Development banks and the syndicate structure: Evidence from a world sample*

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***JEL classification*:** D82; G21; G28

***Keywords*:** Syndicated loan market; Syndicate structure; Development banks; foreign lenders; Loan-level data

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1. Introduction

The growing literature on syndicate loans has emphasized the increasing importance of development banks in actively ameliorating political and country risk, signaling business opportunities, and attracting private capital particularly in cross-border lending to emerging and developing countries (e.g., Hainz and Kleimeier, 2012; Arezki et al., 2017; Broccolini et al., 2019).[2] Since the early 2000s, development banks have played an increasingly important role in financing projects worldwide (e.g., OECD, 2018; Gurara et al., 2020). Particularly, loans with development banks' participation amounts to up to 15% of all cross-border lending and up to 10% of all syndicate loans during the years 2001-2016 with a peak of 35% in South America and 20% in Europe (see Table 1).

Development banks hold great appeal for the syndicate lending market for various reasons. They can arguably offer a "political umbrella" to the other participants in a syndicate by exerting a high bargaining power on governments' decisions and preventing the occurrence of adverse policies that would negatively affect their investment outcome (Hainz and Kleimeier, 2012; Arezki et al., 2017; Gurara et al., 2020). In addition, they are known for their reliability given by a relatively long track record; anti-cyclical behavior which makes them more resilient to capital shortage during financial turmoil; depth-local knowledge and strong monitoring capacity in countries and industries in which they are mostly active; and preferred creditor status which means they have their loans excluded from debt rescheduling (De Luna-Martinez and Vicente, 2012; Lazzarini et al., 2015; Mazzucato and Penna, 2016; Broccolini et al., 2019).

Consequently, can the reputation of development banks be instrumental in reducing asymmetry information problems between the lead bank, which is responsible for the information collection and monitoring activities, and the other participant lenders? Previous studies on syndicate loans widely acknowledge the importance of both the lead banks' and borrowers' reputations for

[2] Development banks are public sector or government-invested legal entities with an explicit policy mandate to spur the socio-economic development of a region, sector, or specific market segment.

mitigating adverse selection and moral hazard problems in the syndicate (e.g., Dennis and Mullineaux, 2000; Esty and Megginson, 2003; Sufi, 2007; Gopalan et al., 2011; Lin et al., 2012; Cen et al., 2016 and Delis et al., 2020). Quite distinct from these studies, this paper explores whether the reputation of participant lenders can convey a positive signal about the quality of the loan and thereby reducing frictions between the lead bank and the other participant lenders. This can be reflected in the syndicate structure and composition which could be less concentrated and with a higher share risk across the syndicate.

In the syndication process, the lead bank that deals with the allocation of loan shares within the syndicate has the incentive to sell out a larger fraction of loans to other participants to reduce its risk exposure to the investment, particularly in case of bad or risky loans (Ivashina, 2009).[3] As a result, the syndicate participants force the lead bank to exert as much monitoring effort as possible to reduce potential loan losses by retaining a greater fraction of the loan. In this paper, we hypothesize that the lead agent could leverage on development banks' well-known reputation and expertise in the lending market to reduce the gathering of information and monitoring efforts. This may represent an important avenue for the lead bank to alleviate potential asymmetric information problems with the borrower and the other participant lenders. Consequently, the lead bank does not need to retain a large portion of the loan to signal the borrower quality as development banks can play a certification role in business opportunities. Therefore, the fraction held by the lead bank in the syndicate should decrease because of the development bank's participation in the syndicate. This would imply a more dispersed syndicate and more diversification of risk exposure across lenders.

To empirically explore the validity of our arguments, we create a new worldwide dataset. Specifically, we gather data from three different sources. First, we map the development banks by referring to the worldwide list of development banks provided by Xu et al. (2019). We further

[3] The syndicate loan contract is signed by all the participants. "Each participant is responsible for a share of its loan and the terms of the loan are identical for all syndicate members" (Sufi, 2007, p.633).

refine the initial selection of development banks through manual inspection, online research, and a general review of annual reports and publicly available information. Then, we use LPC-Dealscan which includes the most comprehensive and historical loan-deal information available on global loan markets. Third, we match the loans with firm-specific accounting information from Compustat and with macroeconomic (country-year) variables from several freely available sources, such as the Worldwide Governance Indicators. Our data encompass 44,899 syndicated loans over the period 2001-2016 for 105 countries.

Our empirical evidence is consistent with our expectations. Our results show that when development banks are participant lenders the lead banks retain lower loan shares in the syndicates by approximately 2.87 percentage points which is a 10% decrease on an average lead bank's share of 28.55% in our sample (or $5.7 million in economic terms). In addition, we further show that syndicates with development banks are 11% less concentrated using the Herfindahl index and have an average increase of approximately 62% in the number of lenders. These results suggest that syndicates with development banks consist of a more diffuse loan ownership and, therefore, present a greater diversification of risk exposure across lenders.

Furthermore, we explore whether development banks also affect the composition of the loan syndicate by focusing on foreign lender participation. In this respect, our findings show that the number of foreign lenders increases by approximately 141% in syndicates with development banks. In addition, foreign banks are more likely to retain a greater loan share in such syndicates by approximately 23% compared to the mean of the entire sample (or $10.3 million for the average loan). Consequently, foreign lenders appear to contribute to a more diffuse syndicate structure.

Our identification method accounts for potential unobserved variables that might bias our inferences, i.e., country, year, industry and loan purpose effects, as well as firms, banks, loans and countries' time-varying characteristics. We also control for previous relationships of the lead bank

with the borrowing firm and with the other participating lenders, and for development banks' type (namely national and multinational development banks).[4]

We run a battery of robustness tests to verify our findings. First, to account for the possibility that our baseline results could be driven by time-variant country and industry characteristics, we incorporate country multiplied by year and industry multiplied by year fixed effects in the estimations. We also saturate the model with lead bank multiplied by year fixed effects. A further concern could be that development banks may prefer certain role functions in a syndicate. For example, by taking more senior role functions in the syndicate, their participation could be systematically associated with a lower lead agent's monitoring effort. We test this alternative explanation and find that the distribution of roles undertaken by development banks is like those of other participant lenders.

Another potential source of concern for our empirical analysis is that both development banks' participation in a syndicate and the syndicate structure could be associated with the borrowing firms' fundamental characteristics. To address this potential selection bias, we employ a matching technique to construct suitable control/treatment samples for the comparison of loan structures. Next, we rerun our analysis by removing private firms from the sample which typically suffer from more asymmetric information.

In addition, it could also be that development banks' participation is associated with a lower monitoring effort by the lead agent because the other lenders have expertise with respect to the borrowing firm's country and industry. Development banks could also prefer certain lenders. We address this by re-estimating the baseline model removing loans with a high presence of lenders with a high expertise in the borrowing firm's country and industry. Furthermore, we examine whether development banks participate in syndicates when there are certain lenders. In this case the syndicate structure could be affected by both development banks and the other lenders associated

[4] National and multinational development banks could indeed exert a different impact on the syndicate structure and composition because of their variety of expertise, reputation and exposure to local political pressure.

with them. Finally, we run a placebo test by randomly assigning the development banks' dummy to banks in our sample, and we also account for the possible impact of 2007-2009 financial crisis on the main findings. Overall, our findings are robust to all these tests.

As additional analysis, we examine whether other lenders participate in syndicates because they are already familiar with the borrower and/or the lead bank. Moreover, we explore whether the participation of development banks is associated with a higher probability of covenant violations due to their selection of risky loans.

Our paper contributes to the existing literature in several ways:

First, we contribute to the stream of research that considers the effect of reputation on the syndicate structure. Specifically, Sufi (2007) empirically shows that both the lead bank and borrower can mitigate asymmetric information concerns in the syndicate and thus reduce the loan share held by the lead bank. Consistently, other studies (e.g., Dennis and Mullineaux, 2000; Gopalan et al., 2011; Delis et al., 2020) examine the effect of lead lenders' market reputation on the syndicate structure. Conversely, we explore the effect of the reputation-signaling role of development banks as participant lenders on the syndicate structure.

Next, our study highlights new evidence on the role of development banks in the syndicate market. Very recent studies (Broccolini et al., 2019; Gurara et al., 2020) have examined the effect of multilateral development banks' participation on loan pricing and mobilization of private resources to developing countries. In addition, Hainz and Kleimeier (2012) find that political risk affects the participation of development banks in syndicated lending. Differently to these works, our research is the first to study the effect of development banks' participation on the syndicate structure. We do not also restrict our analysis to specific geographical areas or type of loans.

Finally, we add new understanding to the strands of literature that examine the syndicate participation rate of foreign lenders in the syndicate markets (Stein, 2002; Esty, 2004; Mian, 2006; Haselmann and Wachtel, 2011; Lin et al., 2012; Claessens and van Horen, 2014). Previous studies argue that foreign banks are less willing to lend to physically and culturally distant firms as

screening and monitoring activities are costly (Mian, 2006). In the case of monitoring-intensive relationship loans, foreign lenders are more reluctant to invest abroad. As a result, cross-border syndicates tend to be relatively concentrated and composed of domestic banks that are geographically close to the borrowing firms and that have lending expertise related to the industries of the borrowers (Lin et al., 2012). This paper offers evidence that development banks' participation is associated with a higher number (and a larger loan share) of foreign participants. Arguably, development banks' expertise – particularly political influence – can reduce some of the foreign lenders' risk concerns.

This paper is organized as follows. Section 2 presents the sample and discusses the development banks' participation in a syndicate; Section 3 discusses the methodology; Section 4 presents the main results, while Section 5 shows robustness checks. Section 6 focuses on additional analysis which consists of investigating the effect of development banks' participation on covenant breaches and other lenders' participation choices, and Section 7 concludes the paper.

