained by a lender that have not yet reached maturity, divided by the dollar amount of all loans issued to borrowers in a country that have not yet reached maturity. Since the allocation of the loan between participants in the syndicate is not always reported, we resort to impute loan shares, as we did for the loan provision proxies based on committed credit.

Our second proxy for a lender's market share is *Arranged Share_{bct}*, defined as the volume of loans arranged by lender b over the total volume of loans issued in country c in year t .⁴ Besides a lender's better information, this proxy captures the lender's incentives arising from the current and future profits it expects to generate in a country. In the spirit of league tables, which are commonly used to identify the big players in the syndicated loan market, our measure of market share focuses on lender titles, rather than on actual commitments of syndicate members. In this manner, we can capture a lender's persistent advantage in a country. We attribute the total loan amount to the lead arranger, unless there are multiple lead arrangers, in which case we divide the loan amount equally among the lead arrangers.

Finally, we consider a lender's portfolio share, defined as the dollar value of the loans that a lender arranges in a given country during a year, divided by the dollar of all the loans arranged by that lender during that year. Such a proxy captures how specialized a lender is in the provision of loans to a country, a feature that has been shown to be related to a lender's information advantage (Acharya, Hasan, and Saunders 2006; Loutskina and Strahan 2011) and that has a very low correlation with our proxies for the bank's market share.

1.4 Borrowers' Characteristics

Besides considering the quantity of credit provided by different lenders to borrowers in a country, we infer a lender's propensity to take risk considering how the lender funds borrowers and loans with different characteristics. In particular, we consider the proportion of loans to borrowers of different types out of all borrowers in a country funded during a year. To identify borrower characteristics, we merge the loan level information from Dealscan with Global

⁴ Results are similar if we define the proportion of arranged loans over a longer interval, such as three years.

Compustat using the borrowers' names and location. We are able to obtain financial information for publicly listed borrowers as of the most recent fiscal year prior to the loan issuance date.

We consider as particularly risky loans to small borrowers, defined as borrowers with assets in the bottom quartile of our sample in a given country and year; loans to borrowers with high leverage, defined as borrowers with leverage in the top quartile of our sample in a given country and year; and loans to borrowers with low interest rate coverage, defined as loans to borrowers with interest rate coverage in the bottom quartile of the sample in a given country and year. In the empirical analysis, we consider a lender to take more risk if it extends more loans to these risky borrowers out of all loans to publicly listed borrowers. We also consider as risky loans to private firms, loans to firms that are unrated, unsecured loans and loans without covenants.

Finally, to have an alternative measure of a borrower's risk, we obtain estimates of one-month corporate default probabilities at monthly frequency for borrowers in the syndicated loan market from the NUS-RMI Credit Research Initiative. We manually match borrowers to the NUS-RMI data and compute the proportion of loans that a lender extends to riskier borrowers as the proportion of loans to borrowers with distance to default in the bottom quartile relative to all loans extended in a given country and year.

2. Methodology

Our objective is to estimate how a bank's propensity to lend to borrowers in a given country varies with the bank's characteristics, such as the bank's market share in the country or whether the bank is a foreign lender, and over time. In particular, we expect some lenders to be more inclined to provide credit in periods leading to banking crises.

We estimate the following equation:

$$y_{b,c,t} = \beta_1 \times Lender_char_{b,c,t-1} \times Pre_crisis_{c,t} + \beta_2 \times Lender_char_{b,c,t-1} + \delta_{c,t} + \gamma_{b,t} + \varepsilon_{b,c,t},$$

where the outcome variable, $y_{b,c,t}$, is either the total loan volume that country c obtains from lender b in year t or the proportion of loans to borrowers of different types out of all borrowers in country c in year t funded by lender b in year t ; $Lender_char_{b,c,t-1}$ is either the dummy variable that takes value one if lender b is foreign in country c , $Retained_Share_{b,c,t-1}$, or $Arranged_Share_{b,c,t-1}$; $Pre_crisis_{c,t}$ is a dummy variable that takes value equal to one during the four years before a banking crisis hits country c ; $\delta_{c,t}$ and $\gamma_{b,t}$ denote interactions of country and years and bank and years fixed effects, respectively. Thus, country specific shocks and bank specific shocks cannot affect our findings. Specifically, $\delta_{c,t}$ absorbs credit demand in a country and $\gamma_{b,t}$ a bank's ability to supply loans.

Therefore, our empirical tests capture how the composition of credit in a country varies in different phases of the lending cycle holding constant country level demand shocks and bank level supply shocks. In practice, β_1 compares the differential behavior of foreign lenders and high-market-share lenders with the behavior of these lenders in normal years because crisis years are too infrequent to affect the average effect of $Lender_char_{b,c,t-1}$.

3. Results

3.1 Main Findings

Table 3 explores how foreign lenders and lenders with different market shares extend loans to countries in pre-crisis years. Panel A shows a clear increase in foreign lenders' propensity to extend credit in pre-crisis years. The effect is not only statistically, but also economically significant. In column 1, the amount of loans arranged by foreign lenders almost double in pre-

crisis periods; also in column 2, the probability that foreign lenders arrange any loans during pre-crisis periods in comparison to normal times increases by nearly 50%. These effects are even larger in columns 3 and 4, where we consider the amount of credit committed by each lender.

In Panel B, we consider the past market share of a lender in a country, instead of the nationality of the lender's headquarters. It again appears that the loan extension during pre-crisis periods is concentrated among less established lenders. The result is robust when we use different proxies for loan provision and market share. It is also both economically and statistically significant. For instance, in column 5, increasing a lender's arranged share by two standard deviations (equal to 0.04) is associated with a drop in lending during pre-crisis periods in comparison to normal times by nearly 50%.

Overall, given that the demand for credit within a country and the bank's ability to extend new loans are held constant by the high-dimension fixed effects we include in the regressions, it appears that most of the credit expansion during pre-crisis periods is driven by lenders that are new to the host country.

Table 4 provides further support for this view. Considering only foreign lenders, we estimate the probability that a foreign lender extending credit according to both of our two definitions has not done so in the previous five years. The probability that one of these lenders, which are not very well-acquainted with the host country, arranges a loan increases by 30% percent in the pre-crisis period in column 1. The estimates appear qualitatively and quantitatively similar in the rest of the table as we vary the definition of loan provision and even when we include interactions of lender and time fixed effects to control for a lender's ability to extend funding in columns 3 and 4.

We perform several tests to evaluate the interpretation of these results. First, we interpret differences in behavior between lenders to arise in pre-crisis periods in comparison to normal times, largely because most of observations consist of normal times rather than the actual crisis years. Concerns may arise however that our results are driven by the fact that high-market-share lenders are more inclined to provide liquidity during bad times as Giannetti and Saidi (2019) highlight during episodes of industry distress. Table 5 tests whether this is the case. Panel A tests whether foreign lenders provide less credit during crisis years. This could lead us to over-state their contribution to pre-crisis lending booms. We find no evidence that this is the case. If anything, foreign lenders being less affected by an economy's contraction when the crisis hits provide more credit to the crisis country than other lenders.

