Non-bank lending during financial crises

Iñaki Aldasoro
BIS

Sebastian Doerr
BIS

Haonan Zhou
Princeton

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Abstract

This paper provides first cross-country evidence on non-bank lending during crises. We show that non-banks contract their syndicated lending by over 50% more than banks during financial shocks in borrower countries. Establishing that non-banks serve riskier borrowers globally, we find that differences in borrower characteristics account for around half of the additional decline in non-bank versus bank lending. We then present evidence that non-banks' more volatile funding explains the remaining difference. Results further show that non-banks, despite their specialization in lending to risky firms, cut credit to riskier borrowers by even more than banks. Our findings suggest that the rise of non-bank lending amplifies financial instabilities and associated real effects during financial crises.

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Iñaki Aldasoro (inaki.aldasoro@bis.org) and Sebastian Doerr (sebastian.doerr@bis.org) are at the Bank for International Settlements, Monetary and Economic Department, Centralbahnplatz 2, CH-4002 Basel, Switzerland. Haonan Zhou (haonan@princeton.edu) is at Princeton University, Julis Romo Rabinowitz Building, Princeton NJ, United States. We would like to thank David Elliott, Lira Mota and José-Maria Serena, as well as participants at the macro-finance lab seminar at Princeton University and the Bank for International Settlements research seminar for helpful comments and suggestions. The views expressed here are those of the authors only, and not necessarily those of the Bank for International Settlements.

1 Introduction

The rapid expansion of credit by non-bank financial institutions (henceforth non-banks) has sparked discussions about their impact on financial stability and the real economy.[1] While a larger presence of non-banks could result in a more balanced funding mix, it could also lead to greater cyclicality (Adrian and Jones, 2018; Fleckenstein et al., 2021). The debate has so far mostly focused on non-banks' impact on market liquidity during episodes of financial distress (Quarles, 2020; Schnabel, 2021). Non-banks, however, also have a sizeable presence in the syndicated loan market for non-financial corporates (Elliott et al., 2019; Aldasoro et al., 2022). And yet, relatively little is known about how credit by non-banks evolves during financial shocks, especially in a cross-country context.[2]

This paper provides novel evidence on how non-banks adjust lending during financial crises in a large sample of countries. We find that non-banks reduce their credit to non-financial firms by around 50% more than banks when faced with a financial shock in borrower countries. The inclusion of granular lender*borrower and lender*year fixed effects ensures that our results are not due to unobservable lender heterogeneity. Results remain qualitatively similar for the provision of new credit along the intensive margin, i.e., lending to previous clients, as well as when we account for the formation and termination of lending relationships along the extensive margin. Firms connected to non-banks also see a stronger fall in investment rates during crises than peers borrowing from banks only.

To explain this pattern, we examine differences in borrower characteristics and funding models across banks and non-banks. We first establish that firms connected to non-banks have relatively higher leverage and long-term debt, but lower profitability and interest coverage ratios. These patterns prevail even among borrowers in the same country and industry. Accordingly, non-bank borrowers pay significantly higher rates to obtain syndicated loans.[3] When we directly control for these differences through time-varying fixed effects at the borrower-level, we find that observable and unobservable borrower characteristics account for around half of the additional decline in non-bank vs. bank

[1] Non-banks accounted for almost half of global financial system's assets as of end-2019 (Financial Stability Board, 2020b).

[2] This stands in contrast to the large literature that investigates how banks adjust their global syndicated lending during financial crises (Claessens, 2017).

[3] These findings are in line with Chernenko et al. (2019), who – for a sample of mid-sized U.S. borrowers over the 2010-2015 period – show that non-banks lend to firms with higher leverage and lower profitability, on average.

lending during crises: among identical borrowers, non-banks reduce lending by around one-quarter more than banks during crises.

In a second step, we investigate lenders' funding side. Single-country studies have shown that non-banks rely mostly on wholesale funding (Jiang et al., 2020) and cater to more price-sensitive creditors (Xiao, 2020). These insights suggest that alternative funding models could explain differences in lending behavior between banks and non-banks that are not explained by borrower characteristics. Unfortunately, no systematic balance sheet data exists for non-banks in a cross-country setting covering hundreds of lenders. To overcome this challenge, we thus resort to providing indirect evidence.

First, we build on work on the "flight home" effect. It shows that banks reallocate their loan portfolio towards domestic borrowers during financial crises in their home country (Giannetti and Laeven, 2012). The underlying mechanism is that banks with less stable funding sources exhibit a stronger flight home effect, as they are more vulnerable to negative liquidity shocks (Demirgüç-Kunt and Huizinga, 2010; Ivashina and Scharfstein, 2010). Extending this approach to non-banks, we find that non-banks exhibit a stronger flight home effect than banks, in line with the argument that their funding is less stable. Specifically, we find that while banks increase their home bias by around 20% during shock episodes, this figure is over twice as large for non-banks.[4]

As a second complementary approach, we show that during periods of tighter aggregate credit conditions (measured through the TED spread), the observed difference in credit provision between banks and non-banks narrows considerably. This finding is consistent with the argument that non-banks can attract relatively more funding during episodes of higher interest rates by passing higher rates on to their wholesale depositors (Chen et al., 2018; Elliott et al., 2019). Wholesale depositors are generally more price sensitive than banks' (insured) retail depositors, so that deposits flow out of banks into non-banks (Drechsler et al., 2017; Xiao, 2020).

Taken together, our results suggest that the stronger contraction in lending by non-banks relative to banks during local financial crises is in part explained by differences in their pool of borrowers, and in part by their fundamentally different funding model. The strong contraction in non-bank lending also has real effects: Aggregating the data to the

[4]We further show that the flight home effect, and our main finding in general, is more pronounced when we exclude investment banks from the non-bank sample. Arguably, investment banks have close ties to traditional banks, so their funding structure is less volatile that that of other non-bank types, e.g. finance companies.

firm-year level, we find that firms connected to non-banks see a stronger decline in overall syndicated lending during financial crises. Consequently, their investment rates decline by significantly more than those of firms connected to banks only.

To classify lenders into banks and non-banks, we build on the Thomson Reuter's Dealscan database. Dealscan classifies lenders and their immediate parents on the syndicated loan market into banks and non-bank institutions. We improve the Dealscan classification by manually matching unclassified lenders to banks and non-banks based on a keyword search.[5] In our final sample, around one-third of lenders are non-banks, extending around 11% of all new syndicated credit to non-financial firms. They provide a significant share of all syndicated loans to borrowers in advanced as well as developing economies.

We measure lenders' exposure to crisis countries by constructing the share of loans extended to borrowers in countries experiencing a financial crisis, as classified in Laeven and Valencia (2020). Specifically, for each lender in each year we compute *crisis exposure* as the stock of outstanding loans extended to firms in crisis countries over the lender's total stock of outstanding syndicated loans. On average, around 6% of lenders' loan portfolios is extended to borrowers in crisis countries. Crisis exposure is slightly higher for non-banks. Note that focusing on crises in borrower countries mitigates concerns that a lender-specific shock causes the financial crises. Such a concern would be more relevant in studies that analyze shocks to lenders' home markets.

In establishing our findings, the key identification challenge is to separate loan supply from loan demand. This challenge is especially relevant in a cross-country setting, as banks and non-banks could serve borrowers located in different countries or operating in different industries. And even within the same country and industry, non-bank borrowers could differ from bank borrowers, for example in their size or profitability. Any observed change in loan volume hence reflects the effects of both lender and borrower characteristics.

Accounting for differences in borrower characteristics is especially important in our context, as we establish that non-banks serve riskier clients than banks: matching a large sample of listed non-financial companies from Compustat to the Dealscan data, we show that the average firm connected to non-banks has a lower return on assets, higher leverage, relies more on long-term debt, and has lower interest coverage ratios

[5]For related classification schemes, see Elliott et al. (2019, 2021) and Aldasoro et al. (2022).

than firms connected to banks only. These highly significant differences remain even when we condition on firms' size, location or industry, and are present among U.S. and non-U.S. companies. They are also in line with the observation that non-banks grant syndicated loans with significantly higher spreads and longer maturity.

Disaggregated lender-borrower-level data allow us to overcome the challenge of separating loan supply and demand. First, our regressions employ lender*borrower fixed effects that control for time-invariant unobservable characteristics at the lender and borrower level (e.g. location or industry). Second, to absorb all observable and unobservable firm fundamentals that vary over time, we further include borrower*time fixed effects (Khwaja and Mian, 2008; Jiménez et al., 2014). These time-varying fixed effects capture changes in e.g. firm profitability, management, or leverage. Importantly, comparing coefficients of regressions with and without borrower*time fixed effects reveals that around half of the observed differential change in lending during local crises is explained by differences in borrower characteristics across lenders. In other words, when we compare lending to the same borrower, non-banks reduce lending by around 25% more than banks during crises, compared to 50% when not taking into account borrower characteristics.

The fact that non-banks serve clients with higher leverage and lower interest coverage ratios suggests that they specialize in lending to riskier segments of the market. This specialization opens up the question of whether non-banks shield riskier borrowers from the contraction in credit during crises.[6] Our results do not bear out this possibility: based on three different metrics of borrower riskiness,[7] we find that non-banks cut lending during crises *especially* to riskier borrowers. The growth of non-bank lending could hence amplify financial instabilities and associated real effects, as riskier firms are especially vulnerable to contractions in credit.

To examine the robustness of our main findings, we show that our results are not driven by the presence of U.S. borrowers or borrowers domiciled in offshore financial centers; hold for banks and non-banks lending to public and private borrowers; and are present among credit lines and term loans. They are also not driven by lenders in major markets, and are present for cross-border loans. Finally, we aggregate the data to the

[6]Previous literature has established that banks protect borrowers in market segments in which they have specialized or have a larger footprint, because they have superior knowledge about borrower quality or internalize spillovers (Giannetti and Saidi, 2019; De Jonghe et al., 2020).

[7]First, we classify borrowers as risky if their average interest rate across all syndicated loans in a given year exceeds the yearly industry median. Second, we classify highly leveraged firms as risky; and third, firms with low interest coverage ratios are defined as risky.

lender–borrower country–year level and find similar results.