2. Data

2.1 Sample construction

Our empirical analysis begins with an accurate taxonomy of development banks worldwide, since there is not a universally recognized and readily available scheme (or classification) for these financial intermediaries. We start the identification and mapping of development banks by referring to the worldwide list of development banks provided by Xu et al. (2019), which considers a development bank to be any institution that satisfies the following three criteria: i) is legally independent and self-sustaining; ii) pursues public policy objectives, and (iii) receives government support. The list encompasses 539 development banks that are part of either membership lists of

development financial institutions,[5] or other associations that could include development financial institutions among other members.[6] We also devoted considerable effort to refine the initial selection of development banks through manual inspection, online research and a general review of annual reports and publicly available information.

We exclude from our final sample Islamic banks, micro-financing institutions and universal banks. Differently from previous studies (Broccolini et al., 2019; Gurara et al., 2020), this paper also encompasses development banks at national and sub-national levels and not only multilateral organizations. This is an important feature of this paper as national and sub-national institutions represent 90% of all the existing development banks.

Following this procedure, we identify 554 development banks in 155 countries. Specifically, these development banks encompass 498 national or sub-national development banks (e.g. German KfW and the Korea Development Bank), and 56 multilateral (global or regional) development banks that are international financial institutions chartered by two or more countries (e.g. World Bank and the European Investment Bank). Data on syndicated loans comes from the DealScan database between 2001 and 2016.[7] We find that 81 development banks (of the 554 previously mapped) participated at least once in a loan syndicate.[8]

We include in our sample only the loans for which the borrowing firms' data can be matched to Global Compustat and for which the financial variables employed in the study are available.[9] Furthermore, we match the resulting dataset with macroeconomic (country-year) variables come from several freely available sources such as World Bank, Heritage Foundation, Doing Business, Worldwide Governance Indicators. Table 4 presents the definitions of each variable. Loan-related information is

[5] For the scope, Xu et al. (2019) consider the World Federation of Development Financing Institutions, including the Association of African Development Finance Institutions, the Association of Development Financing Institutions in Asia and the Pacific, the Association of National Development Finance Institutions in Member Countries of the Islamic Development Bank, and the Association of Development Finance Institutions in Latin America.
[6] For example, the Long-Term Investors Club (LTIC) and the European Association of Public Banks (EAPB).
[7] Sample starts from 2001 as development banks exhibit emerging renaissance since the beginning of the 2000s.
[8] List of development banks is reported in Appendix B.
[9] We extract bank loan contract information from LPC-Dealscan and link loan-level data to Compustat firm data following Chava and Jarrow (2004), and then use the Dealscan-Compustat Link extended by Michael Roberts (Links are accessed through: http://finance.wharton.upenn.edu/~mrrobert/styled-9/styled-12/index.html).

retrieved from DealScan. Overall, our sample consists of 44,899 syndicated loans over 105 countries.

2.2 Development banks' 'participation in syndicates: main trends

Table 1 summarize the development banks' participation in our sampled syndicated loans. It also reports the percentage weight of syndicated loans with development banks in terms of number of loans and loan amount by macro region by considering the borrower's country over the period 2001-2016. Specifically, the deals with at least one development bank as a lender amount to 9.4% of all the syndicated loans (8.8% after excluding deals where the development bank is the lead bank).

[Insert Table 1 about here]

Furthermore, Table 2 shows the number of loans and loan amounts participated in by at least one development bank per macro-region. We notice that multilateral development banks participate in syndicates where the borrower is mainly located in South America, Eastern Europe, Africa and Middle East. Instead, national development banks appear to be active in Western Europe and Far East and Central Asia. At the industry level, national development banks invest more in: (i) Mining, and (ii) Transportation, Communications and Utilities industries. In contrast, multilateral development banks intervene more in the primary sector (Agriculture, Forestry and Fishing).

[Insert Table 2 about here]

Finally, Table 3 presents the descriptive statistics and compares the main variables of interest in syndicates, respectively, without development banks' participation (*No DBs*) and with development banks' participation (*DB Participant*). Loan deals with development banks' participation have longer maturities and are larger in size, with a higher participation rate of foreign lenders than those formed only by private banks (Table 3). Development banks also appear to engage in deals with borrowers larger in size and with more tangibility.

[Insert Table 3 about here]

3. Methodology

To empirically test our hypothesis that development banks' participation in syndicate loans is associated with more dispersed ownership and diversification of risk exposure across lenders, we analyze the syndicated loan structure. Specifically, following previous studies (e.g., Sufi, 2007; Ivashina, 2009; Lin et al., 2012; Delis et al., 2020), we employ the following variables for the syndicate structure: i) the logarithm number of lenders (in addition to the lead bank); ii) the share of the loan held by the lead lender; iii) the Herfindahl-Hirschman index (HHI) of the syndicate, which shows the concentration of holdings within a loan syndicate; iv) the number of foreign lenders; and v) the share of the loan held by foreign lenders. To identify the main lead agent of a loan with multiple lenders, we follow the procedure suggested by Chakraborty et al. (2018). For each facility, the lead agent is identified by the lender with the highest rank following the ten-part ranking hierarchy developed by Chakraborty et al. (2018).[10]

Using a cross section of loans for multiple years, we employ the following model to examine development banks' impact on syndicate structure,

$$S_{i,t} = \alpha_i + \beta_i \text{DB participant}_{i,t} + \beta_i X_{i,t-1} + Z_i + \varepsilon_{i,t} \quad (1)$$

where S represents the syndicate loan structure. The main variable of interest, *DB participant*, is equal to one if at least one development bank is among the participants (excluding the lead bank) in the loan syndicate, and X is the vector of control variables including loans, borrowers and country characteristics. Z denotes a vector of fixed effects and ε is the remainder disturbance. In line with

[10] The ranking hierarchy consists of the following roles: 1) lender is denoted as "Admin Agent", 2) lender is denoted as "Lead bank", 3) lender is denoted as "Lead arranger", 4) lender is denoted as "Mandated lead arranger", 5) lender is denoted as "Mandated arranger", 6) lender is denoted as either "Arranger" or "Agent" and has a "yes" for the lead arranger credit, 7) lender is denoted as either "Arranger" or "Agent" and has a "no" for the lead arranger credit, 8) lender has a "yes" for the lead arranger credit but has a role other than those previously listed ("Participant" and "Secondary investor" are also excluded), 9) lender has a "no" for the lead arranger credit but has a role other than those previously listed ("Participant" and "Secondary investor" are also excluded), and 10) lender is denoted as a "Participant" or "Secondary investor".

Bharath et al. (2011), we consider a period of five years to define country and industry expertise and all the relationship lending variables.[11]

We also include the variable, *The lead bank is a former lender*, to account for previous relationship lending over the last five years between the lead bank and the borrowing firm. Additionally, following Ivashina (2009), we consider syndicate-specific reputation variables – *Syndicate reputation: lead to participant* and *Syndicate reputation: reciprocal* – which refer to previous connections between syndicate members. Furthermore, we add the variable, *The lead bank is foreign*, which is a dummy equal to one if the lead bank is foreign.

We use a variety of control variables to capture various characteristics and factors other than the main variables of interest. We account for borrower fundamentals including the *private firm dummy, logarithm of total asset, return on asset (ROA), leverag*e and *tangibility*. We also add loan characteristics including *loan amount, loan maturity, covenants, collateral, institutional investors*, *>1 loan tranche* and *term loan* in the equation. Other control variables include macro-economic factors that capture the economic and financial development at the country level. These variables encompass *log GDP per capita* and *domestic credit to GDP* (*%*). Finally, we also use lead bank, loan purpose, country, year and industry (division) fixed effects to saturate our model from differences in loans, countries, year and industries. All variable definitions are reported in Table 4.

If the development banks play a role in ameliorating asymmetric information concerns and risks within syndicates, then we should expect the *DB participant* to exert a positive effect on the syndicate structure. Instead, if the presence of a development bank in the syndicate curtails asymmetric information concerns or has no effect, then the *DB participant* should be negatively related to or having no effect on the syndicate structure.

[Insert Table 4 about here]

[11] In unreported tests, we also consider an alternative horizon of three years prior to the loan, and the results are consistent. Tables are available upon request.

4. Empirical Analysis

4.1 Main findings

In this section we examine whether and to what extent the participation of a development bank in a syndicate affects the syndicate structure at the single loan level.

Table 5 presents the results when estimating equation (1). Overall, our results suggest that the effect of development banks' participation in the syndicates are not only statistically significant but also relevant from an economic perspective. Column 1 shows that development banks' participation increases the number of lenders in the syndicate by more than four lenders per loan which corresponds to an average of 62% compared to the average size of the entire sample. Column 2 indicates that development banks' participation decreases the loan shares held by the lead bank by 2.87 percentage points. Given that the lead banks have an average share of 28.55% in our sample (see Table 3), this finding implies a decrease of approximately 10% of the lead bank's loan share (or $5.7 million for the average loan). Using the Herfindahl index, Column 3 also shows that syndicates with development banks are 11% less concentrated compared to other syndicates (0.03/0.27)[12].

As regards the syndicate composition, Column 4 of Table 5 shows that development banks' participation in syndicates are associated with higher numbers of foreign lenders (approximately 3.66 lenders). This corresponds to an average increase of foreign lenders by approximately 141% in syndicates (3.66/2.59). In addition, foreign banks are more likely to retain a greater loan share in such syndicates by approximately 23% (5.2/22.56) compared with the sample mean (or $10.3 million in economic terms). All the coefficient estimates are statistically significant from zero at the 1% significance level.

[12] We also rerun the main analysis with *Syndicate size (number of lenders)* and *Number of foreign participant lenders* as dependent variables by using a Poisson pseudo-maximum likelihood regressions with multi-way fixed effects (Correia et al., 2020). As an alternative estimation model, we also employ a fractional regression model for the specifications with *Lead Share*, *Concentration (Herfindahl)* and *Foreign Share* as dependent variables. The estimates confirm the baseline model results. The results are available upon request.