Panel B tests whether high-market-share lenders extend more loans than other lenders to borrowers in a country during a banking crisis. We find no evidence that high-market-share banks behave differently from other lenders during banking crises, as shown by the statistically insignificant interaction between the crisis dummy and the lender's market share. These results support our interpretation that differences in lending behavior arise during pre-crisis years relative to normal times.

Second, one may wonder whether foreign and low-market-share lenders' behavior is typical of periods preceding banking crises. In particular, new comers could expand credit provision when there is a credit expansion in a country because current high-market-share lenders have reached full capacity. Table 6 evaluates this possibility considering credit booms that are not followed by banking crises. We consider a country to experience a credit boom if it experiences an annualized change in private credit to GDP over three years in the top 25% of the country over the sample period. According to this definition, credit booms are slightly more frequent than pre-

crisis periods. We exclude any pre-crisis years from the estimation and repeat the tests in Tables 3 and 4 with the *Credit Boom* variable.

We find no evidence that during credit expansions that do not result in banking crises, foreign lenders and low-market-share lenders provide more credit. If anything, Panel A shows that foreign lenders provide less credit than during normal times. In column 2 of Panel C, the probability that a new comer commits new credit is five times smaller than in the corresponding specification in column 4 of Table 4. This suggests that unexperienced lenders provide more bad loans and increase risk-taking sowing the seeds of financial instability only during credit booms that precede banking crises.

3.2 Risk Taking

To provide more direct evidence on whether some lenders contribute more than others to financial instability in pre-crisis periods, we consider the characteristics of the borrowers receiving loans from different types of lenders. We also explore whether lenders attempt to mitigate credit risk by asking for collateral and imposing covenants on the borrowers.

We ask which lenders issue more loans to risky borrowers in a country during a year. The dependent variable is the proportion of risky loans issued by a given lender out of all loans issued in a given country during that period. We define risky loans based on a low distance to default (distance to default in the bottom quartile), small borrower's size (total assets in the bottom quartile), low interest rate coverage (interest rate coverage in the bottom quartile), unrated borrowers, and unlisted borrowers. All empirical specifications include interactions of lender and time fixed effects as well as interactions of country and time fixed effects. Hence, the estimates

are obtained holding constant a lender's propensity to take on risk across countries at a given point in time and the composition of borrowers within a country.

Panel A of Table 7 shows that foreign lenders tend to have more cautious lending policies on average. However, they increase the amount of loans that they arrange and commit to risky borrowers more than other lenders during pre-crisis periods. This again suggests that foreign lenders increase risk taking to a larger extent than other lenders during periods leading to banking crises. For example, in columns 1, the percentage of loans to borrowers with low distance to default arranged by foreign lenders increases by 200% during the pre-crisis period relative to the unconditional mean. In columns 5 and 6, we find that foreign lenders arrange 150% more loans to unrated and private borrowers in the four years preceding banking crises.

Importantly, in columns 7 and 8, it does not appear that an increase in credit to riskier borrowers during these periods is accompanied by an increase in the proportion of secured loans or loans including covenants supporting the notion that foreign lenders become less cautious during bad booms that end up in busts.

Panel B repeats the same empirical analyses considering lenders' market shares. Unsurprisingly, banks with higher market shares provide a larger proportion of loans to riskier borrowers on average. However, during pre-crisis periods, these lenders extend fewer loans to riskier borrowers, while decreasing the proportion of unsecured loans and loans with no covenant they grant. For example, in columns 1 and 3, a one-standard-deviation increase in a lender's arranged share is associated with a decrease in the proportion of loans arranged to low-distance-to-default borrowers by 197% and to highly levered borrowers by 162% with respect to the unconditional mean.

These tests confirm our interpretation of the empirical evidence that foreign lenders and small-market-share lenders contribute to a larger extent than other lenders to the accumulation in risk that ultimately results in financial instability.

3.3 Interest Rates on Bank Loans

Foreign lenders and low-market-share lenders may correctly price the risk of bank loans even though being less established in the market, they may serve marginal borrowers. To evaluate this possibility, Table 8 explores whether the average interest rates on the loans extended by different types of lenders takes the different characteristics of their clients into account. In this case, these less established lenders should charge a premium on their loans during pre-crisis periods.

In Panel A, we find no evidence that this is the case for foreign lenders both when we explore the effect on the average interest rate on syndicated bank loans in column 1 and when we look at the average interest rates on subset of loans to riskier borrowers in the subsequent columns. If anything, we find that foreign lenders provides loans at lower interest rates to low interest rate coverage borrowers in the pre-crisis periods, suggesting that foreign lenders are not being compensated for the risk they take.

In Panel B, we perform similar exercises considering high-market-share lenders. We find that high-market-share lenders extend loans at similar rates as other banks, even though they appear to take less risk. High-market-share banks appear to charge higher rates to borrowers with lower distance from default and low interest rate coverage. Thus, they are not only less inclined to lend to riskier borrowers, but they also incorporate risk to a larger extent when they do so.

4. Mechanisms and Alternative Explanations

4.1 New Borrowers

We also explore why less established lenders appear to take more risk during pre-crisis periods. In particular, we aim to evaluate whether this may be a consequence of the attempt of increasing market shares. If the low risk borrowers have stable relationships with the high-market-share banks, less established lenders can only provide credit to borrowers without pre-existing relationships, which could happen to be riskier. In this case, our results could be driven by lending to new borrowers.

To evaluate whether this is the case, we explore whether the cross-sectional differences in lending behavior over the lending cycle we have highlighted so far emerge even when we consider only loans to borrowers to which a bank had not extended credit in the previous five years. We consider all these loans not to be to relationship borrowers. Table 9 shows that our results are virtually identical to the ones we present in Table 3, indicating that the differences in lending behavior are unlikely to arise from pre-existing relationships.

4.2 Distance or Market Share

Granja, Leuz and Rajan (2018) highlight that distant small business loans are riskier for a bank and that greater lending distance is reflective of generalized risk taking. While Granja, Leuz and Rajan (2018) stress the effect of competition in a bank's county of origin, and we focus on economic conditions in the host country, one may wonder whether low-market-share and distant lending are correlated or capture different mechanisms.

To address this question, Table 10 includes an interaction between the geographical distance between the capital cities of the bank and the borrower's countries and the pre-crisis dummy. Distant lending does appear to increase in pre-crisis periods, confirming the finding that

less established lenders take more risk. However, the effect of market share is unchanged. That is, irrespective of the distance from the banks' headquarters, banks that are less established in a country appear to take more risk in pre-crisis periods.

4.3 The Role of Lender Specialization

Loutskina and Strahan (2011) argue that lenders that concentrate their portfolios in few markets invest more in information collection than diversified lenders and provide evidence in support of their conjecture in the context of the US mortgage market.