In conclusion, the rapid growth of non-bank lending could amplify financial distress and have repercussions for the real economy during episodes of negative shocks. Not only do non-banks reduce their credit supply by more than banks during crises, but they do so especially among riskier firms, which are typically the most vulnerable to credit contractions. Existing policy proposals have mostly highlighted the need to monitor non-bank financial institutions because of their potential contribution to liquidity stress in money markets (Financial Stability Board, 2020a; Hauser, 2021; Hubbard et al., 2021). Our novel results suggest that non-banks and their lending activities to non-financial firms also warrant close observation.

Literature and contribution. This paper provides first cross-country evidence on the response of non-bank lending to financial crises. Detailed lender–firm-level data allow us to control for borrower characteristics, and the large sample of countries provides external validity. We contribute to two strands of literature.

First, we speak to the literature that investigates non-bank lending. Recent papers show that non-banks expand their credit volumes during episodes of monetary tightening, as deposits flow out of banks (Drechsler et al., 2017) into non-banks. For China, Chen et al. (2018) use bank-level data to show that contractionary monetary policy stimulates shadow banking, while it reduces bank lending activity. Elliott et al. (2019) provide similar evidence for the U.S. with loan-level data and further show that non-banks increase their risk-taking in response to monetary tightening.[8] Xiao (2020) develops a structural model to show that shadow banks offset around one-third of the reduction in commercial bank deposits during monetary policy tightening cycles, because they serve a more price-sensitive clientele.[9] The paper most closely related to ours is Fleckenstein et al. (2021), which use U.S. data to show that non-bank lending and funding exhibit stronger co-movement with the credit cycle than those of banks.[10] Contributing to this literature, we provide novel loan-level evidence on non-bank lending during episodes of severe financial

[8] Elliott et al. (2021) examine a similar question in a cross-border context. Banerjee and Serena (2021) show that non-banks can reduce the effects of monetary policy announcements through dampening the financial accelerator channel.

[9] A series of papers investigates the drivers of non-bank credit growth in the U.S. context, see Buchak et al. (2018); Nelson et al. (2018); Fuster et al. (2019); Irani et al. (2020).

[10] Kemp et al. (2018) provide similar evidence with aggregate data in a cross-border context. Moreira and Savov (2017) develop a model to show that shadow banks can contribute to financial fragility during times of heightened uncertainty.

stress in a cross-border context.

Second, we contribute to work that analyzes the effects of financial crises on credit supply by explicitly considering lending by non-banks. So far, the literature has mostly focused on banks and highlighted how they spread home market shocks to connected markets (see Claessens (2017) for a survey). For example, Giannetti and Laeven (2012) show that lenders reallocate credit towards domestic borrowers during financial crises. Related papers also find that bank nationality (foreign vs. domestic) is an important determinant of loan supply and that global banks transmit shocks across markets (Cetorelli and Goldberg, 2012; Schnabl, 2012; De Haas and Van Horen, 2013; Popov and Van Horen, 2015; Hale et al., 2020). Doerr and Schaz (2021) show that banks with better geographic diversification of their loan portfolio supply relatively more credit during local crises.

2 Data and descriptive statistics

This section first explains the data sources and construction of the main variables. It then provides summary statistics that show that firms borrowing from non-banks tend to be more leveraged and less profitable than firms borrowing from banks in the global syndicated loan market.

2.1 Data and variable definitions

Thomson Reuters' Dealscan provides detailed information on syndicated loans. Syndicated loans are issued jointly by a group of financial institutions (banks and non-banks) to a single borrower. The lending syndicate includes at least one lead institution (also called lead arranger) and usually further participants. Lead arrangers negotiate terms and conditions of deals, perform due diligence, and organize participants.[11] Compared to other types of loans, syndicated loans are on average larger in volume and issued to larger borrowers.

Syndicated lending accounts for a sizable share of lending to non-financial firms, especially in a cross-border context. It represents around three-quarters of total cross-border

[11]Lending in the syndicated loan market is organized in packages and facilities: a package is a loan agreement between a borrower and a group of lenders, and each package can contain one or more facilities. Our basic unit of observation is the facility.

bank lending to non-financial corporations in both high- and middle-income economies (Doerr and Schaz, 2021). It is also an important source of financing for firms, in particular larger ones (Chodorow-Reich, 2014; Cerutti et al., 2015).[12] Further, non-banks have a significant presence in the syndicated loan market in all regions and sectors, both in terms of total and cross-border lending (Aldasoro et al., 2022).

Dealscan provides detailed information on syndicated loans at origination, including loan amount, maturity, and interest, as well as the identity and type of lenders and borrowers. We follow prior literature and restrict our sample in the following ways. We focus on syndicated lending to non-financial, non-utility firms, drop incomplete deals (with status "cancelled", "suspended", or "rumour"), and deals with no information on loan amounts. We exclude lenders and borrowers linked to governments and government institutions, such as development banks. As Dealscan may report both the origination and amendments of the same deal (Roberts, 2015), we further drop deals containing the phrase "amends" or "this is the amendment of" in their associated comments. We then convert all deal values to 2012 U.S. dollars.

Information on the share that each syndicate participant contributes to a given facility is available only for a subset of the deals. To assign facility amounts to individual lenders in case of missing lending shares, or for loan facilities with aggregate lending shares totalling more than 110%, we follow prior literature and split facility volumes on a pro-rata basis among all lenders in the syndicate.[13] Finally, we drop loans smaller than $10,000 (less than 1% of observations).

We classify lenders and their immediate parents into banks and non-bank institutions based on Dealscan's institution classification scheme.[14] In particular, investment banks and finance companies are considered as non-bank institutions. One important dimension along which these differ from banks is their funding structure, which is dominated by wholesale borrowing (Jiang et al., 2020). We improve upon the Dealscan classification by matching a majority of unclassified or "other" lenders to banks and non-banks based

[12] The syndicated loan market grew substantially over the last decades, especially up until the onset of the Great Financial Crisis, when it peaked at $6 trillion.

[13] See Giannetti and Laeven (2012); De Haas and Van Horen (2013); Chodorow-Reich (2014); Bräuning and Ivashina (2020). A general finding in the literature is that alternative methods of splitting deal volumes do not materially affect results (Cerutti et al., 2015; Doerr and Schaz, 2021).

[14] A lender is a bank in our sample if it belongs to one of the following types: African bank, Asia-Pacific bank, Eastern European / Russian bank, foreign bank, Middle Eastern bank, mortgage bank, thrift / S&L, U.S. banks and Western European banks. Elliott et al. (2021) adopt a similar classification.

on keyword search, and manually reclassifying a number of lenders.[15]

To identify banking crises we rely on Laeven and Valencia's (2020) (LV henceforth) Systemic Banking Crises Database, which provides country-year-level information on episodes of financial distress for a large number of countries. Over our sample period (from 1995 to 2018) it reports 83 distinct banking crises.[16] There is a concentration of financial turmoil around in the late 1990s (Asian financial crisis) and from 2008 onward (Great Financial Crisis).

Based on these data, we define lenders' exposure to crisis countries as follows:

$$crisis\ exposure_{l,c,t} = \frac{loan\ volume_{l,c,t} \times banking\ crisis_{c,t}}{loan\ volume_{l,t}}, \tag{1}$$

where $loan\ volume_{l,c,t}$ denotes the total amount of outstanding loans granted by lender l to borrowers in country c as of year t, $loan\ volume_{l,t}$ denotes total outstanding loans by lender l to *all* countries, and $banking\ crisis_{c,t}$ is a dummy variable which equals one if borrower country c had a banking crisis in year t as defined by LV, and zero otherwise. *Crisis exposure* thus reflects that not all lenders are equally exposed to financial crises in a given country. Rather, it captures that lenders with greater loan exposure to borrowers in crisis countries are likely more affected than lenders with lower exposure.[17]

Some countries may not experience a banking crises themselves, but might be affected by crises in other countries through common lenders. Analogous to Equation 1, we construct each lender's exposure to these non-crisis, but connected countries. Specifically, we define the variable $connected\ country\ exposure_{l,k,t}$ that reflects the share of loans in a given non-crisis country k ($\neq c$) in year t, to which lender l is lending in t, if at least

[15]Consistent with our definition of non-banks, some major investment banks grouped into banks by Dealscan are reclassified as non-banks. Examples include Macquarie Bank, RBC Capital Markets, and Nomura Holdings. Lenders with SIC code 6211 classified by Dealscan as banks are reassigned to non-banks, following Lim et al. (2014). We identify 3,026 out of 4,118 unclassified immediate lenders as banks or non-banks.

[16]The two conditions defining a banking crisis by LV are significant signs of financial distress in the banking system (such as bank runs, large losses, and/or bank liquidations), and significant banking policy intervention measures in response to losses in the banking system.

[17]Note that exposure is based on the stock of outstanding loans in a country. Syndicated loans are often sold on the secondary market, which could lead to measurement error in exposure. However, as long as the likelihood of a loan sale in a country across banks and non-banks is uncorrelated with their exposure to the market, this measurement error would lead to an attenuation bias. In the Online Appendix, we provide evidence that there is no systematic correlation between the likelihood of being a lead arranger (which are known to retain more of their loans on balance sheet) and exposure to countries. Importantly, there is no systematic difference in this correlation between banks and non-banks.

one other borrower country c of lender l experiences a banking crisis in t. To fix ideas, consider a lender that lends to firms in Germany, France, and Italy; if only Germany experiences a crisis in 2005, then *connected* for that lender is positive for France and Italy in 2005, and zero otherwise.

To measure lending, we focus on the total amount of new syndicated credit extended by lender l to borrower b in a given year, which mainly captures changes in loan amounts to existing borrowers (intensive margin). To account for the formation and termination of lending relationships (extensive margin), as an additional outcome variable we construct lending based on a panel where we add observations with loan amounts of zero in the years immediately before and after lender-borrower observations with positive credit amounts. Previous literature has highlighted the importance of lending along the extensive margin for syndicated lending (Giannetti and Laeven, 2012; Giannetti and Saidi, 2019). In a final step, we trim crisis exposure, connected country exposure, and outstanding loan shares at the 99^{th} percentile. Loan-level observations are aggregated to the lender-borrower-year level. As we saturate our empirical model with a rich set of fixed effects, the sample is further restricted to lenders and borrowers with at least two observations in a given year.[18]

Our final sample covers the years from 1995 to 2018 and includes information on 9,600 lenders (of which 32% are non-banks) and 41,188 borrowers. Along the intensive margin, the sample comprises a total of 360,909 lender-borrower-year observations; along the extensive margin, it includes 1,222,273 lender-borrower-year observations.