Overall, the results suggest that loans with a development bank are less concentrated, with a lower fraction of the loan retained by the lead bank, and with more foreign lenders' participation. This suggests that the lead bank can form larger syndicates and is required to exert less due diligence and monitoring efforts when a development bank is a participant lender. In line with our expectations we also find that these syndicates have a more diffused structure and are characterized by larger fractions of loan held by foreign lenders.

Concerning other control variables, Table 5 shows that particularly the lead bank's reputation, calculated following Ivashina (2009) as the maximum number of links between the lead bank and the members of the syndicate, largely increases the number of lenders by approximately eight lenders and reduces the lead bank loan share by more than 20%.

[Insert Table 5 about here]

4.2 Development banks' type and lender roles

It is possible that our previous findings are dominated by certain types of development bank. For example, global (regional) development banks tend to have wider international visibility and reputation which broadcasts a stronger signal for business opportunities in the lending market than is the case with national (or sub-national) development banks. Consequently, they could have stronger impact on the syndicate structure. To verify this possibility, we rerun the analysis by considering the development banks' type.

Specifically, we create an indicator variable, *DB* is *national* (or *sub-national*), which is equal to one if the development bank is established by the central or local government of a single country, and zero if established by two or more countries (i.e. multilateral development bank). Instead, the indicator, *Global* (or *regional*) *DB*, is equal to one if the development bank is either a global or regional development bank. We further consider whether development banks are in the same county of the borrowing firm. The indicator, *Participation of a foreign DB*, is equal to one if the development bank has its headquarters in a different country with respect to the borrowing firm.

Instead the indicator, *Participation of a domestic DB*, is equal to one if the development bank has its headquarters in the borrowing firm's country.

Table 6 reports the estimation results of the baseline model conditional on all sampled loans having development banks participants.[13] Our results suggest that domestic development banks and foreign development banks appear to exert a similar effect on the syndicate structure. However, we find that syndicates with a foreign development bank have a higher number of foreign lenders by approximately 2.54 lenders per loan compared to syndicates with a national development bank, as shown in Column 3. In addition, foreign development banks increase the share held by foreign lenders by approximately 28.57 percentage points compared to national development banks. As shown in Panel B of Table 6, global and regional development banks (*Global* (or *regional*) *DB* dummy) strongly decrease the lead agent's loan share by approximately 10.66 percentage points and increase the foreign lenders' loan share by approximately 13.70 percentage points compared to national or sub-national development banks (*National* (or *sub-national*) *DB* dummy*).*

[Insert Table 6 about here]

It is possible be that development banks participate in syndicates only if they can cover senior roles, such as co-leads and co-agents. Therefore, the effect of the *DB participant* dummy could be due to such a senior role rather than development banks *per se*. In this case, the lead banks could retain a lower fraction of the loan because they delegate some monitoring activities to development banks. To verify this possibility, we compare the distribution of roles undertaken by development banks and other participant lenders in syndicates. Figure 1 shows a similar pattern between development banks and other participant lenders, suggesting that development banks do not have a specific preference for syndicates' senior roles.

[Insert Figure 1 about here]

[13] We find that both types of development bank have a significant impact on the syndicate structure when we consider the entire sample.

5. Robustness checks

This section presents a battery of additional exercises we carried out to rule out alternative stories as well as to assess the robustness of our findings. First, we address the concerns associated with the potential endogeneity issues. Accordingly, we run additional tests to alleviate potential bias in our estimates due to omitted variables. Specifically, we consider the country multiplied by year and industry multiplied by year fixed effects to account for the omitted country and industry time-variant characteristics that might bias our results. We also control for lead bank multiplied by year fixed effects to capture supply-side explanations of the findings, including changes in the business model/capital availability of banks. In addition, we account for selection bias issues and the preference of the development banks for certain lenders. Finally, we run a placebo test and exclude private firms and the 2007-2009 financial crisis from the sample.

5.1 Additional fixed effects

In our baseline regression we include country and industry fixed effect to control for possible time-invariant country and industry characteristics that could affect both a development bank participation choice and the syndicate structure of a loan. However, it could also be that time-variant country and industry characteristics might both affect a development bank participation in the syndicate and the syndicate structure at the same time. To mitigate such concern, we add country multiplied year and industry multiplied year fixed effects.

As a further control we saturate the model with lead bank multiplied by year fixed effects. In this way we account for any time-variant lead bank-specific characteristics that might jointly affect development banks' participation in a syndicate and the syndicate structure.

All the results reported in Table A1 of Appendix A corroborate the baseline finding of Table 5 as the coefficient of *DB participant* remains statistically significant at the 5% significance level and above, with very similar magnitudes as those in the baseline regressions.

5.2 Sample selection issues

The association between development banks and the syndicate structure could be due to endogenous selection of firms based on their fundamental characteristics.

To address this potential selection bias, we match the development bank participated loans (treatment sample) with loans that have similar characteristics but without development banks' participants (control sample). Specifically, we first form a sample of loans with borrowers in the same region and 2-digit industrial codes (such as Asia and Europe) as borrowers in the treatment sample. We then estimate the probability of having a development bank in a syndicate conditional on loan-level characteristics (i.e. maturity and amount), and borrower-level fundamentals (i.e. total assets, ROA, leverage and tangibles), in the year prior to receiving the loan. For each loan in the treatment sample, we select up to five loans in the control sample (i.e. without development banks' participation), using the closest propensity scores from the probit estimation. Table 7 reports the estimates obtained rerunning our regressions within the matched sample. All the results corroborate our previous findings as the effect of *DB participant* remains statistically significant at and above the 5% significance level.

[Insert Table 7 about here]

A further concern could be related to the fact that development banks engage in loans with more severe asymmetric information problems between lenders and borrowers. A less concentrated syndicated ownership could therefore reflect a lender's' diversification strategy in response to asymmetric information problems. To mitigate this concern, we rerun our analysis by excluding private firms from the sample, since they typically suffer from more asymmetric information compared to public firms (Dennis and Mullineaux, 2000; Lee and Mullineaux, 2004; Sufi, 2007). As "private" firms lack publicly available information, participant lenders depend more on the lead bank for monitoring activities and their ability to collect detailed information on those firms (Sufi, 2007). The estimates reported in Table A2 confirm our previous findings.

5.3. Development banks and other lenders

In this subsection we explore whether our main results are driven by the fact that development banks participate in loans where the other lenders also have an expertise in the country/industry of the borrowing firm. To test this, for each other lender, we calculate two dummies (‘*Top’ country* and ‘*Top’ industry*) that are equal to one if, respectively, industry and country of the borrowing firm are the industry (2-digit SIC) and country with the highest participation of lender *i* in the last five years before the syndication year *t* of the loan *j*, and zero otherwise. Then, we rerun our test in Table 5 by considering only the loans where the percentages of lenders with ‘*Top’ country* expertise and ‘*Top’ industry* expertise that equal to one are both below the mean of the entire sample. Results are consistent as reported in Table A3 of the appendix.

Further, development banks might prefer to participate in syndicates when there are certain lenders. In this case, there could be a development bank-lender match. We verify whether this issue occurs in our sample by comparing each lender’s participation rate for syndicates with development banks and without development banks. Specifically, we compute the lender’s participation rate (lender PR) by considering the number of syndicates participated in by each lender over the total number of syndicates. Two different rates are computed for each lender: one for syndicates with no DBs on board (DB participant=0) and one for syndicates with at least one DB on board (DB participant=1). Figure A1 shows that lenders participation rate is not driven by the presence of development banks. Lenders that invest more frequently in the syndicates with development banks have a similar participation rate in syndicates without development banks.

5.4 Sample variations

A further concern is that the baseline results could be affected by the 2007-2009 financial crisis. Previous studies document that development banks’ investments have a long-horizon and counter-cyclical pattern and offer support when private financing is scarce (Chelsky et al., 2013; Humphrey and Michaelowa, 2013; Galindo and Panizza, 2018). Large banks could be more willing to deal with

development banks during such periods of financial turmoil and instability. Therefore, we account for alternative capital supply explanations of the findings by re-running our models excluding the 2007-2009 financial crisis (Garcia-Appendini and Montorial-Garriga, 2013). The results are robust as reported by Table A4 of the appendix.

Finally, to address the possible concern that our main findings are driven by potential sample variation, we rerun the baseline model by randomly assigning the *DB participant* dummy (sampling with replacement within each year) for 1,000 random resamples. Table A5 shows that the coefficient on the *DB participant* dummy estimated from these 1,000 Monte Carlo simulations is not significantly different from zero for any of our dependent variables. This placebo test confirms that the effects observed from the participation of development banks in a syndicate are unusual compared to the effects from the participation of other banks.

6. Additional Analysis

6.1 Participant choice

Although we account for participant lenders' lending experience (with respect to countries and industries) in Table A3, it could be that lenders participate in syndicates because they are already familiar with the borrower and/or the lead bank. To account for this, we run an additional regression to examine whether *DB participant* dummy affects the probability of private lenders being chosen as participants once several characteristics are controlled for, including the familiarity of lenders themselves with the borrower and the lead bank.[14]

Furthermore, we examine how the probability of both domestic and foreign lenders being chosen as a participant varies by the type of development bank to complement the analysis reported in Table 6. Following Sufi (2007), we consider as the "potential" participant choice set all the

[14] Consistent with Sufi (2007), we focus on the efficiency of syndicate membership rather than investigating how that efficiency is reached.

private lenders with at least 0.5% market share in the year of the loan in at least one macro region. We exclude all development banks from this analysis.