One may wonder to what extent a lender's market share is correlated with the lender's specialization, captured by the share of loans that a lender arranges in a country out of all loans it arranges in a year. The correlation is just 16% (14%) with the arranged (retained) share indicating that these proxies capture different aspects of banks' business model.

Nevertheless, in Table 11, we run a horse race between market share and portfolio share, which helps to shed light on the mechanisms that lead high-market-share banks to extend fewer loans in pre-crisis periods. Panel A and Panel B proxies for market share using *Arranged Share* and *Retained Share*, respectively. It is evident that during pre-crisis periods, high-portfolio-share banks arrange more, not fewer loans, even though column 3 and 4 indicate that specialized banks commit, if anything, less credit. Overall, it appears that notwithstanding their information advantage, specialized banks have incentives to foster the credit booms and earn higher fees from arranging more syndicated loans. This contrasts with the behavior of high-market-share banks that arrange fewer loans and commit less credit during pre-crises periods, presumably because they internalize the externalities of excessive lending.

5. Conclusions

We show that credit booms that precede banking crises are different from other credit expansions. The amount of credit extended by foreign lenders and low-market-share lenders increases to a larger extent than for other lenders during credit booms that end up in crises. We find no evidence that this is the case during other credit expansions.

Our results are important for the design of early warning systems and macroprudential policies. The buildup of leverage has been shown to be a key precursor of financial crises in emerging and advanced economies (e.g., Gourinchas and Obstfeld, 2012). Existing studies however focus on macro variables. We highlight that differences in lending behavior can help identifying the increases in debt that are more likely to impair financial stability. Taking this additional information into account could mitigate policymakers' dilemma between financial stability and financial deepening.

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Figure 1. Lending around Banking Crisis

This figure shows the growth rate of the number of syndicated loans and of the dollar value of syndicated loans around the banking crises in our sample. Our sample includes 64 banking crises in 46 affected countries during the 1986-2016 period. The banking crises are categorized as in Baron, Verner, and Xiong (2020). The x-axis represents the year relative to banking crisis from $t=-4$ to $t=2$. The y-axis represents the average lending growth across time and countries in terms of the number of loans (in blue line) and the loan amount (in red line). The lending growth is calculated relative to $t = -4$.

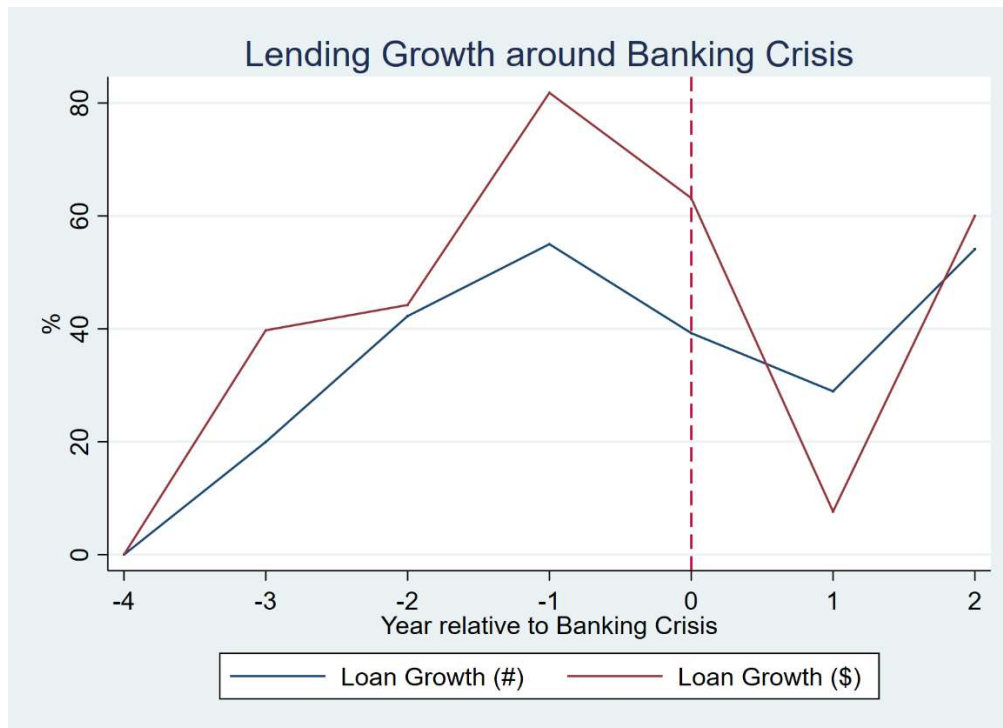


Table 1. Banking Crises

This table shows the list of banking crises in 46 countries during the period 1986-2016. The sample includes 46 borrower countries covered both in Dealscan and Baron, Verner, and Xiong (2020). The sample period of each country starts in the year when the first loan reported in Dealscan and ends 2016. We follow the definition of banking crises in Baron, Verner, and Xiong (2020). We consider as pre-crisis year the four years before a banking crisis. If another banking crisis occurs within four years, Pre-crisis Years include the years between two banking crises.

Country	Sample Period	Crisis Year	Pre-Crisis Years	Country	Sample Period	Crisis Year	Pre-Crisis Years
Argentina	1992-2016	1995 2000	1991-1994 1996-1999	Luxembourg	1987-2016	2008	2004-2007
Australia	1990-2016			Malaysia	1989-2016	1997	1993-1996
Austria	1992-2016	2008 2011	2004-2007 2009-2010	Mexico	1989-2016	1994	1990-1993
Belgium	1989-2016	2008 2011	2004-2007 2009-2010	Netherlands	1987-2016	2008	2004-2007
Brazil	1992-2016	1994	1991-1993	New Zealand	1992-2016		
Canada	1985-2016			Norway	1989-2016		
Chile	1990-2016			Peru	1994-2016	1998	1994-1997
Colombia	1993-2016	1998	1994-1997	Philippines	1986-2016	1997	1993-1996
Czech Republic	1992-2016	1995	1992-1994	Portugal	1990-2016	2008	2004-2007
Denmark	1988-2016	1992 2008 2011	1988-1991 2004-2007 2009-2010	Russia	1990-2016	1995 1998 2008	1991-1994 1996-1997 2004-2007
Egypt	1997-2016			Singapore	1992-2016		
Finland	1990-2016	1990	1986-1989	South Africa	1994-2016		
France	1986-2016	1994 2008	1990-1993 2004-2007	South Korea	1990-2016	1997	1993-1996
Germany	1988-2016	2008	2004-2007	Spain	1990-2016	2008 2010	2004-2007 2009-2009
Greece	1990-2016	1992 2008 2010	1988-1991 2004-2007 2009-2009	Sweden	1988-2016	1991 2008	1987-1990 2004-2007
Hong Kong	1989-2016	1998	1994-1997	Switzerland	1987-2016	1990 2008	1986-1989 2004-2007
Hungary	1993-2016	1995 2008	1992-1994 2004-2007	Taiwan	1989-2016	1995 1998	1991-1994 1996-1997
Iceland	1989-2016	1993 2008	1989-1992 2004-2007	Thailand	1992-2016	1997	1993-1996
India	1989-2016	1993	1989-1992	Turkey	1990-2016	1991 1994 2000	1987-1990 1992-1993 1996-1999
Indonesia	1991-2016	1998	1994-1997	UK	1986-2016	1991 2008	1987-1990 2004-2007
Ireland	1987-2016	2007 2011	2003-2006 2008-2010	USA	1985-2016	1990 2007	1986-1989 2003-2006
Israel	1989-2016			Venezuela	1992-2016	1992 2008	1988-1991 2004-2007
Italy	1987-2016	1992 2008 2011	1988-1991 2004-2007 2009-2010				
Japan	1988-2016	1990 1997 2001	1986-1989 1993-1996 1998-2000				