Non-banks extend on average around 11% of all new credit on the global syndicated loan market. Their aggregate lending volumes follow a similar time pattern to that of banks, as shown in panel (a) of Figure 1. Further, non-banks serve borrowers globally, as shown in panel (b): they extend a significant share of all syndicated loans to borrowers located in all regions, with no systematic difference between advanced or developing economies.

Table 1 provides descriptive statistics for our main variables, as well as differences in means when we split the sample into banks and non-banks. Panel (a) shows that, on average, 11.5% of all observations are during years when a banking crisis takes place. The average crisis exposure equals 6.1%, with a standard deviation of 20.8%, implying that in a given year, around 6% of all loans are extended to borrowers in a crisis country.

[18] As syndicated loans usually entail a group of lenders, the loss in sample size is small.

Panel (b) shows that loans by non-banks are on average larger in volume and are issued at slightly longer maturity than loans by banks. Non-banks also issue on average more loans in a given year (1.76 vs. 1.61). Non-bank loans carry considerably higher interest rates, which – as we discuss below – can likely be explained by the type of borrowers non-banks cater to. In terms of country exposure, non-banks have a similar geographic concentration of their total loan portfolio, but on average a higher exposure to local banking crises.

2.2 Differences between bank and non-bank borrowers

To investigate differences in borrower characteristics across banks and non-banks, we combine Dealscan with data on listed firms from Compustat, following Chava and Roberts (2008). Overall, we match around 60% of all borrower-year observations from Dealscan to Compustat – almost 12,000 firms headquartered in 83 countries. We collect information on firms' equity, operating income, depreciation, long-term debt and current liabilities, capital expenditure, employment, total and fixed assets, interest expense and sales. We calculate the return on assets as operating income net of depreciation over total assets. Leverage is defined as long term debt plus current liabilities over equity. The interest rate coverage ratio is computed as earnings (EBITDA) over interest expenses. Finally, we divide long-term and short-term debt (i.e., current liabilities) by total assets.

Table 2 shows significant differences in borrower fundamentals across lender types. In each column, we regress a different firm characteristic on a dummy which takes on a value of one in each year a firm borrows from a non-bank in the syndicated loan market. Column (1) shows that the average firm connected to non-banks is significantly larger. As firm size is an important determinant of several other firm characteristics, in the following specifications we hold firm size constant. Columns (2) and (3) show that firms that borrow from non-banks have a significantly lower return on assets, but higher leverage, even if they are of similar size. Column (4) in turn shows that firms connected to non-banks borrow relatively more in the form of long-term debt, in line with the fact that loans extended by non-banks are on average of longer maturity (see panel (b) in Table 1). Finally, column (5) shows that non-bank borrowers have significantly lower interest coverage ratios, again pointing to the higher riskiness of these borrowers relative to those that are connected to banks.

Panel (b) compares borrowers located in the same country and operating in the same industry. Including borrower country*industry fixed effects does not materially affect the patterns observed in panel (a). Finally, panel (c) provides qualitatively and quantitatively similar evidence when we exclude U.S. firms from the sample. Also among non-U.S. public firms, non-bank borrowers are on average larger, but have a lower return on assets and interest coverage ratios, but higher leverage, and rely more on long-term debt – even within the same country and industry.[19]

The highly significant differences across borrowers suggest that non-banks specialize in lending to riskier firms, in line with the observation that non-banks grant loans with higher spreads (see panel (b) of Table 1). These findings also highlight the importance of controlling for observable and unobservable borrower characteristics in our analysis.

3 Empirical strategy and results

To analyze lending by banks and non-banks during crises, we perform the analysis at the lender(bank/non-bank)-borrower(firm)-year level. This allows us to separate loan supply and demand by accounting for unobservable borrower and lender characteristics through granular fixed effects.

3.1 Empirical strategy

The baseline specification tests whether bank and non-bank lending differ during financial turmoil in the country of the borrowing firm. We estimate the following specification:

$$\begin{aligned} log(credit)_{l,b,t} = \beta_1\ crisis\ exposure_{l,c,t-1} + \beta_2\ non\ bank_l \\ + \beta_3\ crisis\ exposure_{l,c,t-1} \times non\ bank_l + \phi_{l,b} + \psi_{l,t} + \tau_{b,t} + \varepsilon_{l,b,t}. \end{aligned} \tag{2}$$

The dependent variable $log(credit)_{l,b,t}$ denotes the log of new credit extended by lender l to borrower b in year t. The variable $crisis\ exposure_{l,c,t-1}$ measures the exposure of lenders' parents to a given borrower country c that experiences a crisis in year t (as

[19] These results are in line with Chernenko et al. (2019), who – for a sample of mid-sized U.S. borrowers over the 2010-2015 period – show that non-banks lend to firms with higher leverage and lower profitability, on average. We complement their findings along the time dimension (significantly longer sample) as well as in the cross section (borrowers from several countries).

defined in Equation 1). It is lagged by one period to avoid contemporaneous correlation between exposure and the extension of new credit. Note that equation (2) focuses on crises in borrower countries, which mitigates the concern that a shock to the lender is the cause of the financial crises – a concern that would be more relevant if we were to analyze shocks to lenders' home markets. The dummy $non\ bank_l$ takes on a value of one for non-banks and a value of zero for banks. We cluster standard errors at the lender parent level, as well as firm-country level, to account for serial correlation within the same borrower country across firms and time, as well as among borrowers of the same lender.

The key identification challenge is to separate loan demand and loan supply. Firms borrowing from non-banks appear to be riskier than those that borrow from banks, as we show in Section 2.2. Any observed change in lending behavior could therefore be explained by differences in (unobservable) borrower characteristics. The granularity of our loan-level data allows us to address this issue. On the one hand, with lender*borrower fixed effects ($\phi_{l,b}$) we exploit only the variation within the same lender-borrower combination over time. We hence control for unobservable and time-invariant lender and borrower heterogeneity (such as industry or location), as well as for unobservable time-invariant characteristics at the lender-borrower level (such as distance).

In addition, borrower*time fixed effects ($\tau_{b,t}$) allow shocks to affect each borrower heterogeneously at each point in time. Thereby we control for unobservable time-varying borrower fundamentals (such as changes in profitability, size, or leverage). Essentially, we are comparing the same firm borrowing from banks and non-bank lenders in a given year, while using only the within variation of each lender-borrower combination for estimation (Jiménez et al., 2014). After absorbing any unobservable borrower characteristics (including but not limited to loan demand), our estimates likely reflect loan supply effects.

Note that the inclusion of lender*borrower fixed effects, combined with a dependent variable in levels, implies an interpretation in changes. Equation 2 is thus similar to a difference-in-difference estimation. Conditional on borrower*time fixed effects, the coefficient β_3 reflects the change in loan supply by non-banks relative to banks. One advantage of our specification is that we can include lender parent*year fixed effects ($\psi_{l,t}$), which account for unobservable time-varying differences in lender fundamentals. Since there is no systematic data on balance sheet characteristics of non-banks (even if there is such data for some bank parents), the inclusion of time-varying lender fixed effects allows us

to address this shortcoming.

3.2 Main results

Figure 2 presents the main result: non-banks contract new lending by more than banks during financial crises in borrower countries. It plots the evolution of the log of new credit by banks (blue solid line) and non-banks (dashed black line) in a four-year window around banking crises, with series standardized to a value of one in the year before the crisis. Loan volumes follow a similar trend for both types of lenders in the years preceding a crisis. However, they diverge sharply once the crisis hits, indicated by a value of one on the horizontal axis. While both lender types see a sharp and persistent contraction in credit, the decline is almost twice as strong for non-banks. The absence of any differential pre-trends suggests that the relatively stronger contraction in non-bank credit during crises is not explained by potentially excessive lending ahead of crises.[20]

In Section 3.2.1 we analyze this pattern in greater detail and examine the importance of borrower characteristics. In Section 3.2.2 we then focus on the differences in funding models between banks and non-banks as a potential explanation for the observed pattern.

3.2.1 Non-bank lending during crises and borrower selection

Table 3 reports the results from estimating Equation 2 and shows that non-banks reduce their lending by relatively more than banks during borrower-country banking crises. Column (1) uses *crisis exposure* as explanatory variable. It exploits variation within each lender-borrower connection by using fixed effects at the lender*borrower level and controls for unobservable time-varying lender characteristics through lender*time fixed effects. The negative and significant coefficient on the variable of interest suggests that the average lender significantly reduces loan volumes when exposed to crisis countries. In terms of magnitude, a one standard deviation increase in crisis exposure leads to a 4.6% (0.21×-0.220) decline in lending.

Column (2) adds the interaction terms with the dummy *non-bank* (the coefficient on

[20]Note that this pattern differs from findings in Fleckenstein et al. (2021) for the U.S., who show that non-bank lending is more cyclical than bank lending. Yet, their graphical evidence suggests that this is especially true during periods of credit contractions, in line with our findings.

the non-bank dummy is absorbed by lender*borrower fixed effects). The coefficient of interest (β_3) on the interaction term is highly significant and negative, suggesting that lending by non-banks declines by more relative to banks during banking crises in borrower countries. A one standard deviation increase in exposure is associated with a 4.5% decline in loan volume by banks, but a 6.7% decline by non-banks.

The estimated coefficients in column (2) could reflect not only loan supply effects, but also differences in borrower characteristics, for example credit demand. As discussed in Section 2, there are systematic differences across bank and non-bank borrowers: firms connected to non-banks are significantly larger, but have a significantly lower return on assets, higher leverage, and lower interest coverage ratios. To assess the importance of borrower characteristics, we absorb all time-varying observable and unobservable borrower fundamentals by adding borrower*time fixed effects. These fixed effects allow shocks to affect each borrower at each point in time heterogeneously. For example, they account for differences in firm sales, leverage, or investment.

Results in column (3) show that borrowing from a non-bank remains statistically different from borrowing from a bank during crisis times also in this saturated specification. In terms of magnitude, increasing exposure by one standard deviation during a banking crisis decreases loan supply by an additional 1.1% for non-banks relative to banks. Comparing coefficients on the interaction term in columns (2) and (3) yields insights into why non-banks contract lending by more than banks during local financial crises. The fact that the coefficient declines in absolute value by around 50% (from -0.107 to -0.052) suggests that non-banks serve borrowers of lower resilience or quality during crises. These differences in borrower characteristics across lenders thus explain around half of the differential lending behavior by banks and non-banks during crises.