Specifically, we use a linear probability model (LPM) where the dependent variable takes the value of one if the private commercial bank *i* participates in the syndicated loan *j* at year *t*, and zero otherwise. The main variables of interest are: (i) *Participation of a domestic national DB*, which is equal to one if there is at least one national development bank in the same country of the borrower that takes part in the loan, and zero otherwise; (ii) *Participation of a foreign or global DB*, which is equal to one if there is at least one foreign or multilateral development bank (with respect to the borrower's country) that takes part in the loan, and zero otherwise; (iii) The indicator, *The lender is foreign*, is equal to one if the lender is a foreign bank, and zero otherwise; (iv) The indicator, *'Top' industry for the lender*, is equal to one if the industry of the borrowing firm is the industry (2-digit SIC) with the highest participation of lender *i* in the last five years before the syndication year *t* of the loan *j*, and zero otherwise; (v) *Lender former participant for borrower* and *Lender former lead bank for borrower* are dummy variables that equal to one if the lender lent to the same borrower in the past five years (as either a participant lender or lead bank respectively), and zero otherwise; (vi) *Lender on syndicate with the lead bank in the last five year*s is an indicator that equals to one if the lead bank has collaborated in the past five years with the lender, and zero otherwise. As in equation (1) we also consider the following variables for the Lead bank: *The lead bank is foreign* and *The lead bank is a former lead bank for borrower*. In addition, we add the *Big lead bank* dummy that is equal to one if the lead bank is one of the five lenders with the highest market share in the syndicated loans market within the time period of the analysis. Furthermore, we account for the possibility that the lead bank is listed (*listed lead bank* dummies). Moreover, we account for the size and level of capitalization of other lenders (respectively *logarithm of total asset* and *capitalization ratio).* Finally, we include the same borrower, loan and country control variables and fixed effects of equation (1).

Table 8 presents the estimates. The results show that domestic national development banks significantly increase the probability of a domestic lender ending up in a syndicate by 7 percentage points while foreign or global (or regional) development banks increase such probability by 3 percentage points (Columns 3 and 4). Conversely, foreign or global (or regional) development banks reduce the likelihood that a domestic lender will join the syndicate by 4 percentage points if the lead bank is foreign. In contrast, foreign or global (or regional)) development banks increase the likelihood that foreign lenders will participate in a syndicate by around 4 percentage points (Column 6). Furthermore, domestic national development banks are more likely to be associated with a higher foreign lenders' participation in a syndicate only if the lead bank is *not* foreign (Column 4).[15]

In general, foreign or global (or regional) development banks are of greater appeal to foreign lenders. A possible explanation could be that domestic development banks do not have the same international reputation as foreign or global (or regional) development banks. Moreover, foreign lenders may be skeptical that domestic development banks could be more subject to local political pressure. This could result in misallocation of funding to politically connected firms and, consequently, to higher loan failure (e.g., Ades and Di Tella, 1997; La Porta et al., 2002; Sapienza, 2004; Dinc, 2005; Faccio, 2006 and Frigerio and Vandone, 2020).

As an additional exercise, we find that lenders located in a different country with respect to the borrowing firm are less likely to be chosen as a lender by almost 10 percentage points. We also show that former relationship with the borrower is relatively more important than industrial expertise for other financial institutions. Specifically, if a lender has been the former lead bank for the borrower firm in the last five years, the probability of being chosen as a lender in a syndicate is higher by more than 15 percentage points. However, such increase is even higher than 40 percentage points if the lender has been the former participant for the borrower firm in the last five

[15] Indeed, when both the lead bank and the participant development bank are foreign (or multilateral), the participation of domestic lenders tends to decrease by around 4 percentage points (= 3.12 - 7.31 in Column 4) to the benefit of foreign lenders' participation.

years. Finally, previous development bank-lead bank relationships only marginally affect participation choice.

[Insert Table 8 about here]

6.2 Covenant violations

We further explore whether the participation of development banks is associated with a higher probability of covenant violations due to their selection of risky loans. There is a stream of research claiming that development banks are not better selectors of borrowers than is the case with private commercial banks. Specifically, these studies argue that development banks may misallocate credit by either bailing out companies that would otherwise fail or channeling funds to firms for political advantages/purposes (Ades and Di Tella, 1997; La Porta et al., 2002; Faccio, 2006). Therefore, the recipients of credit would not be selected based on the quality of their entrepreneur projects but for political reasons.

To account for this issue, we explore whether development banks' participation in a syndicate is associated with a higher likelihood of covenant violations. Specifically, following Demiroglu and James (2010), we consider the *current ratio* and *Debt/EBITDA* as financial covenants. We also include *Interest coverage* in the analysis as this is one of the most commonly used financial covenants in the loans included in our sample. Using yearly Compustat data, we define a violation as any year in which the covenant variable breaches the covenant threshold specified in the loan agreement during the three-year period following the origination of the loan. Table 9 shows that development banks' participation in a syndicate is not associated with a higher probability of covenant violations.

[Insert Table 9 about here]

7. Conclusion

In this paper we explore whether development banks affect the syndicate structure. Specifically, we investigate whether syndicates with development banks are less concentrated and with more

diversification of risk exposure across lenders. Using a novel dataset of syndicate loans for development banks across 105 countries from 2001 to 2016, we find strong evidence that syndicates with a development bank as a participant lender have a more diffuse loan ownership and consist of a double number of participant lenders, particularly foreign lenders. In these syndicates the lead bank retains a lower loan share by approximately 2.87 percentage points, which is a 10 % decrease on an average lead bank's share of 28.55% in our sample (or $5.7 million in economic terms). Our findings suggest that a higher foreign lenders' participation in syndicates with development banks could drive a greater diversification of risk exposure across lenders. Consistently, our findings show that the number of foreign lenders increases by approximately 141% at the mean in syndicates with development banks. In addition, foreign banks are more likely to retain a greater loan share in such syndicates by approximately 23% compared to the mean of the entire sample (or $10.3 million in economic terms). Therefore, the presence of a development bank in a syndicate appears to lead to a greater diversification of risk exposure across lenders. The empirical results are very similar when we consider a battery of robustness tests.

Furthermore, we show that a foreign lender is more likely to take part in a syndicate if either i) there is a domestic national development bank as a participant lender and the lead bank is foreign or ii) there is a foreign (or global/regional) development bank as a participant lender. In contrast, we find that a domestic lender is more likely to take part in a syndicate if either i) there is a domestic national development bank as a participant lender or ii) there is a foreign (or multilateral) development bank as a participant lender and the lead bank is *not* a foreign lender.

Finally, we do not find evidence that development banks' presence in syndicates is associated with a weaker monitoring outcome, such as higher probability of covenant violations.

References

Ades, A., Di Tella, R. (1997). National champions and corruption: some unpleasant interventionist arithmetic. *The Economic Journal*, 107, 1023-1042.

Arezki, R., Bolton, P., Peters, S., Samama, F., Stiglitz, J. (2017). From Global Savings Glut to Financing Infrastructure. *Economic Policy*, 32(90), 221–261.

Bharath, S. Dahiya, S., Saunders, A., Srinivasan, A. (2011). Lending Relationships and Loan Contract Terms. *Review of Financial Studies*, 24 (4), 1141–1203.

Broccolini, C., Lotti, G., Maffioli, A., Presbitero, A.F., Stucchi, R (2019). Mobilization Effects of Multilateral Development Banks. *World Bank Economic Review*, Forthcoming.

Cen, L., Dasgupta, S., Elkamhi, R., Pungaliya, R. (2016). Reputation and Loan Contract Terms: the role of Principal Customers. *Review of Finance*. 20 (2), 501-533.

Chakraborty, I., Goldstein, I., Mackinlay, A. (2018). Do Asset Price Bubbles have Negative Real Effects? *The Review of Financial Studies,* 31(7), 2806–2853.

Chava, S., and Jarrow, R.A. (2004). Bankruptcy Prediction with Industry Effects. *Review of Finance,* 8, 537–569.

Chelsky, J., Morel, C., Kabir, M. (2013). Investment financing in the wake of the crisis: The role of multilateral development banks. *World Bank - Economic Premise*, 121.

Claessens, S., van Horen, N. (2014). Foreign banks: Trends and impact. *Journal of Money, Credit and Banking,* 46, 295–326.

Correia, S., Guimarães, P., & Zylkin, T. (2020). Fast poisson estimation with high-dimensional fixed effects. *The Stata Journal, 20(1), 95-115.*

De Luna-Martinez, J., Vicente, C. (2012). Global Survey of Development Banks. World Bank Policy Research Working Paper. World Bank, Washington, DC, p. 5969.

Delis, M.D., Iosifidi, M., Kokas, S., Xefteris, D., Ongena, S. (2020). Enforcement actions on banks and the structure of loan syndicates. Journal of Corporate Finance, 60, 101527.

Demiroglu, C., James, C. (2010). The Information Content of Bank Loan Covenants. *Review of Financial Studies*, 23, 3700–3737.

Dennis, S.A., Mullineaux, D.J. (2000). Syndicated loans. *Journal of Financial Intermediation,* 9, 404-426.

Dinc, I.S. (2005). Politicians and banks: Political influences on government-owned banks in emerging markets. *Journal of Financial Economics,* 77(2), 453-479.

Esty, B. (2004). When do foreign banks finance domestic projects? New evidence on the importance of legal and financial systems. Mimeo. Harvard Business School, Boston, MA.

Esty, B., Megginson, W. (2003). Creditor rights, enforcement, and debt ownership structure: evidence from the global syndicated loan market. *Journal of Financial and Quantitative Analysis,* 38, 37–59.

Faccio, M. (2006). Politically connected firms. *American Economic Review*, 96, 369-386.

Frigerio, M., Vandone, D. (2020). European development banks and the political cycle. *European Journal of Political Economy*, 62.