Table 2. Summary Statistics

This table reports summary statistics for the main variables that are used in the analysis. The statistics are based on the lender-country-year dataset during 1986-2016. Panel A shows the summary statistics of the full sample. *Loan Amount Arranged* and *Loan Amount Committed* are in 2010 \$US MM. Panel B compares the characteristics of lenders that arrange or commit loans during the pre-crisis period and those that lend in other time periods. The sample is restricted to the observations of the year when lenders have arranged or committed positive amount of loans. The significance of the differences is based on the t-tests on means. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively. Panel C provides summary statistics on the percentage of loans received by different types of borrowers and on the interest rates. The definitions of all variables are provided in Appendix A.

Panel A. Lender-Country-Year Sample

Variable	Obs.	Mean	Median	Std. Dev
Pre-crisis	514,472	0.177	0.000	0.381
Loan Amount Arranged	514,472	146.259	0.000	3563.208
Any Loan Arranged	514,472	0.103	0.000	0.304
Loan Amount Committed	514,472	144.474	0.000	2205.892
Any Loan Committed	514,472	0.182	0.000	0.386
Foreign Lender	514,472	0.891	1.000	0.311
Retained Share	496,247	0.002	0.000	0.014
Arranged Share	496,247	0.002	0.000	0.020
First Arrange	509,996	0.023	0.000	0.149
First Commit	509,996	0.039	0.000	0.194

Panel B. Characteristics of Lenders: Pre-crisis Period

Variable	(1) Pre-crisis		(2) Others		Diff. (1)- (2)
	Obs.	Mean	Obs.	Mean	
<i>Sample: Any Loan Arranged = 1</i>					
Loan Amount Arranged	9,096	1665.045	44,086	1363.264	301.781**
Foreign Lender	9,096	0.816	44,086	0.821	-0.005
Retained Share	9,042	0.013	43,872	0.014	-0.001***
Arranged Share	9,042	0.015	43,872	0.016	-0.002***
First Arrange	9,095	0.261	44,071	0.208	0.053***
First Commit	9,095	0.125	44,071	0.114	0.011***
<i>Sample: Any Loan Committed = 1</i>					
Variable	Obs.	Mean	Obs.	Mean	Diff. (1)- (2)
Loan Amount Committed	18,572	805.580	75,192	789.530	16.050
Foreign Lender	18,572	0.824	75,192	0.826	-0.002
Retained Share	18,419	0.008	74,610	0.009	-0.002***
Arranged Share	18,419	0.008	74,610	0.011	-0.002***
First Arrange	18,567	0.127	75,091	0.122	0.006**
First Commit	18,567	0.266	75,091	0.201	0.065***

Panel C. Borrower Characteristics and Interest Rates

Variable	Obs.	Mean	Std. Dev	Variable	Obs.	Mean	Std. Dev
Sample: Lender-Country-Year Panel				Sample: Lender-Country-Year Panel			
% Arrange Low Distance to Default	514472	0.002	0.022	% Commit Low Distance to Default	514472	0.002	0.019
% Arrange Small	514472	0.002	0.022	% Commit Small	514472	0.002	0.018
% Arrange High Leverage	514472	0.002	0.024	% Commit High Leverage	514472	0.002	0.020
% Arrange Low Interest Coverage	514472	0.002	0.023	% Commit Low Interest Coverage	514472	0.002	0.019
% Arrange Unrated	514472	0.002	0.020	% Commit Unrated	514472	0.002	0.017
% Arrange Private	514472	0.002	0.021	% Commit Private	514472	0.002	0.018
% Arrange No Covenant	514472	0.002	0.020	% Commit No Covenant	514472	0.002	0.016
% Arrange Unsecured	514472	0.002	0.020	% Commit Unsecured	514472	0.002	0.017
Sample: Any Loan Arranged = 1				Sample: Any Loan Committed = 1			
% Arrange Low Distance to Default	53182	0.016	0.068	% Commit Low Distance to Default	93764	0.009	0.044
% Arrange Small	53182	0.016	0.068	% Commit Small	93764	0.009	0.042
% Arrange High Leverage	53182	0.018	0.071	% Commit High Leverage	93764	0.010	0.045
% Arrange Low Interest Coverage	53182	0.018	0.071	% Commit Low Interest Coverage	93764	0.010	0.044
% Arrange Unrated	53182	0.023	0.059	% Commit Unrated	93764	0.013	0.038
% Arrange Private	53182	0.022	0.061	% Commit Private	93764	0.012	0.039
% Arrange No Covenant	53182	0.023	0.057	% Commit No Covenant	93764	0.013	0.036
% Arrange Unsecured	53182	0.023	0.059	% Commit Unsecured	93764	0.013	0.038
Avg Spread	33160	163.081	131.783	Avg Spread	65125	149.049	125.766
Avg Spread Low Distance to Default	6766	173.681	143.411	Avg Spread Low Distance to Default	13382	158.855	130.861
Avg Spread Small	6752	216.873	144.055	Avg Spread Small	12815	196.643	136.040
Avg Spread High Leverage	9368	179.937	137.532	Avg Spread High Leverage	20567	161.367	126.416
Avg Spread Low Interest Coverage	8648	168.482	137.366	Avg Spread Low Interest Coverage	18545	155.392	130.924
Avg Spread Unrated	6302	416.068	1318.119	Avg Spread Unrated	13724	532.774	9930.281
Avg Spread Private	2409	1185.095	12763.671	Avg Spread Private	6195	5450.950	284721.787
Avg Spread No Covenant	27554	217.930	957.091	Avg Spread No Covenant	54528	200.755	1342.464
Avg Spread Unsecured	7051	357.088	1571.997	Avg Spread Unsecured	15533	1740.082	173689.676

Table 3. Lending in the Pre-crisis Period

This table shows how different types of lenders lend in the pre-crisis period. The estimates are from OLS regressions using the lender-country-year panel. Panel A shows lending during the pre-crisis period by foreign lenders and Panel B shows the propensity to extend credit of lenders with different market shares. The dependent variables are different proxies for loan provision by lender b to country c in year t . In Panel B, *Market Share* is based on *Retained Share* in columns (1) to (4) and on *Arranged Share* in columns (5) to (8). *Market Share* is lagged by one year. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lender