Columns (1)–(3) investigate lending along the intensive margin and do not account for the possibility that lenders could *i*) extend new loans to borrowers they had no previous relationship with, or *ii*) terminate lending relationships altogether. Previous research has shown that such variation along the extensive margin is important on the syndicated loan market (Giannetti and Laeven, 2012; Giannetti and Saidi, 2019). To analyze lending along the extensive margin, columns (4)–(5) thus account for the formation and termination of lending relationships by setting the years immediately before and after an observed positive loan amount to zero. The dependent variable is the log of one plus the amount of new credit.

Results along the extensive margin echo those for the intensive margin: the amount of credit by non-banks declines by more during crises, relative to banks. A one standard deviation larger exposure to countries in crisis now implies a 16% stronger decline in loan supply by non-banks, relative to banks. These results suggest that, in addition to reducing the amount of the loans they issue to existing borrowers, non-banks mostly adjust their lending along the extensive margin – either by not forming new relationships or by terminating existing relationships. Adding borrower*time fixed effects that control for loan demand in column (5) leads again to a notable decline in the size of the coefficient. Yet, it remains negative and significant at the 1% level. In terms of economic magnitude, non-bank lending declines by an additional 6.2% relative to bank lending.

In conclusion, findings in Table 3 show that lending by non-banks declines by more during crisis times, relative to banks, both along the intensive and extensive margin. Unobservable borrower characteristics explain around 50% of the estimated difference in lending behavior – in line with the evidence in Section 2 that suggests that non-banks lend to riskier borrowers that are expected to fare worse during crises. In light of the fact that the formation and termination of lending relationships plays an important role on the syndicated loan market in general and for our key finding in particular, in what follows we will focus on lending along the extensive margin only.

3.2.2 Evidence on the funding channel

So far, we documented that non-banks reduce their loan supply by significantly more than banks following local financial crises in borrower countries. Differences in borrower characteristics account for around half of this observed gap. In this section, we investigate potential explanations for the remaining difference. Specifically, we analyze whether variation in funding models could explain the observed pattern.

The funding structure of banks and non-banks differs, with potentially important implications for how they react to shocks. Recent literature shows that higher interest rates, for example in the form of contractionary monetary policy, lead to *i*) deposit outflows from banks (Drechsler et al., 2017); and *ii*) deposit inflows and hence a relaxation in funding conditions for non-banks relative to banks (Chen et al., 2018; Xiao, 2020). This feature arises because non-banks rely more on wholesale funding, unlike banks which are predominately funded with retail deposits (Jiang et al., 2020). Suppliers of whole-

sale funding are generally more price sensitive. By passing on higher rates, non-banks can thus attract relatively more funding, which makes their funding flows more cyclical (Fleckenstein et al., 2021).

As no systematic balance sheet data for non-banks exists in a cross-country setting, we must resort to indirect tests to investigate whether differences in funding models explain the divergent lending behavior between banks and non-banks during crises.

To do so, we first build on literature that shows that funding conditions of non-banks ease relative to banks when policy rates are higher (Chen et al., 2018; Xiao, 2020), which stimulates non-bank lending (Elliott et al., 2019, 2021). Accordingly, during periods of tighter aggregate credit conditions, the observed difference in lending behavior between banks and non-banks should narrow. The reason is that tighter aggregate funding conditions – which we measure through the TED spread (the difference between the interest rates on inter-bank loans and on short-term U.S. government debt) – should lead to a *relative* relaxation in non-banks' funding constraints, allowing them to maintain lending.

Table 4 provides evidence consistent with this argument. Column (1) reports results for the baseline regression equation (2), but includes additional interactions with the TED spread. Results show that crisis-exposed lenders reduce lending, and that the reduction is larger among non-banks. The positive (albeit insignificant) coefficient on the triple interaction term suggests that the relatively stronger decline in credit supply among non-banks is attenuated when the TED spread is higher.

Generalized stress in the form of a global rather than local crises can affect these results. In particular, column (1) covers the full sample, including the years of the Great Financial Crisis in 2007/08. Arguably, the TED spread loses its informativeness as a measure of the tightness of funding constraints during this period of global turmoil, when funding constraints are pervasive. Column (2) thus excludes these years from the sample. Qualitatively, results remain similar. Yet, the coefficient on the triple interaction effect becomes larger in magnitude and significant at the 10% level. Similar results are obtained when we use a dummy instead of a continuous variable. In column (3), the variable *TED spread* is now a dummy that takes on a value of one if the TED spread exceeds its long-term average of 30bp. The coefficient on the triple interaction effect is now significant at the 5% level.

To further analyze the importance of funding models, as a second approach we inves-

tigate whether non-banks exhibit a "flight home" effect. This refers to the finding that banks reallocate their loan portfolio towards domestic borrowers during financial crises in their home country, as shown in Giannetti and Laeven (2012). The paper argues that the flight home effect is driven by lenders with more volatile funding sources, as they are more vulnerable to negative liquidity shocks (Demirgüç-Kunt and Huizinga, 2010; Ivashina and Scharfstein, 2010).

If non-banks' funding is more fickle than that of banks, we would expect that the flight home effect is even more pronounced for non-banks, relative to banks. To this end, we replicate the analysis in Giannetti and Laeven (2012) and estimate the following lender–borrower country–quarter regression:

$$\begin{aligned} Loan\ share_{l,c,t} = \alpha_1 foreign\ loan_{l,c} + \alpha_2 foreign\ loan_{l,c} \times crisis\ bank\ country_{l,t} \\ + \theta_c + \tau_t + \epsilon_{l,c,t}. \end{aligned} \tag{3}$$

The dependent variable captures the share of new loans by lender l to country c in quarter t, out of total new syndication by the lender in quarter t.[21] $Foreign\ loan_{l,c}$ is a dummy variable that takes on a value of one if the nationality of the lender differs from the nationality of the borrower, and zero otherwise. $Crisis\ bank\ country_{l,t}$ captures financial crises in the home country of the lender. Similar to Giannetti and Laeven (2012), we restrict the sample to lead arrangers only. We further control for the differential effect of borrower-country crises on foreign loans and for demand shocks in borrower countries by including the proportion of loans issued by domestic banks to that country relative to the total loans issued in the syndicated loan market. Following Giannetti and Laeven (2012), we include either borrower country and time fixed effects, or borrower country*time fixed effects to control for possibly confounding demand factors at the borrower-country level that vary over time, and cluster standard errors at the lender level.

A negative sign on the main coefficient of interest α_2 indicates that lenders reallocate lending towards domestic borrowers when their home country experiences a crisis. If non-banks' funding is more volatile than that of banks, we expect α_2 – the flight home effect – to be more negative for non-banks than banks.

Columns (4)–(7) in Table 4 show that non-banks exhibit a stronger flight home effect

[21] As explained in Giannetti and Laeven (2012), "since by definition the portfolio share is standardized by the [lenders]'s supply of loans during month t, [the] dependent variable is unaffected by shocks changing the [lenders]'s overall supply of loans and instead captures how the [lenders]'s supply of loans is allocated, given underlying economic conditions."

than banks. Column (4) replicates the main finding of Giannetti and Laeven (2012) and shows that there is a flight home effect on the syndicated loan market, as evidenced by the negative coefficient on the interaction term $foreign\ loan_{l,c} \times crisis\ bank\ country_{l,t}$. The coefficient is significant at the 1% level.[22] The negative coefficient on $foreign\ loan_{l,c}$ further shows that there is a general home bias. The specification uses borrower-country*time fixed effects to account for confounding effects at the borrower-country level.

Columns (5) and (6) split the sample into lending by banks and non-banks. Results show two main patterns. First, both lender types exhibit a home bias, but it is less-pronounced for non-banks. The share of a bank's loans extended to a country is lower by 0.44 points for foreign loans, compared to 0.34 points for non-banks. Second, there is a significant flight home effect for both lenders, but in terms of economic magnitude, it is more than two times larger for non-banks. Specifically, when a lenders' home country experiences a financial crisis, the home bias increases by around 17% for banks and 53% for non-banks.

Finally, column (7) excludes investment banks (which belong to the non-bank group) from the sample. Arguably, investment banks have close ties to traditional banks, so their funding structure could resemble that of banks, i.e., it is less volatile. If so, we expect that the flight home effect among non-banks excluding investment banks is even stronger. Results show this to be the case: the coefficient on the interaction effect increases from -0.180 to -0.260 (72% of the base effect).

Taken together, these results suggest that differences in funding models between banks and non-banks could contribute to explaining their lending behavior around crises. When funding conditions are tight overall, the difference between non-bank and bank lending narrows. Conversely, during shocks to their home country, non-banks exhibit a relatively stronger flight home effect, suggesting that their funding side is less stable.

4 Extensions and robustness

Lending to high-risk borrowers. Non-banks serve clients with higher leverage and lower interest coverage ratios (ICR), suggesting that they tend to specialize in lending to

[22] Giannetti and Laeven (2012) focus on the period 1997–2009, while our sample covers the years 1995–2018. When estimating equation 3 over the 1997-2009 sample period, the estimates are qualitatively and quantitatively near-identical to the baseline results in Giannetti and Laeven (2012) (unreported).

riskier segments of the market (see Table 2). In light of our finding that non-banks – on average – reduce their lending by more than banks during crises, this opens up the question of whether their specialization among riskier borrowers could shield these borrowers from a contraction in credit during crises. For example, previous literature has established that banks protect borrowers in market segments in which they have specialized or have a larger footprint, because they have superior knowledge about borrower quality or internalize spillovers (Giannetti and Saidi, 2019; De Jonghe et al., 2020). To this end, we investigate whether non-bank lending to risky borrowers declines by more or less than bank lending during crises.

To measure borrower risk, we define three metrics. First, we classify borrowers as risky if their average all-in drawn spread across all syndicated loans in a given year exceeds the yearly industry median (Elliott et al., 2021). As borrowers on the syndicated loan market tend to be large firms, a higher interest rate, compared to industry peers, could indicate that they are seen as relatively more risky. For the Compustat sample of borrowers, we further use information on firm leverage (ICR) and define firms as risky if they lie in the top (bottom) tercile of the distribution. That is, highly leveraged firms or firms with low interest coverage ratios are classified as risky.