Galindo, A. J., Panizza, U. (2018). The cyclicality of international public sector borrowing in developing countries: Does the lender matter? *World Development*, 112, 119-135.

Garcia-Appendini, E., Montoriol-Garriga, J. (2013). Firms as liquidity providers: Evidence from the 2007–2008 financial crisis. *Journal of Financial Economics,* 109, 272-291.

Gopalan, R., Nanda, V., Yerramilli, V. (2011). Does poor performance damage the reputation of financial intermediaries? Evidence from the loan syndication market. *Journal of Finance,* 66, 2083-2120.

Gurara, D., Presbitero, A. F., and Sarmiento, M. (2020). Borrowing costs and the role of multilateral development banks: Evidence from cross-border syndicated bank lending. *Journal of International Money and Finance*, 100, 1-17.

Hainz, C., Kleimeier, S. (2012). Political risk, project finance, and the participation of development banks in syndicated lending. *Journal of Financial Intermediation*, 21(2), 287–314.

Haselmann, R., Wachtel, P. (2011). Foreign banks in syndicated loan markets. *Journal of Banking & Finance*, 35 (10), 2679–2689.

Humphrey, C., Michaelowa, K. (2013). Shopping for Development: Multilateral Lending, Shareholder Composition and Borrower Preferences. *World Development*, 44, 142–155.

Ivashina, V. (2009). Asymmetric information effects on loan spreads. *Journal of Financial Economics*, 92,300–319.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A. (2002). Government ownership of banks. *The Journal of Finance*, 57(1), 265-301.

Lazzarini, S., Musacchio, A., Bandeire-De-Mello, R., Marcon, R. (2015). What do state-owned development banks do? Evidence from BNDES, 2002-2009. *World Development,* 66, 237-253.

Lee, S.W., Mullineaux, D.J. (2004) Monitoring, financial distress, and the structure of commercial lending syndicates, *Financial Management*, 33, 107-130.

Lin, C., Ma, Y., Malatesta, P., Xuan, Y. (2012). Corporate ownership structure and bank loan syndicate structure. *Journal of Financial Economics,* 104, 1–22.

Mazzucato, M., Penna, C.C.R. (2016). Beyond market failures: the market creating and shaping roles of state investment banks. Journal of Economic Policy Reform,19 (4), 305–326.

Mian, A. (2006). Distance constraints: The limits of foreign lending in poor economies. *Journal of Finance*, 61, 1465-1505.

OECD (2018), Making Blended Finance Work for the Sustainable Development Goals, OECD Publishing, Paris. http://dx.doi.org/10.1787/9789264288768-en.

Sapienza, P. (2004). The effects of government ownership on bank lending. *Journal of Financial Economics*, 72(2), 357-384.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance*, 62(2), 629-6.

Stein, J. (2002). Information production and capital allocation: decentra- lized versus hierarchical firms. *Journal of Finance*, 57, 1891–1922.

Xu, J., Ren, X. and Wu, X. (2019). Mapping Development Finance Institutions Worldwide: Definitions, Rationales, and Varieties. NSE Development Financing Research Report,1. DOI: 10.13140/RG.2.2.31323.62240.

Table 1: Development banks in the syndicated loans

This table presents the percentage weight of development banks in the syndicated loans' market per macro-region by considering the borrower's country. The percentage weight is obtained both in terms of the number of loans (*# Loans*) and of the deal amounts (*Deal Amts*). For each loan participated by at least one development bank, the deal amount refers to the whole deal and not only to the share participated by the development bank. The reference period is 2001-2016. Multinational development banks (MDBs) include global-level and regional-level development banks, while national development banks (NDBs) include national-level and sub-national level development banks.

		Percentage weight (per cent) of DBs in terms of:		Percentage weight (per cent) of MDBs in terms of:		Percentage weight (per cent) of NDBs in terms of:	
	Obs.	# Loans	Amounts	# Loans	Amounts	# Loans	Amounts
Macro-regions:							
North America	24,741	2.4	4.6	0.0	0.0	2.3	4.6
South America	766	30.0	35.8	7.6	8.8	22.5	27.0
Western Europe	4,690	9.9	17.2	0.5	0.6	9.4	16.6
Eastern Europe	373	21.7	21.8	8.3	3.2	13.4	18.5
Africa	132	15.9	10.5	6.1	3.5	9.8	7.0
Middle East	138	15.2	15.8	2.9	4.1	12.3	11.7
Far East and Central Asia	13,439	6.3	14.4	0.1	0.1	6.1	14.3
Oceania	620	4.8	8.2	0.0	0.0	4.8	8.2
Industries (SIC divisions):							
Agric., Forestry & Fishing	213	6.6	3.9	3.3	1.3	3.3	2.5
Mining	3,704	9.1	17.4	0.8	1.3	8.3	16.1
Construction	1,450	4.7	13.2	0.2	0.1	4.5	13.2
Manufacturing	18,787	4.9	8.6	0.3	0.2	4.6	8.4
Transp., Communic., Elect	8,468	8.3	12.7	0.5	0.4	7.8	12.3
Wholesale Trade	2,502	3.0	4.8	0.2	0.2	2.9	4.6
Retail Trade	3,164	1.3	1.7	0.1	0.0	1.2	1.7
Services	6,611	1.6	3.5	0.0	0.0	1.6	3.5
Lead bank's nationality:							
Same country as borrower	35,659	3.5	6.4	0.1	0.0	3.4	6.4
Different country (cross-lending)	9,240	11.3	15.6	1.4	1.0	9.9	14.6
Loan purposes:							
Corporate purposes	20,006	4.16	8.41	0.20	0.11	3.96	8.30
Working capital	9,931	1.85	2.88	0.09	0.07	1.76	2.82
Debt Repayment	4,891	7.83	18.61	0.35	0.30	7.48	18.31
Acquisition line	1,719	5.24	8.51	0.12	1.19	5.12	7.32
Takeover	1,711	3.68	7.88	0.23	0.54	3.45	7.34
Capital expenditure	1,226	16.48	30.31	0.73	0.58	15.74	29.72
Project finance	679	31.66	44.46	4.42	3.86	27.25	40.60
Other	4,736	6.40	7.06	0.72	0.51	5.68	6.54
Total	44,899	5.1	9.4	0.3	0.3	4.7	9.0

Table 2: Loans participated in by at least one development bank: distribution by macro-region

Frequencies and amounts by region:

Macro-region	# Deals (units)	percent	Amounts (billions US$)	per cent
North America	586	25.8	749.6	29.6
South America	230	10.1	142.7	5.6
Western Europe	464	20.4	1,068.9	42.3
Eastern Europe	81	3.6	52.6	2.1
Africa	21	0.9	7.8	0.3
Middle East	21	0.9	23.2	0.9
Far East and Central Asia	840	37.0	455.7	18.0
Oceania	30	1.3	29.1	1.2
Total	2,273	100.0	2,529.6	100.0

Table 3: Descriptive statistics for loans with and without development banks (Whole Sample)

This table presents the summary statistics of all the main variables in this study. The sample spans the 2001-2016 window. All variables obtained as ratios based on Compustat data are winsorized within the 1st and 99th percentiles. See Table 4 for variable definitions. Deals with a development banks as the lead bank are excluded from the analysis. T statistics (*T-stat.*) refer to the difference in mean values between the subsample of loans with at least one development bank participating in the syndicate (*DB participant*) and the subsample of loans with no DBs participating (*No DBs*). ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Whole Sample						No DBs	DB Participant	T-stat.
Variable	#Obs.	Mean	St. Dev.	p25	Median	p75	Mean	Mean	
Syndicate Characteristics:									
Lead Share (per cent kept by the lead bank)	13,679	28.55	23.78	10.67	20.69	40.00	29.15	18.86	-11.97***
Syndicate size (number of lenders)	44,525	7.73	7.44	3.00	6.00	10.00	7.44	14.28	39.92***
Concentration of syndicate (Herfindahl)	13,679	0.27	0.23	0.10	0.18	0.35	0.27	0.22	-5.81***
Number of foreign participant lenders	44,525	2.59	4.58	0.00	1.00	3.00	2.35	8.10	55.40***
Foreign Share (per cent held by foreign lenders)	13,679	22.56	27.98	0.00	9.04	40.32	21.17	44.78	23.68***
Deal amount (ln)	44,524	19.11	1.53	18.09	19.11	20.18	19.07	19.99	25.89***
Deal maturity (months)	43,697	47.86	34.05	24.00	49.00	60.00	46.99	67.33	25.45***
Collateral (dummy)	44,525	0.33	0.47	0.00	0.00	1.00	0.33	0.27	-5.60***
Covenant (dummy)	44,525	0.24	0.43	0.00	0.00	0.00	0.25	0.06	-18.48***
Institutional investors (dummy)	44,525	0.23	0.42	0.00	0.00	0.00	0.23	0.24	0.09
Reputation: lead to participant	44,525	0.30	0.19	0.14	0.32	0.43	0.30	0.35	11.42***
Reputation: reciprocal (dummy)	44,525	0.88	0.33	1.00	1.00	1.00	0.88	0.96	11.06***
>1 loan tranche (dummy)	44,525	0.30	0.46	0.00	0.00	1.00	0.29	0.43	13.08***
Deal includes term loan (dummy)	44,525	0.43	0.50	0.00	0.00	1.00	0.42	0.61	16.59***
Borrower Characteristics:									
Private firm (dummy)	44,525	0.31	0.46	0.00	0.00	1.00	0.31	0.30	-0.71
Total assets (ln)	44,114	7.57	1.91	6.24	7.49	8.90	7.53	8.57	23.41***
ROA	44,074	2.17	8.88	0.58	2.93	5.90	2.15	2.57	2.03*
Leverage	44,112	31.72	20.40	17.40	29.88	43.14	31.63	33.82	4.58***
Tangibility	43,987	35.72	24.87	14.85	31.00	53.77	35.26	45.92	18.29***
Lead bank Characteristics:									
Big lead bank (dummy)	44,525	0.35	0.48	0.00	0.00	1.00	0.36	0.20	-14.02***
Listed lead bank (dummy)	44,525	0.53	0.50	0.00	1.00	1.00	0.54	0.39	-12.40***
Country Characteristics:									
log GDP per capita	43,045	10.53	0.65	10.54	10.65	10.79	10.56	9.85	-47.17***
Domestic credit to GDP (per cent)	41,282	75.64	31.85	51.08	57.16	100.03	75.33	83.80	10.17***