	(1)	(2)	(3)	(4)
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Foreign Lender	-3.606*** (-28.01)	-0.182*** (-29.21)	-4.775*** (-34.70)	-0.244*** (-35.68)
Pre-crisis x Foreign Lender	0.984*** (7.86)	0.048*** (7.65)	1.320*** (9.66)	0.066*** (9.28)
Lender-Year FE	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y
Observations	475,131	475,131	475,131	475,131
R-squared	0.421	0.404	0.456	0.436

Panel B. Lender's Market Share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Retained Share				Arranged Share			
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Market Share	58.231*** (6.26)	2.677*** (6.24)	51.937*** (6.27)	2.329*** (6.23)	37.057*** (8.87)	1.684*** (8.67)	30.908*** (8.47)	1.363*** (8.17)
Pre-crisis x Market Share	-20.387*** (-2.58)	-0.952*** (-2.61)	-21.561*** (-3.04)	-1.046*** (-3.24)	-12.167*** (-3.37)	-0.580*** (-3.52)	-12.445*** (-4.16)	-0.611*** (-4.50)
Foreign Lender	-3.176*** (-27.05)	-0.162*** (-28.40)	-4.348*** (-33.89)	-0.224*** (-35.12)	-3.257*** (-28.95)	-0.166*** (-29.99)	-4.434*** (-35.45)	-0.228*** (-36.30)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.435	0.416	0.465	0.441	0.433	0.414	0.463	0.440

Table 4. First-time Lenders in the Pre-crisis Period

This table estimates the likelihood of a foreign lender to be a first-time lender during the pre-crisis period. The estimates are from OLS regressions in the lender-country-year panel. The sample excludes the domestic country of the lender and the first-year observations for each lender. The dependent variable in columns (1)-(2) is *First Arrange*, an indicator variable that equals one if lender b arranges a loan to country c in year t but did not arrange any loans in years $t-5$ to $t-1$. The dependent variable in columns (3)-(4) is *First Commit*, an indicator variable that equals one if lender b has committed credit to country c in year t but did not commit any loans in years $t-5$ to $t-1$. We control for GDP per Capita and GDP Growth of borrower countries in columns (1) to (4) and also control for those of the lender countries in columns (1) and (2). GDP per Capita and GDP Growth variables are lagged by one year. The regressions in columns (1) and (2) include lender-country and year fixed effects, and the regressions in columns (3) and (4) include lender-year and country fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Dep. Variable:	(1)	(2)	(3)	(4)
	First Arrange	First Commit	First Arrange	First Commit
Pre-crisis	0.007*** (10.21)	0.021*** (18.92)	0.006*** (7.78)	0.012*** (10.01)
Country GDP per Capita	0.000 (0.24)	-0.005*** (-3.51)	0.002 (1.33)	-0.001 (-0.86)
Country GDP Growth	0.073*** (8.60)	0.142*** (12.69)	0.077*** (7.96)	0.111*** (9.46)
Lender GDP per Capita	0.022*** (9.98)	0.028*** (9.99)		
Lender GDP Growth	0.033*** (3.03)	0.080*** (5.35)		
Lender-Country FE	Y	Y	N	N
Year FE	Y	Y	N	N
Lender-Year FE	N	N	Y	Y
Country FE	N	N	Y	Y
Observations	449,499	449,499	395,479	395,479
R-squared	0.030	0.016	0.130	0.180

Table 5. Robustness: Crisis Period

This table considers differences in lending during banking crises. The estimates are from the OLS regressions using the lender-country-year panel. The regressions follow the specifications in Panels A and B of Table 3. Instead of the *Pre-Crisis* indicator, we include *Crisis*, the indicator for the banking crisis year as defined in Baron, Verner, and Xiong (2020). All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lender

	(1)	(2)	(3)	(4)
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	(1+Loan Amount Committed)	Any Loan Committed
Foreign Lender	-3.269*** (-25.99)	-0.164*** (-27.03)	-4.315*** (-32.19)	-0.220*** (-33.13)
Crisis x Foreign Lender	-0.018 (-0.11)	-0.002 (-0.28)	0.598*** (3.42)	0.029*** (3.06)
Lender-Year FE	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y
Observations	421,832	421,832	421,832	421,832
R-squared	0.441	0.423	0.473	0.451

Panel B. Lender's Market Share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Retained Share				Arranged Share			
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged	(1+Loan Amount Committed)	Any Loan Committed
Market Share	61.986*** (7.39)	2.816*** (7.26)	52.467*** (7.13)	2.280*** (6.87)	38.163*** (8.76)	1.706*** (8.42)	30.540*** (8.24)	1.306*** (7.77)
Crisis x Market Share	-1.143 (-0.07)	-0.168 (-0.23)	-0.670 (-0.05)	-0.131 (-0.22)	1.660 (0.15)	-0.045 (-0.09)	4.586 (0.58)	0.110 (0.34)
Foreign Lender	-2.991*** (-25.16)	-0.152*** (-26.21)	-4.086*** (-31.12)	-0.211*** (-32.14)	-3.084*** (-26.60)	-0.157*** (-27.38)	-4.177*** (-32.24)	-0.215*** (-32.96)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	407,997	407,997	407,997	407,997	407,997	407,997	407,997	407,997
R-squared	0.457	0.435	0.482	0.457	0.454	0.433	0.480	0.455

Table 6. Placebo Tests – Lending during Credit Booms

This table presents placebo tests considering lending booms that do not result in banking crises. The estimates are from OLS regressions in the lender-country-year panel. Panels A and B follow the specifications in Table 3 and Panel C follows the specification in Table 4 except that the *Pre-crisis* indicator is replaced with the *Credit Boom* indicator. *Credit Boom* is an indicator variable that equals one during years in which a country's annualized change in private credit to GDP ratio over three years is in the top 25% of the sample period within the country, and zero otherwise. Pre-crisis year observations are excluded. Because of data availability, the following countries are not included in the sample: Egypt, Iceland, Peru, Philippines, Taiwan, and Venezuela. All regressions in Panels A and B include lender-year and country-year fixed effects, and the regressions in Panel C includes lender-year and country fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lenders

Dep. Variable:	(1)	(2)
	ln(1+Loan Amount Arranged)	Any Loan Arranged
Foreign Lender	-3.421*** (-25.04)	-0.172*** (-25.87)
Credit Boom x Foreign Lender	-0.315** (-2.24)	-0.015** (-2.10)
Lender-Year FE	Y	Y
Country-Year FE	Y	Y
Observations	342,212	342,212
R-squared	0.439	0.422