Table 5 shows that non-banks cut lending during crises especially to riskier borrowers. All specifications estimate variants of Equation 2 along the extensive margin, once without and once including borrower*time fixed effects. Column (1)–(2) classify firms as risky if the spread on their syndicated loans exceeds the yearly industry median. Columns (3)–(4) look at highly-leveraged firms and columns (5)–(6) at those with low ICR. Across specifications, non-banks reduce loan supply by more than banks during crises (negative coefficient on $crisis\ exposure \times non\text{-}bank$), but the effect is even more pronounced among riskier borrowers – as indicated by the negative and significant coefficient on the triple interaction term.[23] These results suggest that non-banks' specialization in lending to riskier borrowers does not mean that riskier borrowers connected to non-banks fare better during crises than those connected to banks.

Real effects. To analyze whether exposure to non-banks has real effects on firm investment, we aggregate the data to the firm-year level. We then run variants of the following

[23]Conditional on borrower*time fixed effects, the coefficient on *non-bank* × *high-risk borrower* is generally positive, in line with the finding that non-banks serve riskier clients.

regression:

$$\begin{aligned}\Delta y_{f,t} = \gamma_1\ BC_{c,t-1} + \gamma_2\ \textit{connected to non-bank}_{f,t-1} \\ + \gamma_3\ BC_{c,1} \times\ \textit{connected to non-bank}_{f,t-1} + \phi_f + \tau_t + u_{f,t}.\end{aligned} \tag{4}$$

The dependent variable $\Delta y_{f,t}$ is the either the log difference of outstanding syndicated loan volume of firm f across *all* its lenders in year t, or the change in its investment rate. The banking crisis dummy ($BC_{c,t-1}$) varies at the country level and equals one during banking crisis years in firm country c. *connected to non-bank*$_{f,t-1}$ is a dummy with a value of one if a firm is connected to a non-bank and zero otherwise. ϕ_f denotes firm fixed effects and τ_t denotes year or country*industry*year fixed effects. We additionally control for firms' log of total assets, return on assets, and long-term debt over total assets. We cluster standard errors at the firm-country level, i.e., the level of the shock. A coefficient of $\gamma_3 < 0$ indicates that non-bank connected firms see a stronger fall in overall syndicated loan volume and investment.

Table 6 shows that non-bank connected firms see a significantly stronger decline in loan volumes and investment rates. Column (1) shows that total syndicate loan volume for the average firm falls during financial crises. Column (2) adds interaction effects and shows that the contraction in lending is stronger among non-bank connected firms. To account for potentially confounding trends at the country level, column (3) adds country*year fixed effects and provides similar results. For the investment rate, column (4) shows a significant negative effect of non-bank exposure during crises. These results are qualitatively and quantitatively similar when we include borrower-country*industry*year fixed effects in columns (5)–(6), so as to account for differential trends affecting firms located in the same country and industry. Coefficients increase in magnitude and significance when we focus on firms with a low number of bank connections in columns (7)–(8). This result suggests that banks with fewer existing lending relationships, and hence limited access to alternative lenders, are more affected by the contraction in non-bank credit.

Aggregate effects. Having identified non-banks' higher sensitivity to borrower countries' banking crises at the lender-borrower-year level, we investigate whether there are also effects at the more aggregate level. To this end, we aggregate lending to the lender-borrower country-year level and then estimate regressions similar to Equation 2. Consistent with our lender-borrower-level results, Table 7 shows that, across specifications,

the interaction coefficients between lenders' crisis exposure and the non-bank dummy are negative and statistically significant. Controlling for time-varying borrower country characteristics, a one standard deviation increase in crisis exposure results in a 3.8% additional decline in aggregate lending volumes by non-banks relative to banks (column 3). At the extensive margin the effect is again stronger: the relative contraction is 7.4% (column 5).

Additional tests. We perform two sets of additional robustness checks of our findings and report the results in Table 8. The first set is presented in panel (a) and comprises robustness checks along the borrower or loan type dimensions. Columns (1) and (2) show that relative to banks, non-banks' lending to public and private borrowers at the extensive margin is reduced by a similar amount as their crisis exposure intensifies. Column (3) suggests that our baseline results are not driven by the presence of U.S. borrowers (who were directly exposed to the Great Financial Crisis) and borrowers domiciled in offshore financial centers. Compared to banks, non-banks supply 9.9% less syndicated credit at the extensive margin to non-U.S., non-offshore borrowers if their crisis exposure increases by one standard deviation. The effect is statistically significant at the 1% level. Finally, columns (4) and (5) focus on different types of syndicated lending. Relative to banks, non-banks lend less during borrowers' financial crises in the form of both term loans (column 4) and credit lines (column 5). Non-banks' credit line extension seems to be more sensitive, as a one standard deviation increase in crisis exposure leads to a 4.5% reduction in credit lines, nearly twice the effect on term loans.

The second group of robustness checks looks at the lender dimension, with results presented in panel (b) of Table 8. In addition to deciding whether and how much to lend, lenders could serve the role of lead arrangers to facilitate participation in the syndicate, taking on the "pipeline risk" of covering the entire loan in case of low demand (Bruche et al., 2020). We replace the dependent variable with a dummy variable that indicates whether the lender is a lead arranger in a syndicate, and report the finding in column (1) of panel (b). Relative to banks, non-banks exposed to borrowers' crises are less willing to participate as lead arrangers. A one standard deviation increase in crisis exposure results in a 0.48% decline in the propensity to serve as lead arrangers for non-banks compared to banks.

Results could be driven by the inclusion of investment banks within our non-bank

classification. As argued above, investment banks can have close ties with banks, not least by being part of the same bank holding company. In column (2) we show that results are not only robust to the exclusion of investment banks from our non-bank group, they in fact become considerably stronger. Finally, results could be driven by non-bank lenders from a few key countries. The U.S. in particular concentrates a large number of such lenders. In column (3) we exclude U.S. lenders and find that results remain robust. Column (4) in addition excludes lenders from Japan and the United Kingdom, with similarly robust findings. Conversely, column (5) keeps only lenders from the US, Japan and the UK and finds that our key result that non-banks contract their lending by more than banks during crises in borrower countries continues to hold.

5 Conclusion

We provide cross-country evidence that non-banks contract their syndicated lending by more than banks during financial crises in borrower countries. Investigating potential explanations for this pattern, we find that *i*) non-banks serve riskier borrowers and show that time-varying differences in borrower characteristics account for around half of the observed additional decline in non-bank vs bank lending during crises; and that *ii*) differences in funding models explain part of the remaining difference in lending behavior across lender types. Although non-banks specialize in lending to risky borrowers, we find they contract credit by even more among riskier firms, which are typically the most vulnerable to contractions in credit.

As recent decades have seen a steady increase in the importance of non-bank financial institutions, it has become a key objective of policy makers and academics to better understand the effects of non-banks on financial stability and the real economy (Schnabel, 2021; Aramonte et al., forthcoming). Existing policy proposals have focused on the need to monitor non-bank financial institutions because of their contribution to liquidity stress in money markets (Quarles, 2020; Hauser, 2021; Hubbard et al., 2021). Our findings suggest that the rapid growth of non-bank lending could amplify financial instabilities and have repercussions for the real economy during episodes of negative shocks. Non-banks and their lending activities to non-financial firms thus also warrant close observation.

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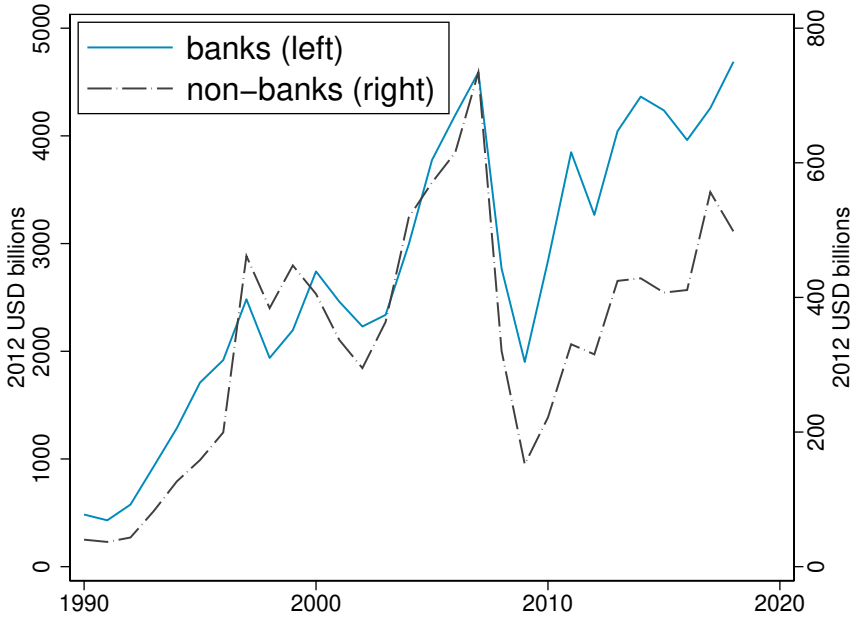
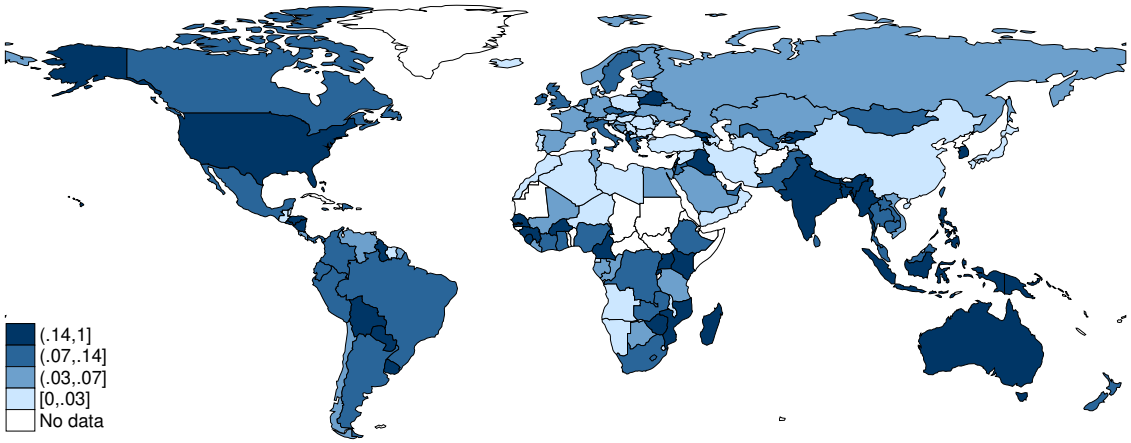
A Figures and tables