Table 4: Variables' Definitions

Variable	Source	Description
General		
Lead bank	Dealscan	The lead bank is identified by the highest ranked agent for each loan following the ranking hierarchy suggested by Chakraborty et al. (2018).
DB participant (Participation of a DB)	Dealscan	Dummy equal to one if at least one development bank is among the participants (excluding the lead bank) in the loan syndicate.
Participation of a domestic DB	Dealscan	Dummy equal to one if the participants (excluding the lead bank) in the loan syndicate include at least one national (or sub-national) development bank that is in the same country as the borrowing firm.
Participation of a foreign DB	Dealscan	Dummy equal to one if the participants (excluding the lead bank) in the loan syndicate include *either* at least one multilateral (global or regional) development bank, *or* at least one national (or sub-national) development bank that is not in the same country as the borrowing firm.
Syndicate structure		
Syndicate size (number of lenders)	Dealscan	Number of lenders participating in the lending syndicate.
Number of foreign participant lenders	Dealscan	Number of participant lenders of a syndicated loan that are not in the same country as the borrowing firm.
Foreign Share (per cent held by foreign lenders)	Dealscan	Percentage held by foreign lenders of a syndicated loan.
Concentration of syndicate (Herfindahl)	Dealscan	Following Sufi (2007), the Herfindahl measures the concentration of holdings within a syndicate by using each syndicate member's share in the loan; it is the sum of the squared individual shares in the loan (ranging from 0 to 1, with 1 being the Herfindahl when a lender holds 100% of the loan).
Lead Share (per cent kept by the lead bank)	Dealscan	Following Sufi (2007), percentage retained by the lead bank of a syndicated loan.
Other loan characteristics		
Loan amount (ln)	Dealscan	Natural logarithm of loan amount in USD million as indicated in the field *DealAmt* in Dealscan.
Loan maturity (months)	Dealscan	Maturity (in months) of the largest facility within-loan package that starts at the loan origination date.
Collateral	Dealscan	Dummy equal to one if the loan is secured, and zero otherwise.
Covenant	Dealscan	Dummy equal to one if the loan has at least one financial covenant (considering equity sweeps, debt sweeps, asset sweeps, dividend restrictions, and secured debt), and zero otherwise.
Institutional investors	Dealscan	Dummy equal to one if at least one institutional investor is in the loan syndicate. Institutional investors include all lenders labelled in DealScan as 'institutional investor', 'finance company', 'insurance company', 'mutual fund', or 'pension fund'.
>1 loan tranche	Dealscan	Dummy equal to one if the number of facilities in the loan package is larger than one, and zero otherwise.
Term loan	Dealscan	Dummy equal to one if the loan package contains a term loan facility, and zero otherwise.
Loan purpose	Dealscan	Purpose of the of the syndicated loan. Based on labeling in DealScan, eight categories are considered: acquisition line; capital expenditure; corporate purposes; debt repayment; project finance; takeover; working capital; other.
Syndicate reputation		
Syndicate reputation: lead	Dealscan	Following Ivashina (2009), the maximum per cent number of deals

to participant		arranged by the same lead bank with the same participants against the total number of deals organized by the lead bank over a five-year horizon.
Syndicate reputation: reciprocal	Dealscan	Following Ivashina (2009), dummy variable is equal to one if the same lead bank and the same participant switch roles over a five-year horizon prior to the current syndication.
Borrower characteristics		
Private firm	Compustat	Dummy variable equal to one if the borrower is not a publicly traded company.
Total assets	Compustat	Total assets in US millions of dollars.
Profitability (ROA)	Compustat	Ratio of net income to total assets.
Leverage	Compustat	Ratio of book value of total debt to book value of assets.
Tangibility	Compustat	Ratio of tangible fixed assets (Net Property, Plant and Equipment) to total assets.
Development banks (DBs)' characteristics		
National (or sub-national) DB	Xu et al. (2019) and own additional inspection	Dummy variable equal to one if the development bank is established by the central or local government of a single country, and zero if established by two or more countries (i.e. multilateral DBs), and zero otherwise.
Global (or regional) DB	Xu et al. (2019) and own additional inspection	Dummy variable equal to one if the development bank is either a global or regional development bank, and zero if established by a single country (i.e. national DBs), and zero otherwise.
Domestic DB	Xu et al. (2019) and own additional inspection	Dummy variable equal to one if the development bank has its headquarters in the borrowing firm's country, and zero otherwise.
Foreign DB	Xu et al. (2019) and own additional inspection	Dummy variable equal to one if the development bank has its headquarters in a different country with respect to the borrowing firm's country, and zero otherwise.
Lead bank characteristics		
The lead bank is a former lender for borrower	Dealscan	Dummy equal to one if the lead bank lent to the same borrower in the past five years (as the participant lender in the syndicate), and zero otherwise.
Lead bank is former lead bank for borrower	Dealscan	Dummy equal to one if the lead bank lent to the same borrower in the past five years (as the lead bank in the syndicate), and zero otherwise.
The lead bank is foreign	Dealscan	Dummy equal to one if the lead bank is not in the same country as the borrowing firm, and zero otherwise.
Big lead bank	DealScan	Dummy variable equal to one if the lead bank is one of the five lenders with the highest market share in the syndicated loans market within the time period of the analysis (Bank of America Merrill Lynch; Citi; Deutsche Bank AG; JP Morgan; Wells Fargo & Co)
Listed lead bank	DealScan	Dummy variable equal to one if the lead bank is a publicly traded company, and zero otherwise.
Characteristics of other lenders		
The lender is foreign	Dealscan	Dummy equal to one if the lender is not in the same country as the borrowing firm, and zero otherwise.
'Top' industry for the lender	Dealscan	Dummy equal to one if industry of the borrowing firm is the industry (2-digit SIC) with the highest participation of lender *i* in the last five years before the origination year *t* of the syndicated loan *j*, and zero otherwise.
'Top' industry and country	Dealscan	Dummy equal to one if industry and country of the borrowing firm is the industry (2-digit SIC) and the country with the highest

		participation of lender *i* in the last five years before the origination year *t* of the syndicated loan *j*, and zero otherwise.
Lender former lead bank for borrower	Dealscan	Dummy equal to one if the lender lent to the same borrower in the past five years (as lead bank), and zero otherwise.
Lender former participant for borrower	Dealscan	Dummy equal to one if the lender lent to the same borrower in the past five years (as participant lender), and zero otherwise.
Lender on syndicate with the lead bank in the last five years	Dealscan	Dummy variable equal to one if the lender has collaborated with the lead bank (i.e. they have been in the same loan syndicate at least once) in the past five years, and zero otherwise.
Country characteristics		
log GDP per capita	World Bank	Logarithm of gross domestic product divided by midyear population at the country-year level.
Domestic credit to GDP (per cent)	World Bank	Domestic credit to private sector as percentage of gross domestic product at the country-year level. Domestic credit to private sector refers to financial resources provided to the private sector by financial corporations.

Table 5: Baseline results

This table reports the estimation results of the baseline model. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders)
	(1)	(2)	(3)	(4)	(5)
DB participant	4.79***	-2.87***	-0.03***	3.66***	5.20***
	[0.40]	[0.89]	[0.01]	[0.35]	[1.09]
The lead bank is a former lender	0.17**	-0.60	-0.01***	-0.12***	-0.62
	[0.07]	[0.42]	[0.00]	[0.04]	[0.38]
The lead bank is foreign	1.25***	-2.47***	-0.01	1.91***	17.46***
	[0.14]	[0.72]	[0.01]	[0.11]	[1.00]
Reputation: lead to participant	7.96***	-22.13***	-0.30***	2.76***	3.90***
	[0.27]	[1.77]	[0.02]	[0.16]	[1.47]
Reputation: reciprocal	0.49***	-22.61***	-0.26***	-0.52***	5.35***
	[0.11]	[1.38]	[0.01]	[0.07]	[0.83]
Private firm (dummy)	-0.42***	-0.41	-0.01**	-0.27***	0.03
	[0.10]	[0.50]	[0.00]	[0.06]	[0.48]
Total assets (ln)	0.11***	-0.33*	0.00**	0.18***	1.46***
	[0.03]	[0.18]	[0.00]	[0.02]	[0.18]
ROA	0.01**	-0.08***	-0.00***	-0.00	-0.01
	[0.00]	[0.03]	[0.00]	[0.00]	[0.02]
Leverage	-0.00	-0.03**	-0.00**	-0.00***	-0.01
	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]
Tangibility	0.00	-0.03***	-0.00***	0.00	0.02
	[0.00]	[0.01]	[0.00]	[0.00]	[0.01]
Deal amount (ln)	1.78***	-3.47***	-0.03***	0.92***	3.05***
	[0.05]	[0.29]	[0.00]	[0.03]	[0.27]
Deal maturity (months)	0.17***	-3.51***	-0.02***	-0.05	0.08
	[0.06]	[0.39]	[0.00]	[0.04]	[0.33]
Collateral (dummy)	-1.42***	4.78***	0.05***	-0.89***	-2.24***
	[0.10]	[0.52]	[0.01]	[0.07]	[0.56]
Covenant (dummy)	0.98***	1.68***	0.01**	-0.02	-4.48***
	[0.10]	[0.50]	[0.00]	[0.06]	[0.59]
Institutional investors (dummy)	4.10***	-6.80***	-0.06***	1.36***	0.80*
	[0.12]	[0.45]	[0.00]	[0.07]	[0.44]
>1 loan tranche (dummy)	0.37***	0.97*	0.03***	0.37***	-0.60
	[0.13]	[0.54]	[0.01]	[0.08]	[0.54]
Deal includes term loan (dummy)	0.06	-1.10*	0.01	-0.28***	-0.12
	[0.13]	[0.60]	[0.01]	[0.07]	[0.54]
Domestic credit to GDP (per cent)	-0.01**	0.05**	0.00***	-0.01***	-0.07**
	[0.00]	[0.02]	[0.00]	[0.00]	[0.03]
log GDP per capita	-1.46***	2.77	0.02	-1.44***	-7.91***
	[0.26]	[1.70]	[0.02]	[0.24]	[1.99]
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	40,280	12,322	12,322	40,280	12,322
r2	0.43	0.46	0.48	0.50	0.63