Panel B. Lenders' Market Share

Market Share based on:	(1)	(2)	(3)	(4)
	Retained Share		Arranged Share	
Dep. Variable:	ln(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged
Market Share	70.925*** (7.61)	3.194*** (7.40)	39.346*** (9.28)	1.751*** (8.96)
Credit Boom x Market Share	-7.361 (-0.74)	-0.270 (-0.60)	7.351 (1.54)	0.361* (1.68)
Foreign Lender	-3.112*** (-24.43)	-0.158*** (-25.35)	-3.236*** (-26.36)	-0.164*** (-26.99)
Lender-Year FE	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y
Observations	332,283	332,283	332,283	332,283
R-squared	0.456	0.435	0.453	0.432

Panel C. First-time Lenders

Dep. Variable:	(1)	(2)
	First Arrange	First Commit
Credit Boom	0.001 (1.26)	0.002* (1.92)
Country GDP per Capita	0.003* (1.95)	0.001 (0.65)
Country GDP Growth	0.038*** (2.89)	0.100*** (6.48)
Lender-Year FE	Y	Y
Country FE	Y	Y
Observations	286,716	286,716
R-squared	0.145	0.194

Table 7. Banks' Propensity to Lend to Borrowers with Different Characteristics

This table shows how different types of lenders provide credit to borrowers with different characteristics in pre-crisis period. The estimates are from OLS regressions in the lender-country-year panel. Panel A considers foreign lenders and Panel B considers lenders with different market shares. The dependent variables are different proxies for credit provision by lender b to country c in year t . *% Arrange [borrower_char]* is defined as the percentage of credit to borrowers/loans with specific characteristics that is arranged by lender b in country c in year t out of all loans with that characteristic in country c year t . Similarly, *% Commit [borrower_char]* is defined as the percentage of credit committed to borrowers/loans with specific characteristics by lender b in country c in year t out of all loans with that characteristic in country c year t . If the lender b does not arrange or commit loans in year t , *% Arrange* and *% Commit* variables are set to zero. *[borrower_char]* includes *Low Distance to Default* (distance to default in the bottom 25%), *Small* (firm size in the bottom 25%), *High Leverage* (leverage in the top 25%), *Low Interest Coverage* (EBITDA/Interest Expense in the bottom 25%), *Unrated* (firm without S&P bond rating), *Private* (private borrowers), *No Covenant* (loans without covenants), and *Unsecured* (unsecured loans). The distribution of borrower characteristics is estimated for each country c in year t considering observations with available borrower information. In Panel B, *Market Share* is *Retained Share* in columns (1) to (8) and *Arranged Share* in columns (9) to (16). *Market Share* is lagged by one year. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lenders

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep. Variable:	% Arrange Low Distance to Default	% Arrange Small	% Arrange High Leverage	% Arrange Low Interest Coverage	% Arrange Unrated	% Arrange Private	% Arrange No Covenant	% Arrange Unsecured
Foreign Lender	-0.007*** (-9.71)	-0.009*** (-10.20)	-0.007*** (-9.78)	-0.006*** (-9.73)	-0.008*** (-11.10)	-0.008*** (-11.55)	-0.008*** (-10.85)	-0.008*** (-10.70)
Pre-crisis x Foreign Lender	0.004*** (5.91)	0.004*** (4.18)	0.004*** (4.85)	0.003*** (4.75)	0.003*** (4.20)	0.003*** (3.49)	0.003*** (4.30)	0.003*** (4.90)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	475,131	475,131	475,131	475,131	475,131	475,131	475,131	475,131
R-squared	0.080	0.082	0.097	0.095	0.159	0.144	0.173	0.168
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Dep. Variable:	% Commit Low Distance to Default	% Commit Small	% Commit High Leverage	% Commit Low Interest Coverage	% Commit Unrated	% Commit Private	% Commit No Covenant	% Commit Unsecured
Foreign Lender	-0.007*** (-11.28)	-0.009*** (-11.62)	-0.007*** (-11.51)	-0.005*** (-11.16)	-0.008*** (-12.78)	-0.007*** (-13.22)	-0.007*** (-12.62)	-0.007*** (-12.29)
Pre-crisis x Foreign Lender	0.004*** (6.47)	0.004*** (5.09)	0.003*** (5.23)	0.003*** (5.73)	0.003*** (5.35)	0.003*** (4.89)	0.003*** (5.38)	0.003*** (6.23)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	475,131	475,131	475,131	475,131	475,131	475,131	475,131	475,131
R-squared	0.087	0.095	0.107	0.105	0.175	0.157	0.192	0.183

Panel B. Lender's Market Share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Arranged Share							
Dep. Variable:	% Arrange Low Distance to Default	% Arrange Small	% Arrange High Leverage	% Arrange Low Interest Coverage	% Arrange Unrated	% Arrange Private	% Arrange No Covenant	% Arrange Unsecured
Market Share	0.311*** (5.71)	0.369*** (5.41)	0.346*** (5.79)	0.308*** (5.76)	0.426*** (7.10)	0.383*** (6.84)	0.408*** (7.29)	0.405*** (7.34)
Pre-crisis x Market Share	-0.197*** (-4.27)	-0.176*** (-2.90)	-0.162*** (-2.95)	-0.183*** (-3.51)	-0.213*** (-3.83)	-0.181*** (-3.36)	-0.195*** (-3.60)	-0.198*** (-3.54)
Foreign Lender	-0.005*** (-8.91)	-0.006*** (-9.82)	-0.005*** (-8.84)	-0.004*** (-8.42)	-0.005*** (-10.09)	-0.005*** (-10.35)	-0.005*** (-9.76)	-0.005*** (-9.33)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.104	0.117	0.125	0.117	0.232	0.199	0.248	0.236
	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)
Market Share based on:	Retained Share							
Dep. Variable:	% Commit Low Distance to Default	% Commit Small	% Commit High Leverage	% Commit Low Interest Coverage	% Commit Unrated	% Commit Private	% Commit No Covenant	% Commit Unsecured
Market Share	0.267*** (6.05)	0.313*** (5.63)	0.284*** (6.06)	0.260*** (6.07)	0.354*** (7.09)	0.328*** (6.90)	0.338*** (7.28)	0.337*** (7.24)
Pre-crisis x Market Share	-0.166*** (-4.48)	-0.146*** (-3.01)	-0.114** (-2.56)	-0.146*** (-3.37)	-0.164*** (-3.43)	-0.149*** (-3.21)	-0.148*** (-3.16)	-0.157*** (-3.23)
Foreign Lender	-0.005*** (-10.67)	-0.006*** (-11.37)	-0.005*** (-11.03)	-0.004*** (-10.15)	-0.005*** (-12.26)	-0.005*** (-12.37)	-0.005*** (-12.05)	-0.005*** (-11.52)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.112	0.133	0.135	0.127	0.245	0.215	0.264	0.247