Figure 1: **Non-bank lending across time and space**

(a) Bank and non-bank lending over time

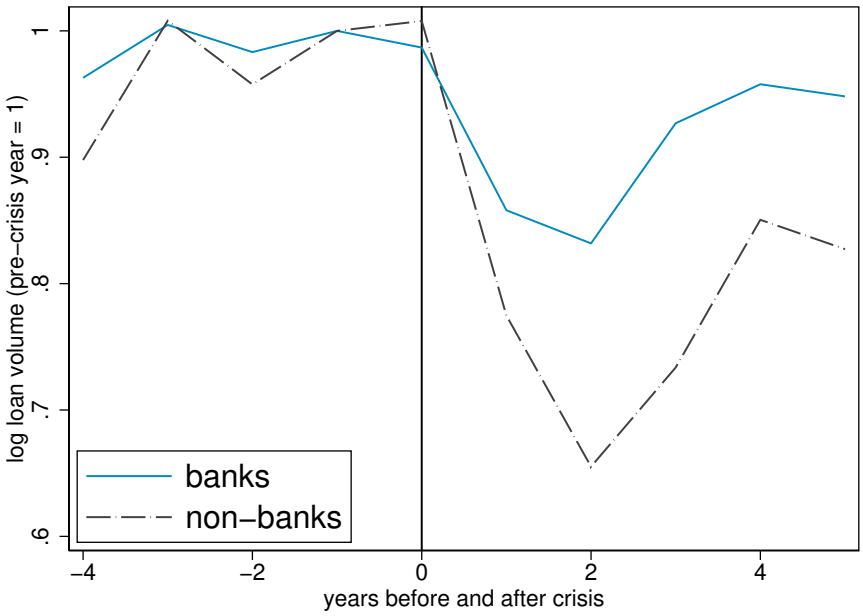


(b) Country-level loan share of non-banks



Panel 1a plots total syndicated lending in USD billions by banks and non-banks over time. Panel 1b plots the share of syndicated lending (new credit) extended by non-banks to total syndicated credit by country, averaged over the sample period 1995-2018.

Figure 2: **Loan volume during a crisis**



This figure plots the evolution of average new credit (in logs) in the years prior to, during, and after a banking crisis. Series are normalized to a value of one in the $t-1$. A value of 0 on the x-axis denotes the year of the banking crisis in the borrower country. We split the sample into lending by banks (blue solid line) and non-banks (black dashed line). Both lender types see a decline in outstanding loan volume during the crisis and the following years, but non-banks see a stronger fall. There are no differential pre-trends.

Table 1: **Summary statistics**

Panel (a): Main variables

Variable	Obs	Mean	Std. Dev.	Min	Max	P50
total loan amount (mil 2012 USD)	360909	90.31	197.79	.013	13171.69	44.262
term loan amount (mil 2012 USD)	360909	26.398	105.352	0	9256.092	0
credit line amount (mil 2012 USD)	360909	54.264	120.585	0	7984.632	24.711
number of loans (intensive margin)	360909	1.614	1.058	1	27	1
all-in drawn spread (bps)	237820	166.104	123.848	15	625	138.863
log maturity (month)	355160	3.683	.668	2.118	5.375	3.963
country exposure	360909	.52	.363	0	1	.537
banking crisis	360909	.115	.319	0	1	0
crisis exposure (intensive margin)	360909	.061	.208	0	.992	0
crisis exposure (extensive margin)	1222273	.057	.2	0	.992	0

Panel (b): Differences between banks and non-banks

	banks		**non-banks**		**mean diff.**
	mean	sd	mean	sd	t
total loan amount (mil 2012 USD)	88.40	(191.75)	121.25	(276.04)	-23.38
term loan amount (mil 2012 USD)	24.96	(101.81)	49.70	(149.72)	-33.07
credit line amount (mil 2012 USD)	54.36	(119.99)	52.64	(129.78)	2.01
number of loans (intensive margin)	1.61	(1.05)	1.76	(1.16)	-20.21
all-in drawn spread (bps)	160.08	(119.08)	244.37	(154.29)	-86.85
log maturity (month)	3.67	(0.67)	3.84	(0.61)	-34.63
country exposure	0.51	(0.36)	0.63	(0.34)	-44.21
crisis exposure (intensive margin)	0.06	(0.21)	0.08	(0.23)	-14.32
Observations	339910		20999		360909

Panel (a) reports summary statistics for the main variables in our analysis. For crisis exposure (see Equation 1), panel (a) reports statistics for both the intensive margin sample and the extensive margin sample, the latter constructed by adding observations with loan amounts of zero in the years immediately before and after lender-borrower observations with positive credit amounts. In Panel (b), we split the sample into two lender groups, banks and non-banks, and compare the differences in mean using simple t-statistics.

Table 2: **Non-bank vs bank borrowers**

Panel (a): all borrowers

VARIABLES	(1) log(assets)	(2) return on assets	(3) leverage	(4) lt-debt to assets	(5) int cov ratio
connected to non-bank	0.748***	-0.008	0.631**	0.070***	-11.671***
	(0.130)	(0.007)	(0.246)	(0.011)	(3.390)
log(assets)		0.010**	0.065*	0.009***	-0.046
		(0.004)	(0.036)	(0.002)	(0.397)
Observations	42,812	42,503	41,933	42,762	41,314
R-squared	0.034	0.040	0.012	0.059	0.011

Panel (b): all borrowers, within country-industry variation

VARIABLES	(1) log(assets)	(2) return on assets	(3) leverage	(4) lt-debt to assets	(5) int cov ratio
connected to non-bank	0.640***	-0.016***	0.661***	0.046***	-7.956***
	(0.137)	(0.005)	(0.191)	(0.011)	(1.724)
log(assets)		0.014***	0.008	0.012***	1.235***
		(0.004)	(0.021)	(0.000)	(0.174)
Observations	42,166	41,860	41,287	42,116	40,668
R-squared	0.427	0.205	0.179	0.349	0.173
Country*Industry FE	✓	✓	✓	✓	✓

Panel (c): non-U.S. borrowers, within country-industry variation

VARIABLES	(1) log(assets)	(2) return on assets	(3) leverage	(4) lt-debt to assets	(5) int cov ratio
connected to non-bank	0.279***	-0.005**	0.198***	0.017***	-3.747**
	(0.065)	(0.002)	(0.067)	(0.003)	(1.491)
log(assets)		0.003	0.044	0.011***	1.284**
		(0.002)	(0.029)	(0.001)	(0.638)
Observations	20,162	19,946	20,115	20,162	19,831
R-squared	0.587	0.320	0.335	0.467	0.274
Country*Industry FE	✓	✓	✓	✓	✓

This table reports firm-level regressions related to borrower characteristics for borrowing firms in Compustat that are matched to Dealscan loan-level data. Panel (a) reports pooled regression results for all borrowers. Panel (b) includes borrower country×industry fixed effects. Panel (c) restricts the sample of borrowers to non-U.S. firms. Standard errors are clustered at borrower country and industry level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 3: **Non-banks supply less credit during financial crises**

VARIABLES	(1) log(credit)	(2) log(credit)	(3) log(credit)	(4) log(credit ext)	(5) log(credit ext)
crisis exposure	-0.220**	-0.212**	0.038	0.039	-0.018
	(0.095)	(0.095)	(0.037)	(0.149)	(0.056)
crisis exposure × non-bank		-0.107***	-0.052**	-0.788***	-0.313***
		(0.004)	(0.024)	(0.238)	(0.037)
Observations	360,294	360,294	360,220	1,220,620	1,220,491
R-squared	0.847	0.847	0.956	0.300	0.866
Lender*Borrower FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower*Year FE	-	-	✓	-	✓

This table reports results at the lender-borrower-year level. The dependent variable in columns (1)–(3) is the log of new credit extended each year to each borrower (intensive margin). The dependent variable in columns (4)–(5) is log(new credit+ 1), capturing the extensive margin of new lending. Crisis exposure is computed following Equation 1. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4: **The importance of global funding conditions**

VARIABLES	(1) full sample log(credit ext)	(2) no GFC log(credit ext)	(3) high TED dummy log(credit ext)	(4) All loan share	(5) Banks only loan share	(6) Non-banks only loan share	(7) Non-banks ex inv. banks loan share
crisis exposure	-0.129**	-0.247**	-0.221***				
	(0.055)	(0.106)	(0.044)				
crisis exposure × non-bank	-0.332***	-0.189***	-0.076**				
	(0.049)	(0.038)	(0.033)				
crisis exposure × TED spread	0.137	-0.057	-0.130				
	(0.090)	(0.357)	(0.131)				
non-bank × TED spread	-0.231*	-0.295	-0.105**				
	(0.121)	(0.207)	(0.052)				
crisis exposure × non-bank × TED spread	0.170	0.634*	0.248**				
	(0.128)	(0.348)	(0.109)				
foreign loan				-0.435***	-0.440***	-0.341***	-0.359***
				(0.013)	(0.014)	(0.046)	(0.065)
foreign loan × lender crisis				-0.072***	-0.072***	-0.180**	-0.260***
				(0.023)	(0.024)	(0.089)	(0.086)
Observations	1,220,491	1,077,478	1,077,478	56,809	49,892	6,703	4,618
R-squared	0.866	0.867	0.867	0.518	0.491	0.670	0.689
Lender*Borrower FE	✓	✓	✓	-	-	-	-
Lender*Year FE	✓	✓	✓	-	-	-	-
Borrower*Year FE	✓	✓	✓	-	-	-	-
Borrower Ctry × Year FE	-	-	-	✓	✓	✓	✓