Table 6: (A) Domestic vs. foreign DBs; (B) National vs. Supranational DBs

This table reports the estimation results of the baseline model after excluding loans with no development banks (DBs) participating to the syndicate and distinguishing foreign DBs from domestic DBs, and national DBs form supranational DBs. DBs are defined as foreign when their origin country is different from the origin country of the borrower. Consequently, the coefficient on the *Foreign DB* dummy reveals how foreign DBs compare to domestic DBs, while the coefficient on the *Global (or regional) DB* dummy reveals how supranational DBs compare to national DBs. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders
	(1a)	(2a)	(3a)	(4a)	(5a)
Participation of a domestic DB	(ref.)	(ref.)	(ref.)	(ref.)	(ref.)
Participation of a foreign DB	1.28	1.35	-0.05	2.54***	28.57***
	[0.84]	[3.18]	[0.04]	[0.74]	[4.11]
The lead bank is a former lender	1.13**	2.11	0.01	0.39	-0.10
	[0.53]	[1.91]	[0.02]	[0.40]	[1.89]
The lead bank is foreign	1.67**	-0.95	0.01	3.51***	17.48***
	[0.72]	[2.53]	[0.03]	[0.67]	[3.41]
Reputation: lead to participant	10.65***	-13.43*	-0.31***	6.63***	11.32
	[2.04]	[7.38]	[0.08]	[1.47]	[8.30]
Reputation: reciprocal	1.05	0.48	-0.06	-0.30	13.97***
	[0.98]	[6.01]	[0.05]	[0.94]	[4.48]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	1,569	755	755	1,569	755
r2	0.64	0.53	0.62	0.70	0.62

Panel B	(1b)	(2b)	(3b)	(4b)	(5b)
National (or sub-national) DB	(ref.)	(ref.)	(ref.)	(ref.)	(ref.)
Global (or regional) DB	0.70	-10.66**	0.08	0.79	13.70**
	[1.10]	[4.31]	[0.05]	[1.03]	[6.04]
The lead bank is a former lender	1.11**	2.21	0.01	0.36	-1.13
	[0.53]	[1.92]	[0.02]	[0.40]	[2.02]
The lead bank is foreign	1.84**	-0.83	0.01	3.85***	21.68***
	[0.72]	[2.54]	[0.03]	[0.69]	[3.59]
Reputation: lead to participant	10.76***	-13.32*	-0.31***	6.86***	14.72*
	[2.06]	[7.26]	[0.08]	[1.49]	[8.73]
Reputation: reciprocal	1.12	1.28	-0.07	-0.12	17.77***
	[0.98]	[5.90]	[0.05]	[0.96]	[5.60]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	1,569	755	755	1,569	755
r2	0.64	0.53	0.62	0.70	0.78

Table 7: Baseline results with matching procedure

This table reports the estimation results of the baseline model with matching procedure. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders
	(1)	(2)	(3)	(4)	(5)
DB participant	4.22***	-3.90***	-0.04***	2.96***	4.57***
	[0.39]	[1.24]	[0.01]	[0.28]	[1.28]
The lead bank is a former lender	-0.10	1.46	0.01	-0.29	-0.48
	[0.25]	[1.24]	[0.01]	[0.19]	[1.14]
The lead bank is foreign	1.57***	-1.94	0.00	2.96***	22.67***
	[0.36]	[1.42]	[0.02]	[0.33]	[2.19]
Reputation: lead to participant	10.94***	-21.02***	-0.32***	6.21***	10.62***
	[0.86]	[4.14]	[0.04]	[0.60]	[3.98]
Reputation: reciprocal	0.39	-5.59*	-0.11***	-0.85***	8.50***
	[0.36]	[3.23]	[0.03]	[0.30]	[2.56]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	4,983	2,037	2,037	4,983	2,037
r2	0.53	0.42	0.44	0.59	0.72

Table 8: The determinants of relevant lenders' participation in a syndicate

This table reports the coefficient estimates for a linear probability model (LPM) specification estimating how lender and loan characteristics affect the probability of a lender being chosen as a participant. All coefficients and standard errors are multiplied by 100. Columns 1, 3 and 5 include loan purpose, country, year and industry effects, while Columns 2, 4 and 6 also encompass borrower, syndicate, lead bank, lender and country-year characteristics. Columns 1 and 2 refer to the entire sample of potential lenders, Columns 3 and 4 consider only potential domestic lenders, while Columns 5 and 6 consider only foreign lenders. For each loan (package) the choice set includes all relevant lenders with at least 0.5% market share in at least one country in the year of the loan. All the estimations include country, year and industry (SIC division) effects and an additional set of dummies for loan purposes. Additional controls (Columns 3 and 4) include borrower characteristics in year *t-1* and deal characteristics. In Column 4, we also control for lender characteristics and country-year characteristics. The "domestic" vs. "foreign" nationality of DBs and lead banks is assigned based on the borrower's country. Variable definitions are provided in Table 4. Standard errors (in brackets) are allowed to be correlated for all potential participant development banks for all of a given firm's loans in the sample. In addition to the variables reported, All coefficients and standard errors are multiplied by 100.

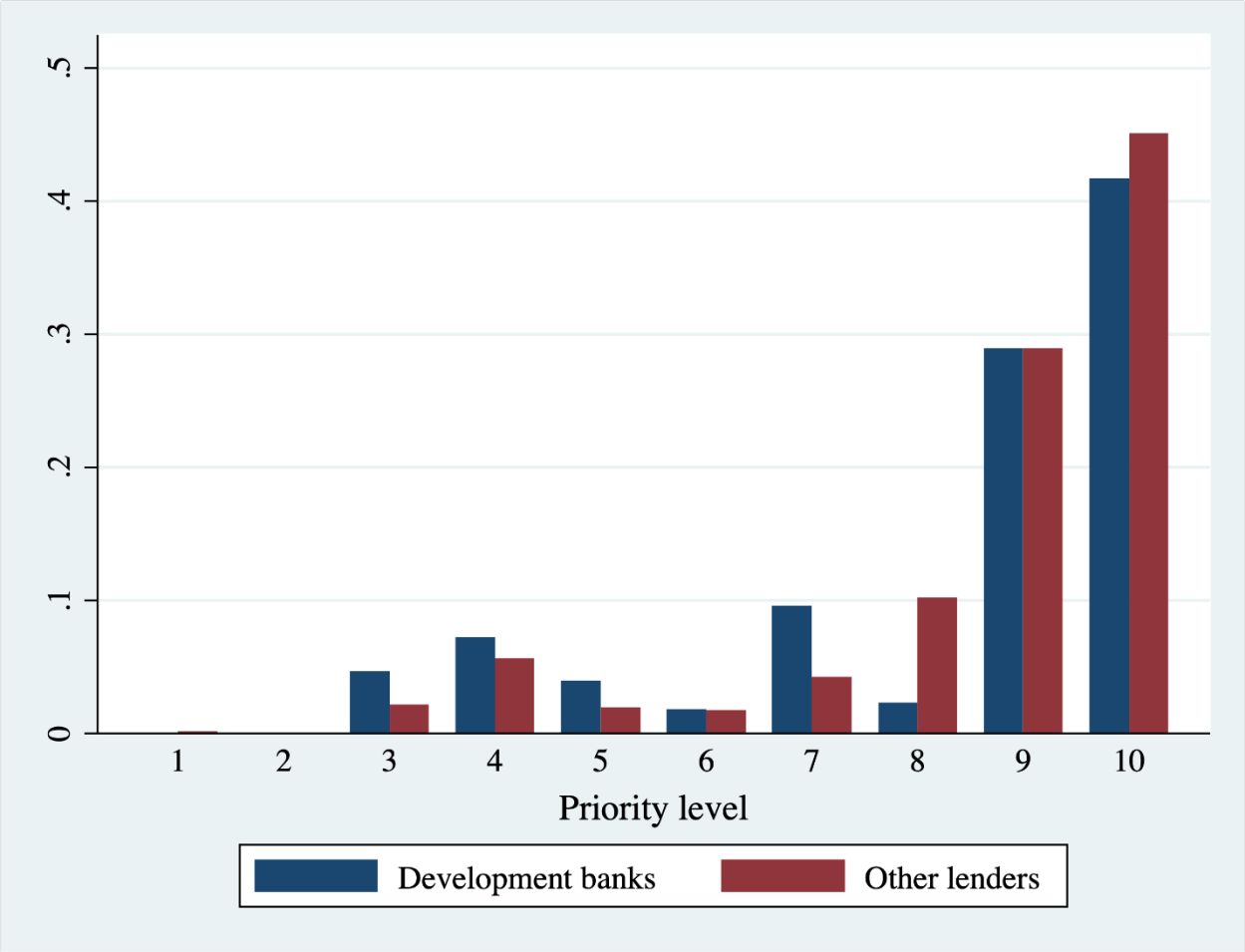
Dependent variable: Probability of a potential lender being chosen as a participant						
	Potential Lenders		Potential domestic lenders		Potential foreign lenders	
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable mean	*6.41*	*7.30*	*22.68*	*23.51*	*4.03*	*4.50*
Participation of a Domestic National (or sub-national) DB	1.54***	-0.01	12.06***	7.15***	1.12***	0.16
	[0.22]	[0.28]	[1.50]	[2.19]	[0.20]	[0.26]
Participation of a Domestic National (or sub-national) DB	3.12***	3.76***	2.16	2.72	2.93***	3.39***
* The lead bank is foreign	[0.68]	[0.71]	[3.16]	[3.72]	[0.64]	[0.70]
Participation of a Foreign or Global (or regional) DB	5.51***	3.85***	6.57***	3.12**	5.63***	4.17***
	[0.67]	[0.64]	[1.39]	[1.31]	[0.65]	[0.63]
Participation of a Foreign or Global (or regional) DB	-2.00**	-0.95	-9.85***	-7.31***	-1.88**	-0.92
* The lead bank is foreign	[0.82]	[0.79]	[2.50]	[2.21]	[0.80]	[0.79]
The lender is foreign	-9.61***	-10.25***				
	[0.12]	[0.14]				
The lead bank is foreign	-0.34***	0.05	-5.21***	-3.83***	0.54***	0.78***
	[0.12]	[0.13]	[0.38]	[0.47]	[0.11]	[0.13]
'Top' industry for the lender	0.33***	0.84***	2.62***	3.37***	0.17***	0.75***
	[0.05]	[0.07]	[0.27]	[0.33]	[0.04]	[0.06]
Lender former lead bank for borrower	17.04***	15.84***	13.73***	10.52***	17.84***	17.84***
	[0.58]	[0.65]	[0.72]	[0.77]	[0.79]	[0.91]
Lender former participant for borrower	43.86***	41.75***	47.90***	44.67***	40.34***	38.20***
	[0.43]	[0.44]	[0.41]	[0.44]	[0.51]	[0.53]
Lead bank is former lead bank for borrower	-0.65***	-1.49***	-2.31***	-4.28***	-0.41***	-1.05***
	[0.06]	[0.08]	[0.22]	[0.23]	[0.05]	[0.06]
Lender on syndicate with the lead bank in last five years	2.48***	0.95***	8.47***	2.70***	1.89***	0.98***
	[0.05]	[0.06]	[0.26]	[0.37]	[0.04]	[0.06]
Additional Controls:						
Borrower characteristics	NO	YES	NO	YES	NO	YES
Syndicate characteristics	NO	YES	NO	YES	NO	YES
Lead bank characteristics	NO	YES	NO	YES	NO	YES
Lender characteristics	NO	YES	NO	YES	NO	YES
Country-year characteristics	NO	YES	NO	YES	NO	YES
Loan purpose dummies	YES	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES	YES
Observations	3,200,923	1,916,273	408,835	282,127	2,792,088	1,634,146
Number of loans (packages)	44,899	40,280	41,365	36,265	44,899	40,280
r2	0.31	0.33	0.31	0.34	0.25	0.26