Table 8. Interest Rates on Loans during the Pre-crisis Period

This table shows the average interest rates of loans issued in pre-crisis period by lender type. The estimates are from OLS regressions in the lender-country-year panel. Panel A considers foreign lenders and Panel B lenders with different market shares. The dependent variable, *Average Spread*, is the value-weighted all-in-drawn spread of loans issued by lender *b* to country *c* in year *t*, weighted by the loan amount. In columns (2) to (9), *Average Spread* is computed using the sample of loans issued by lender *b* to country *c* in year *t* to borrowers/loans with specific characteristics, which include *Low Distance to Default* (distance to default in the bottom 25%), *Small* (firm size in the bottom 25%), *High Leverage* (leverage in the top 25%), *Low Interest Coverage* (EBITDA/Interest Expense in the bottom 25%), *Unrated* (firm without S&P bond rating), and *Private* (private borrowers). The dependent variables are computed considering only observations with spread information available. In Panel B, *Market Share* is based on *Retained Share*. *Market Share* is lagged by one year. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lender

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dep. Variable:	Avg Spread	Avg Spread Low Distance to Default	Avg Spread Small	Avg Spread High Leverage	Avg Spread Low Interest Coverage	Avg Spread Unrated	Avg Spread Private
Foreign Lender	-1.456 (-0.42)	8.822 (1.21)	15.441** (2.57)	4.536 (0.66)	4.520 (0.81)	17.516 (0.10)	-485.608 (-1.30)
Pre-crisis x Foreign Lender	6.138 (1.08)	-17.738 (-1.10)	9.326 (0.79)	-6.603 (-0.52)	-14.908* (-1.73)	-315.260 (-0.83)	293.357 (0.68)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y
Observations	28,299	4,731	4,081	6,326	6,935	4,028	1,198
R-squared	0.663	0.813	0.789	0.802	0.784	0.419	0.598

Panel B. Lender's Market Share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Market Share based on:		Avg Spread Low Distance to Default	Avg Spread Small	Avg Spread High Leverage	Avg Spread Low Interest Coverage	Avg Spread Unrated	Avg Spread Private
Dep. Variable:	Avg Spread						
Market Share	-14.640 (-0.41)	-34.109 (-0.43)	-59.875 (-0.75)	-56.727 (-0.51)	-114.515 (-1.32)	-766.349 (-0.62)	483.937 (0.11)
Pre-crisis x Market Share	29.588 (0.40)	293.108* (1.78)	2.938 (0.02)	88.112 (0.47)	270.139*** (2.83)	870.297 (0.43)	5,144.397 (1.35)
Foreign Lender	-0.739 (-0.20)	5.669 (0.74)	14.560** (2.11)	1.494 (0.16)	-1.702 (-0.23)	-70.148 (-0.44)	-325.918 (-0.93)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y
Observations	28,173	4,731	4,081	6,326	6,935	4,028	1,198
R-squared	0.663	0.813	0.789	0.802	0.784	0.419	0.598

Table 9. Robustness: New Borrowers

This table considers only lending to new borrowers during the pre-crisis period. The estimates are from OLS regressions in the lender-country-year panel. Panels A and B follow the specifications in Table 3 but the dependent variables, *Loan Amount Arranged*, *Any Loan Arranged*, *Loan Amount Committed*, and *Any Loan Committed*, are computed considering the loans arranged or committed by lender *b* to the borrowers to which the lender has neither arranged nor committed any loans in previous five years. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Panel A. Foreign Lender

	(1)	(2)	(3)	(4)
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Foreign Lender	-3.366*** (-27.19)	-0.173*** (-28.39)	-4.617*** (-34.34)	-0.241*** (-35.39)
Pre-crisis x Foreign Lender	0.899*** (7.58)	0.045*** (7.49)	1.235*** (9.34)	0.063*** (9.07)
Lender-Year FE	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y
Observations	475,131	475,131	475,131	475,131
R-squared	0.372	0.362	0.422	0.408

Panel B. Lender's Market Share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Retained Share				Arranged Share			
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Market Share	51.535*** (6.00)	2.463*** (5.97)	46.132*** (5.94)	2.158*** (5.89)	32.594*** (8.27)	1.545*** (8.14)	27.692*** (7.92)	1.284*** (7.71)
Pre-crisis x Market Share	-19.922*** (-2.89)	-0.966*** (-2.92)	-20.632*** (-3.18)	-1.023*** (-3.28)	-12.160*** (-3.83)	-0.595*** (-3.89)	-11.938*** (-4.32)	-0.590*** (-4.37)
Foreign Lender	-2.985*** (-26.54)	-0.154*** (-27.86)	-4.236*** (-33.78)	-0.223*** (-35.04)	-3.058*** (-28.25)	-0.158*** (-29.40)	-4.311*** (-35.25)	-0.226*** (-36.26)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.386	0.373	0.430	0.413	0.384	0.371	0.428	0.412

Table 10. Robustness: Lender's Market Share vs. Geographical Distance

This table considers the role of distant lenders. The estimates are from OLS regressions in the lender-country-year panel. The regressions follow the specifications in Panel B of Table 3. Instead of the *Foreign Lender* indicator, we include *Distance*, the logarithm of the geographical distance between the capital cities of the borrower and the lender countries, and the interaction term between *Distance* and *Pre-crisis*. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Retained Share				Arranged Share			
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Market Share	55.522*** (6.23)	2.539*** (6.20)	48.433*** (6.22)	2.147*** (6.18)	35.483*** (8.86)	1.604*** (8.64)	28.880*** (8.42)	1.258*** (8.07)
Pre-crisis x Market Share	-18.645** (-2.44)	-0.864** (-2.45)	-19.325*** (-2.87)	-0.932*** (-3.06)	-11.037*** (-3.14)	-0.523*** (-3.27)	-10.988*** (-3.86)	-0.537*** (-4.18)
Distance	-0.448*** (-27.43)	-0.023*** (-29.05)	-0.604*** (-35.05)	-0.031*** (-36.80)	-0.458*** (-28.87)	-0.023*** (-30.19)	-0.615*** (-36.07)	-0.032*** (-37.43)
Pre-crisis x Distance	0.099*** (7.18)	0.005*** (7.10)	0.129*** (8.34)	0.006*** (8.00)	0.102*** (7.65)	0.005*** (7.49)	0.132*** (8.69)	0.007*** (8.29)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.442	0.422	0.473	0.449	0.440	0.420	0.471	0.448