This table reports regression results related to the funding conditions of non-banks. Columns (1)–(3) report results using the TED spread (the difference between 3-month Libor rate and U.S. Treasury bill yield) as a proxy for global funding conditions. The dependent variable is log(new credit + 1), capturing the extensive margin of new lending. Column (1) reports results for the full sample. Columns (2) and (3) reports results when excluding the years 2007 and 2008 (the Great Financial Crisis, or GFC). Columns (1) and (2) use the level of the TED spread, while column (3) uses a dummy indicating whether the TED spread is above 30 basis points. Standard errors are clustered at lender parent and borrower country level. Columns (4)–(7) examine whether non-bank lending exhibits a stronger "flight home" effect (Giannetti and Laeven, 2012) during episodes of tightening funding conditions in domestic markets. The analysis is done at the lender-borrower country level using a quarterly version of our syndicated loan sample, closely following the specification of Giannetti and Laeven (2012). The dependent variable, $loan\ share_{ijt}$, measures the share of new syndicated loans extended by lender i to borrower country j at quarter t. $foreign\ loan_{ij}$ is a dummy variable indicating whether the nationality of lender i's parent shares the same country j as the borrower. $foreign\ loan_{ij}$ is further interacted with $shock\ bank\ ctry_{it}$, which is an indicator of whether the lender's parent experiences a banking crisis (measured using Laeven and Valencia (2020)) in its home country. Columns (4) reports results for the entire sample, without distinguishing between banks and non-banks. Column (5) reports the result for banks only and column (6) for non-banks. The result dropping investment banks from the non-bank sample is presented in Column (7). The regressions control for the interaction between borrower country j's banking crisis at time t and $foreign\ loan_{ij}$, loans extended by domestic lenders to country j as a fraction of total new syndicated loans, and the log of average all-in drawn spread for the lender-borrower pair in each year. Standard errors are clustered at lender parent level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 5: **Lending to risky borrowers**

	(1) DS ind	(2) DS ind	(3) CS lev	(4) CS lev	(5) CS icr	(6) CS icr
VARIABLES	log(credit ext)	log(credit ext)	log(credit ext)	log(credit ext)	log(credit ext)	log(credit ext)
crisis exposure	-0.198**	-0.027	0.021	0.020	-0.003	-0.006
	(0.094)	(0.046)	(0.127)	(0.137)	(0.122)	(0.136)
crisis exposure × non-bank	-0.058***	-0.018	-0.779***	-0.495***	-0.879***	-0.611***
	(0.005)	(0.021)	(0.218)	(0.118)	(0.248)	(0.116)
exposure × high-risk borrower	0.060***	0.050***	-0.144***	0.046	-0.278***	0.099***
	(0.007)	(0.012)	(0.034)	(0.028)	(0.029)	(0.027)
non-bank × high-risk borrower	0.108***	0.034*	0.087*	0.142***	-0.144***	0.066
	(0.012)	(0.018)	(0.052)	(0.050)	(0.050)	(0.091)
exposure × non-bank × high-risk borrower	-0.112***	-0.069**	-0.159**	-0.190***	-0.018	-0.231**
	(0.028)	(0.030)	(0.071)	(0.043)	(0.129)	(0.103)
Observations	231,473	222,562	295,097	292,507	300,663	298,074
R-squared	0.778	0.938	0.455	0.698	0.450	0.695
Lender*Borrower FE	✓	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓	✓
Borrower*Year FE	-	✓	-	✓	-	✓

This table reports results at the lender-borrower-year level. High-risk borrowers in columns (1) and (2) have average all-in-drawn spread higher than country median (column (1)) or industry median (column (2)) for a given year. Columns (3) to (6) restrict the sample to listed firms (linked Compustat (CS) data). Column (3) and (4) measure borrower risk via firm leverage, column (5) to (6) via the interest coverage ratio. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 6: **Real effect of non-bank dependence**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
VARIABLES	loan volume	loan volume	loan volume	investment	loan volume	investment	low connection loan volume	low connection investment
crisis	-0.113**	0.001						
	(0.046)	(0.057)						
connected to non-banks		-0.539***	-0.577***	-0.001	-0.551***	-0.000	-0.299***	-0.001
		(0.029)	(0.030)	(0.001)	(0.034)	(0.001)	(0.030)	(0.003)
crisis × connected to non-banks		-0.172***	-0.079*	-0.013***	-0.082**	-0.013***	-0.417***	-0.019***
		(0.063)	(0.046)	(0.004)	(0.040)	(0.003)	(0.059)	(0.003)
Observations	14,602	14,602	14,314	13,874	13,510	13,115	2,668	2,591
R-squared	0.139	0.160	0.206	0.298	0.247	0.333	0.488	0.444
Firm-level controls	✓	✓	✓	✓	✓	✓	✓	✓
Borrower FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	-	-	-	-	-	-
Borrower Ctry*Year FE	-	-	✓	✓	-	-	-	-
Borrower Ctry*Industry*Year FE	-	-	-	-	✓	✓	✓	✓

This table reports the effect of being non-bank connection during borrower countries' crises episodes on future firm-level outcome variables. The dependent variable for column (1) to (3), (5), and (7) is annual change in the total volume of syndicated lending. Column (4), (6), and (8) takes annual change in investment rate, defined as the ratio between capital expenditure and the sum of property, plant, and equipment. The independent variables are lagged by one year. Column (7) and (8) focus on firms borrowing from a small number of lenders (first tercile of the distribution). Standard errors are clustered at borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 7: **Non-banks supply less credit during local crises – country level**

VARIABLES	(1) log(credit)	(2) log(credit)	(3) log(credit)	(4) log(credit ext)	(5) log(credit ext)
crisis exposure	-0.426***	-0.387***	-0.051	-0.347***	-0.169
	(0.095)	(0.104)	(0.108)	(0.122)	(0.156)
crisis exposure × non-bank		-0.153*	-0.190**	-0.336***	-0.378***
		(0.090)	(0.087)	(0.105)	(0.097)
Observations	91,502	91,502	91,378	163,883	163,881
R-squared	0.744	0.744	0.773	0.524	0.578
Lender*Borrower Ctry FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower Ctry*Year FE	-	-	✓	-	✓

This table reports results at the lender-borrower country-year level. The sample is aggregated by summing up all syndicated borrowing of firms for each borrower country. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 8: **Robustness tests**

Panel (a): Borrower subset or loan type subset

VARIABLES	(1) public borrower log(credit ext)	(2) private borrower log(credit ext)	(3) no US borrower log(credit ext)	(4) log(term loan ext)	(5) log(credit line ext)
crisis exposure	0.035	-0.067	0.937***	-0.043	0.010
	(0.073)	(0.062)	(0.339)	(0.042)	(0.027)
crisis exposure × non-bank	-0.348***	-0.324***	-1.413***	-0.068***	-0.227***
	(0.076)	(0.060)	(0.520)	(0.020)	(0.023)
Observations	435,872	580,340	669,669	1,220,491	1,220,491
R-squared	0.827	0.881	0.369	0.897	0.877
Lender*Borrower FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower Ctry*Year FE	-	-	✓	-	-
Borrower*Year FE	✓	✓	-	✓	✓

Panel (b): Lender subset

VARIABLES	(1) Lead arranger dummy	(2) no inv. bank log(credit ext)	(3) no US lender log(credit ext)	(4) no US/JP/UK lender log(credit ext)	(5) US/JP/UK lender only log(credit ext)
crisis exposure	0.069***	-0.011	0.051	0.033	-0.096
	(0.017)	(0.056)	(0.092)	(0.111)	(0.063)
crisis exposure × non-bank	-0.023**	-0.368***	-0.833***	-0.713***	-0.217***
	(0.010)	(0.033)	(0.113)	(0.087)	(0.020)
Observations	359,982	1,184,108	806,437	515,428	658,166
R-squared	0.884	0.868	0.879	0.889	0.861
Lender*Borrower FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower Ctry*Year FE	-	-	-	-	-
Borrower*Year FE	✓	✓	✓	✓	✓

This table reports results at the lender-borrower-year level. Panel (a) reports several robustness checks using subsets of borrowers or subsets of loan types. The dependent variable in columns (1) to (5) captures the extensive margin of lending. Building on the baseline regressions in Table 3, column (1) focuses on the public borrower subset while column (2) reports the result for the private borrower subsample. Column (3) drops U.S. borrowers and borrowers from offshore financial centers. Column (4) restricts to new lending in the form of term loans, and column (5) restricts to new extension of credit lines. Panel (b) reports robustness checks using different subsets of lenders. Column (1) tests whether non-bank lenders are less likely to become lead arrangers with higher exposure to borrowers' banking crises, with the dependent variable being a dummy that indicates whether a lender serves as the lead arranger in the syndicate. Column (2) drops investment banks from the sample of non-bank lenders. Column (3) to (5) focus on specific country groups. Column (3) drops U.S. lenders. Column (4) drops lenders from major markets (U.S., United Kingdom and Japan), while column (5) use loans originated from these lenders only. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Online Appendix

Table A1: **Summary statistics – Compustat sample**

Panel (a): Main variables

Variable	Obs	Mean	Std. Dev.	Min	Max	P25	P50	P75
connected to non-bank	43327	.343	.475	0	1	0	0	1
total syndicated loan volume	43327	1614.306	8117.456	.065	509062.9	72.668	255.891	903.99
total syndicated loan volume by non-banks	43327	178.397	1693.39	0	239620.3	0	0	43.377
total number of syndicated lenders	43327	15.488	31.002	1	1134	3	7	16
total number of syndicated non-bank lenders	43327	1.871	10.069	0	660	0	0	1
share of syndicated lenders that are non-banks	43327	.113	.238	0	1	0	0	.111
share of syndicated loan volume by non-banks	43327	.112	.241	0	1	0	0	.1
log(employees)	37191	1.282	1.923	-6.908	7.741	.02	1.361	2.6
log(total assets)	42819	6.955	1.908	-1.995	13.685	5.694	6.927	8.206
return on assets	42601	.063	.091	-.361	.286	.03	.066	.107
long-term debt to assets ratio	42861	.213	.164	0	.716	.085	.191	.31
short-term debt to assets ratio	42088	.283	.153	.037	.729	.167	.257	.374
leverage	42032	2.064	3.142	.114	24.283	.696	1.21	2.13
investment rate	41791	.126	.116	.006	.666	.053	.091	.155
sales growth	40385	.11	.278	-.754	1.302	-.013	.074	.199
log(sales per employee)	37074	5.595	1.005	3.113	8.423	4.978	5.524	6.153
interest coverage ratio	41412	22.009	53.54	-28.8	380.466	3.543	7.712	17.295

Panel (b): Differences between bank and non-bank borrowers

	no NB lender		**has NB lender**		**mean diff.**
	mean	sd	mean	sd	t
total syndicated loan volume	850.76	(4634.32)	3077.76	(12156.14)	-27.34
total syndicated loan volume by non-banks	0.00	(0.00)	520.32	(2861.15)	-30.69
total number of syndicated lenders	9.55	(15.41)	26.87	(46.38)	-57.26
total number of syndicated non-bank lenders	0.00	(0.00)	5.46	(16.62)	-55.42
share of syndicated lenders that are non-banks	0.00	(0.00)	0.33	(0.31)	-181.18
share of syndicated loan volume by non-banks	0.00	(0.00)	0.33	(0.32)	-175.43
log(employees)	1.08	(1.86)	1.66	(1.98)	-27.93
log(total assets)	6.70	(1.85)	7.45	(1.92)	-39.13
return on assets	0.06	(0.09)	0.06	(0.09)	1.33
long-term debt to assets ratio	0.19	(0.15)	0.26	(0.17)	-46.92
short-term debt to assets ratio	0.30	(0.15)	0.26	(0.15)	24.50
leverage	1.83	(2.74)	2.51	(3.77)	-21.02
investment rate	0.13	(0.12)	0.13	(0.11)	-1.54
sales growth	0.10	(0.27)	0.12	(0.29)	-5.28
log(sales per employee)	5.57	(0.98)	5.64	(1.04)	-6.24
interest coverage ratio	26.03	(59.24)	14.35	(39.43)	21.21
Observations	28472		14855		43327

This table reports summary statistics at the borrower-year (firm) level. The sample of firms include borrowers identifiable by both the Compustat and the Dealscan dataset. Panel (b) split the borrowers into two groups, those that borrow from non-banks and those that do not. Panel (b) compares the differences in means by reporting t-statistics.

Table A2: **Lead arranger and country / crisis exposure: Deal-level correlations**

Panel (a): Country exposure

VARIABLES	(1) all lenders P(lead arranger)	(2) bank only P(lead arranger)	(3) non-bank only P(lead arranger)	(4) all lenders: interaction P(lead arranger)
country exposure	-0.031	-0.033	-0.013	-0.033
	(0.065)	(0.069)	(0.081)	(0.069)
country exposure × non-bank				0.020
				(0.085)
Observations	1,030,231	915,750	114,481	1,030,231
R-squared	0.261	0.252	0.340	0.261
Lender Parent × Year FE	✓	✓	✓	✓

Panel (b): Crisis exposure

VARIABLES	(1) all lenders P(lead arranger)	(2) bank only P(lead arranger)	(3) non-bank only P(lead arranger)	(4) all lenders: interaction P(lead arranger)
crisis exposure	-0.316*	-0.338*	-0.179	-0.338*
	(0.182)	(0.194)	(0.159)	(0.194)
crisis exposure × non-bank				0.159
				(0.172)
Observations	1,030,231	915,750	114,481	1,030,231
R-squared	0.263	0.254	0.341	0.263
Lender Parent × Year FE	✓	✓	✓	✓

This table reports results at the syndicated deal level. Panel (a) compares the correlations between a lender's propensity of serving as the lead arranger and its exposure to the country of the borrower. Panel (b) focuses on the correlation of being the lead arranger and the lender's exposure to the borrower's financial crisis. The dependent variable is a dummy indicating whether a lender serves as the lead arranger (identified by the DealScan dataset) for a specific deal. Column (1) of both panels report results from the entire sample of deals. Columns (2) restrict the sample to bank lenders and columns (3) to non-bank lenders. Columns (4) use the entire sample of deals but adding the interaction between country or crisis exposure and the non-bank identifier to the regressions. Standard errors are reported at the lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A3: **Non-banks supply less credit during local crises – growth rates**

VARIABLES	(1) loan Δ credit ext	(2) loan Δ credit ext	(3) loan Δ credit ext	(4) ctry Δ credit ext	(5) ctry Δ credit ext	(6) ctry Δ credit ext
crisis exposure	0.123	0.215*	0.002	-0.108	-0.053	-0.083
	(0.122)	(0.130)	(0.060)	(0.101)	(0.101)	(0.177)
crisis exposure × non-bank		-0.830***	-0.329***		-0.207**	-0.216**
		(0.217)	(0.034)		(0.096)	(0.090)
Observations	1,220,620	1,220,620	1,220,491	163,883	163,883	163,881
R-squared	0.228	0.228	0.895	0.264	0.264	0.374
Lender*Borrower FE	✓	✓	✓	-	-	-
Lender*Borrower Ctry FE	-	-	-	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓	✓
Borrower*Year FE	-	-	✓	-	-	-
Borrower Ctry*Year FE	-	-	-	-	-	✓

This table reports results at the lender-borrower-year level in columns (1)–(3) and lender-borrower country-year level in columns (4)–(6). The dependent variable is the growth rates defined as in Davis and Haltiwanger (1999), which normalizes the year-to-year change in loan volume by the mid-point of originations between the two years: $\Delta credit_{l,b,t} = \frac{credit_{l,b,t} - credit_{l,b,t-1}}{credit_{l,b,t} + credit_{l,b,t-1}} \times 2$. This definition accounts for entry and exit and bounds growth rates to lie in $[-2, 2]$, where -2 implies that a lender terminated a lending relationship between $t-1$ and t, and 2 that it started one. While the log difference is symmetric around zero, it is unbounded above and below, and does not easily afford an integrated treatment of entry and exit. The growth rate further mitigates the effect of outliers. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A4: **Lending to risky borrowers: Intensive margin**

VARIABLES	(1) DS ind log(credit)	(2) DS ind log(credit)	(3) CS lev log(credit)	(4) CS lev log(credit)	(5) CS icr log(credit)	(6) CS icr log(credit)
crisis exposure	-0.197*	-0.023	-0.158	0.017	-0.163	0.037
	(0.101)	(0.047)	(0.109)	(0.044)	(0.106)	(0.043)
crisis exposure × non-bank	-0.056***	-0.020	-0.075***	-0.039*	-0.108***	-0.043*
	(0.015)	(0.021)	(0.009)	(0.023)	(0.012)	(0.023)
exposure × high-risk borrower	0.050***	0.047***	0.096***	0.068***	0.117***	-0.010
	(0.008)	(0.013)	(0.013)	(0.025)	(0.006)	(0.020)
non-bank × high-risk borrower	0.108***	0.032*	0.096**	0.044	0.098***	0.021
	(0.012)	(0.017)	(0.039)	(0.037)	(0.027)	(0.024)
exposure × non-bank × high-risk borrower	-0.138***	-0.070**	-0.122***	-0.070***	-0.172***	-0.103***
	(0.029)	(0.030)	(0.039)	(0.016)	(0.042)	(0.024)
Observations	223,390	222,562	183,952	183,340	186,593	185,962
R-squared	0.780	0.937	0.820	0.944	0.818	0.943
Lender*Borrower FE	✓	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓	✓
Borrower*Year FE	-	✓	-	✓	-	✓

This table reports results at the lender-borrower-year level. Compared to Table 5, this table focuses on the intensive margin as the dependent variable is the log level of new lendings. Columns (1) and (2) measure borrower risk benchmarked to median industry risk, measured by all-in drawn spread in the Dealscan dataset. Columns (3) to (6) restrict the sample to listed firms (linked Compustat data). Columns (3) and (4) measure borrower risk via firm leverage, columns (5) and (6) via the interest coverage ratio. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A5: **Keep major lenders**

VARIABLES	(1) log(credit)	(2) log(credit)	(3) log(credit)	(4) log(credit ext)	(5) log(credit ext)
crisis exposure	-0.226**	-0.218**	0.021	0.076	-0.027
	(0.096)	(0.095)	(0.038)	(0.154)	(0.067)
crisis exposure × non-bank		-0.111***	-0.033	-0.677***	-0.267***
		(0.009)	(0.024)	(0.243)	(0.051)
Observations	314,666	314,666	309,928	918,407	900,549
R-squared	0.819	0.819	0.950	0.245	0.860
Lender*Borrower FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower*Year FE	-	-	✓	-	✓

This table reports results at the lender-borrower-year level. Major lenders are defined as banks and non-banks with more than 10 billion USD (2012 dollars) extended over 1995-2018. The sample compares the lending response of major non-banks against major banks. The total number of major non-bank lenders is 70 while the total number of major banks is 440. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table A6: **No trimming: lender-borrower level**

Panel (a): Lender-borrower level

VARIABLES	(1) log(credit)	(2) log(credit)	(3) log(credit)	(4) log(credit ext)	(5) log(credit ext)
crisis exposure	-0.212**	-0.205**	0.043	0.030	-0.013
	(0.089)	(0.089)	(0.037)	(0.148)	(0.056)
crisis exposure × non-bank		-0.095***	-0.049**	-0.765***	-0.304***
		(0.005)	(0.025)	(0.217)	(0.033)
Observations	384,709	384,709	370,211	1,253,707	1,253,569
R-squared	0.843	0.843	0.956	0.299	0.867
Lender*Borrower FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower*Year FE	-	-	✓	-	✓

Panel (b): Lender-borrower country level

VARIABLES	(1) log(credit)	(2) log(credit)	(3) log(credit)	(4) log(credit ext)	(5) log(credit ext)
crisis exposure	-0.426***	-0.397***	-0.090	-0.407***	-0.281*
	(0.091)	(0.098)	(0.099)	(0.118)	(0.148)
crisis exposure × non-bank		-0.116	-0.143*	-0.307***	-0.349***
		(0.079)	(0.076)	(0.098)	(0.092)
Observations	92,230	92,230	92,106	165,251	165,249
R-squared	0.746	0.746	0.774	0.526	0.580
Lender*Borrower Ctry FE	✓	✓	✓	✓	✓
Lender*Year FE	✓	✓	✓	✓	✓
Borrower Ctry*Year FE	-	-	✓	-	✓

This table reports regression results at the lender-borrower-year level. Compare to the baseline estimates (Table 3), the estimates in this table are obtained from an expanded sample in which the top 1% observations with large lender share (in terms of outstanding loan), crisis exposure and exposure to connected countries (see Table 5 for a definition) are no longer dropped. Standard errors are clustered at lender parent and borrower country level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.