Table 11. Robustness: Lender's Market Share vs. Portfolio Share

This table considers the role of a lender's portfolio share. The estimates are from OLS regressions in the lender-country-year panel. The regressions follow the specifications in Panel B of Table 3. We additionally include *Portfolio Share*, defined as the dollar value of the loans that a lender arranges in a given country during a year, divided by the dollar value of all the loans arranged by that lender during that year, and the interaction term between *Portfolio Share* and *Pre-crisis*. All regressions include lender-year and country-year fixed effects. The definitions of all variables are provided in Appendix A. Standard errors are clustered by lender. Robust t-statistics are shown in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Market Share based on:	Retained Share				Arranged Share			
Dep. Variable:	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed	ln(1+Loan Amount Arranged)	Any Loan Arranged	ln(1+Loan Amount Committed)	Any Loan Committed
Market Share	41.890*** (5.90)	1.864*** (5.84)	35.596*** (5.87)	1.549*** (5.79)	23.873*** (8.03)	1.027*** (7.66)	17.659*** (7.19)	0.730*** (6.59)
Pre-crisis x Market Share	-15.134** (-2.48)	-0.690** (-2.49)	-15.106*** (-2.81)	-0.725*** (-2.95)	-9.217*** (-3.16)	-0.432*** (-3.28)	-8.361*** (-3.42)	-0.404*** (-3.54)
Portfolio Share	11.010*** (46.96)	0.548*** (52.01)	10.980*** (58.64)	0.524*** (61.53)	11.040*** (48.33)	0.550*** (53.09)	11.075*** (60.86)	0.529*** (63.29)
Pre-crisis x Portfolio Share	0.960*** (3.22)	0.047*** (3.13)	-0.295 (-1.11)	-0.028** (-2.07)	0.929*** (3.19)	0.046*** (3.12)	-0.350 (-1.36)	-0.031** (-2.32)
Foreign Lender	-1.563*** (-27.47)	-0.082*** (-27.82)	-2.765*** (-31.05)	-0.149*** (-31.21)	-1.636*** (-29.85)	-0.085*** (-29.68)	-2.835*** (-32.22)	-0.152*** (-32.06)
Lender-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Country-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	458,137	458,137	458,137	458,137	458,137	458,137	458,137	458,137
R-squared	0.486	0.461	0.498	0.466	0.483	0.459	0.496	0.465

Appendix A. Variable Definitions

Variable	Definition
Banking Crises	
Crisis	An indicator variable that equals one during the banking crisis years as defined in Baron, Verner, and Xiong (2020), and zero otherwise.
Pre-crisis	An indicator variable that equals one during the four years before a banking crisis as defined in Baron, Verner, and Xiong (2020), and zero otherwise. If another banking crisis occurs within four years, it includes the years between two banking crises.
Credit Boom	An indicator variable that equals one during years in which a country's annualized change in private credit to GDP ratio over three years is in the top 25% of the sample period within the country, and zero otherwise. If the credit expansion year overlaps with Pre-crisis, it is set to zero. Because of data availability, the following countries are not included in the sample: Egypt, Iceland, Peru, Philippines, Taiwan, and Venezuela. (Source: Bank for International Settlements: Long series on credit to private the non-financial sector)
Loan Provision (Source: Dealscan)	
Loan Amount Arranged	The total amount of loans arranged by lender b to country c in year t in 2010 USD. If there are multiple lead arrangers, we divide each loan amount equally among all lead arrangers. We follow Bharath et al. (2011) and define lead lenders as lenders that are classified by Dealscan as "Lead Arranger," "Agent," "Administrative Agent," "Arranger," or "Lead Bank." or lenders of single-lender loans.
Any Loan Arranged	An indicator variable that equals one if lender b arranged a loan to country c in year t , and zero otherwise.
Loan Amount Committed	The total amount of loans committed by lender b to country c in year t in 2010 USD. We use loan shares from Dealscan to measure the credit provision committed by each lender in the syndicate. If loan shares are missing, we set the loan shares equal to the average lead share in country c for lead lenders and divide equally the remaining amount of the loan among participants.
Any Loan Committed	An indicator variable that equals one if lender b committed any capital to loans to country c in year t either as a lead arranger or a participant, and zero otherwise.
Foreign Lender	An indicator variable that equals one if lender b is not headquartered in borrower country c ($b \neq c$), and zero if lender b is located in the same country with borrower ($b = c$).
Retained Share	The proportion of lender b 's retained outstanding loans to country c over the aggregated amount of loans outstanding to country c . We use loan shares from Dealscan to measure the credit provision retained by each syndicate member. If loan shares are missing, we set as loan shares the average lead share in country c for lead lenders and divide equally the remaining amount of loans that is not held by the lead lenders among participants. Then, we assume all syndicate lenders hold the retained shares until the maturity.
Arranged Share	The proportion of lender b 's total loan amount arranged to country c over the aggregated loan amount arranged in country c . If there are multiple lead arrangers, we divide each loan amount equally among all lead arrangers.
First Arrange	An indicator variable that equals one if lender b arranges a loan to country c in year t but did not arrange any loans in year $t-5$ to $t-1$.
First Commit	An indicator variable that equals one if lender b has committed credit to country c in year t but did not commit any loans in year $t-5$ to $t-1$.

% Arrange_[borrower_char]	The percentage of credit to loans with a specific characteristic in country c in year t that is arranged by lender b out of all loans with that characteristic in country c year t . If lender b does not arrange any loans in year t , it is set to zero.
% Commit_[borrower_char]	The percentage of loans with specific characteristic in country c in year t that is committed by lender b out of all loans with that characteristic in country c year t . If lender b does not commit capital to any loans in year t , it is set to zero.
Avg Spread	All-in-drawn loan spread over LIBOR
Distance	The logarithm of the geographical distance between the capital cities of the borrower and the lender countries
Portfolio Share	The dollar value of the loans that lender b arranges in country c during year t , divided by the dollar value of all the loans arranged by lender during year t .
Borrower/Loan Characteristics	
Low Distance to Default	A loan to borrowers with distance to default in the bottom 25%. The distribution is estimated for each country c in year t considering observations with available information. We merge the most recent information on distance to default of borrowers prior to the loan announcement date. (Source: Credit Research Initiative (CRI) at the Risk Management Institute (RMI) of the National University of Singapore (NUS))
Small	A loan to borrowers with total assets (AT) in the bottom 25%. The distribution is estimated for each country c in year t considering observations with available information. (Source: Compustat, Global Compustat)
High Leverage	A loan to borrowers with leverage $((DLS+DLTT)/AT)$ in the top 25%. The distribution is estimated for each country c in year t considering observations with available information. (Source: Compustat, Global Compustat)
Low Interest Coverage	A loan to the borrowers with interest coverage $(EBIDTA/XINT)$ in the bottom 25%. The distribution is estimated for each country c in year t considering observations with available information. (Source: Compustat, Global Compustat)
Unrated	An indicator variable that equals one if the borrower does not have S&P credit rating, zero otherwise. (Source: Compustat, Capital IQ)
Private	An indicator variable that equals one for private borrowers, and zero for publicly-traded borrowers. (Source: Dealscan)
No Covenant	An indicator variable that equals one if a loan does not have any covenants attached. (Source: Dealscan)
Unsecured	An indicator variable that equals one for unsecured loans, and zero for secured loans. (Source: Dealscan)
Country-level Variable	
GDP per Capita	The log of real GDP per capita in 2010 USD (Source: World Bank)
GDP Growth	The annual real growth rate of GDP (Source: World Bank)
Distance	The log of one plus circle distance between the capital cities of lender and borrower countries