Table 9: Covenant violations

This table estimates the relationship between financial covenant violations and development bank's participation in syndicated loans (DB participant) during the three years following the loan inception. For the scope we consider the following as financial covenants: Debt/EBITDA, Interest coverage and Current ratio. Column Debt/EBITDA covenant violation (incl. EBITDA<0) also considers as covenant breaches the cases in which EBITDA is negative, while Debt/EBITDA covenant violation (excl. EBITDA<0) excluded these cases. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Debt/EBITDA covenant violation (excl. EBITDA<0)	Debt/EBITDA covenant violation (incl. EBITDA<0)	Interest coverage covenant violation	Current ratio covenant violation
	(2)	(3)	(4)	(4)
DB participant	0.11	0.12	0.10	0.14
	[0.08]	[0.08]	[0.07]	[0.12]
The lead bank is a former lender	-0.01	-0.02	-0.02	0.06
	[0.01]	[0.01]	[0.02]	[0.04]
The lead bank is foreign	0.01	0.00	0.06*	0.01
	[0.04]	[0.04]	[0.03]	[0.09]
Reputation: lead to participant	-0.15**	-0.14**	-0.15**	0.05
	[0.06]	[0.06]	[0.07]	[0.14]
Reputation: reciprocal	0.02	-0.01	0.05	-0.04
	[0.03]	[0.03]	[0.04]	[0.07]
Borrower characteristics	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES
Country effects	YES	YES	YES	YES
Year effects	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES
Observations	5,803	5,970	4,091	685
r2	0.12	0.14	0.23	0.56

Figure 1: Distribution of (non-lead) lenders by rank level



Appendix A. Robustness Checks

Table A1: (a) country-year and industry-year; (b) lead bank-year effects

This table reports the estimation results of the baseline model after adding additional fixed effects. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders
	(1a)	(2a)	(3a)	(4a)	(5a)
DB participant	4.36***	-1.93**	-0.02***	3.24***	3.56***
	[0.35]	[0.83]	[0.01]	[0.30]	[1.05]
The lead bank is a former lender	0.22***	-0.88**	-0.01***	-0.12***	-0.64*
	[0.07]	[0.40]	[0.00]	[0.04]	[0.35]
The lead bank is foreign	1.17***	-2.46***	-0.01**	1.86***	17.74***
	[0.13]	[0.67]	[0.01]	[0.10]	[0.98]
Reputation: lead to participant	7.81***	-18.09***	-0.26***	2.69***	1.83
	[0.27]	[1.73]	[0.02]	[0.16]	[1.36]
Reputation: reciprocal	0.51***	-24.18***	-0.28***	-0.47***	6.04***
	[0.11]	[1.39]	[0.01]	[0.07]	[0.81]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country-year effects	YES	YES	YES	YES	YES
Industry-year effects	YES	YES	YES	YES	YES
Observations	43,473	13,699	13,699	43,473	13,699
r2	0.44	0.49	0.53	0.53	0.69

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders
	(1b)	(2b)	(3b)	(4b)	(5b)
DB participant	4.70***	-2.44**	-0.03***	3.56***	5.03***
	[0.41]	[1.00]	[0.01]	[0.35]	[1.19]
The lead bank is a former lender	0.16**	-0.69	-0.01***	-0.13***	-0.66*
	[0.07]	[0.45]	[0.00]	[0.04]	[0.39]
The lead bank is foreign	1.36***	-2.11**	-0.01	2.01***	16.98***
	[0.15]	[0.84]	[0.01]	[0.11]	[1.17]
Reputation: lead to participant	9.45***	-21.10***	-0.32***	3.16***	0.44
	[0.32]	[2.42]	[0.02]	[0.17]	[1.70]
Reputation: reciprocal	0.12	-23.36***	-0.27***	-0.60***	5.84***
	[0.12]	[1.54]	[0.01]	[0.07]	[0.86]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Lead bank-year effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Industry effects	YES	YES	YES	YES	YES
Observations	40,280	12,322	12,322	40,280	12,322
r2	0.46	0.55	0.58	0.55	0.71

Table A2: Baseline results based on public borrowers only

This table reports the estimation results of the baseline model after excluding observations referred to private borrowers. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders
	(1)	(2)	(3)	(4)	(5)
DB participant	4.91***	-2.43**	-0.02**	3.86***	5.37***
	[0.45]	[1.07]	[0.01]	[0.40]	[1.30]
The lead bank is a former lender	0.21**	-0.89*	-0.01***	-0.08	-0.21
	[0.09]	[0.49]	[0.00]	[0.05]	[0.44]
The lead bank is foreign	1.53***	-1.63*	-0.01	2.09***	16.46***
	[0.18]	[0.89]	[0.01]	[0.14]	[1.27]
Reputation: lead to participant	8.50***	-21.00***	-0.31***	2.92***	1.82
	[0.36]	[2.22]	[0.02]	[0.21]	[1.84]
Reputation: reciprocal	0.40***	-26.49***	-0.31***	-0.64***	6.23***
	[0.15]	[1.74]	[0.02]	[0.09]	[1.04]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	28,007	8,684	8,684	28,007	8,684
r2	0.45	0.50	0.52	0.52	0.65

Table A3: Only packages with a 'low' percentage of top_country and top_industry lenders

This table reports the estimation results of the baseline model. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders)
	(1)	(2)	(3)	(4)	(5)
DB participant	4.82***	-2.80***	-0.03***	3.84***	5.38***
	[0.43]	[0.97]	[0.01]	[0.38]	[1.19]
The lead bank is a former lender	0.10	-0.66	-0.01***	-0.19***	-0.51
	[0.08]	[0.49]	[0.00]	[0.05]	[0.46]
The lead bank is foreign	1.36***	-2.68***	-0.01	1.96***	17.38***
	[0.15]	[0.77]	[0.01]	[0.11]	[1.06]
Reputation: lead to participant	8.08***	-22.48***	-0.29***	3.17***	2.40
	[0.32]	[1.94]	[0.02]	[0.20]	[1.75]
Reputation: reciprocal	0.62***	-26.72***	-0.31***	-0.57***	7.50***
	[0.14]	[1.56]	[0.01]	[0.10]	[1.03]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	29,958	9,326	9,326	29,958	9,326
r2	0.45	0.50	0.50	0.51	0.64

Table A4: Baseline results (after excluding the 2007-2009 financial crisis)

This table reports the estimation results of the baseline model after excluding the 2007-2009 financial crisis. Variable definitions are provided in Table 4. Standard errors clustered by borrower are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

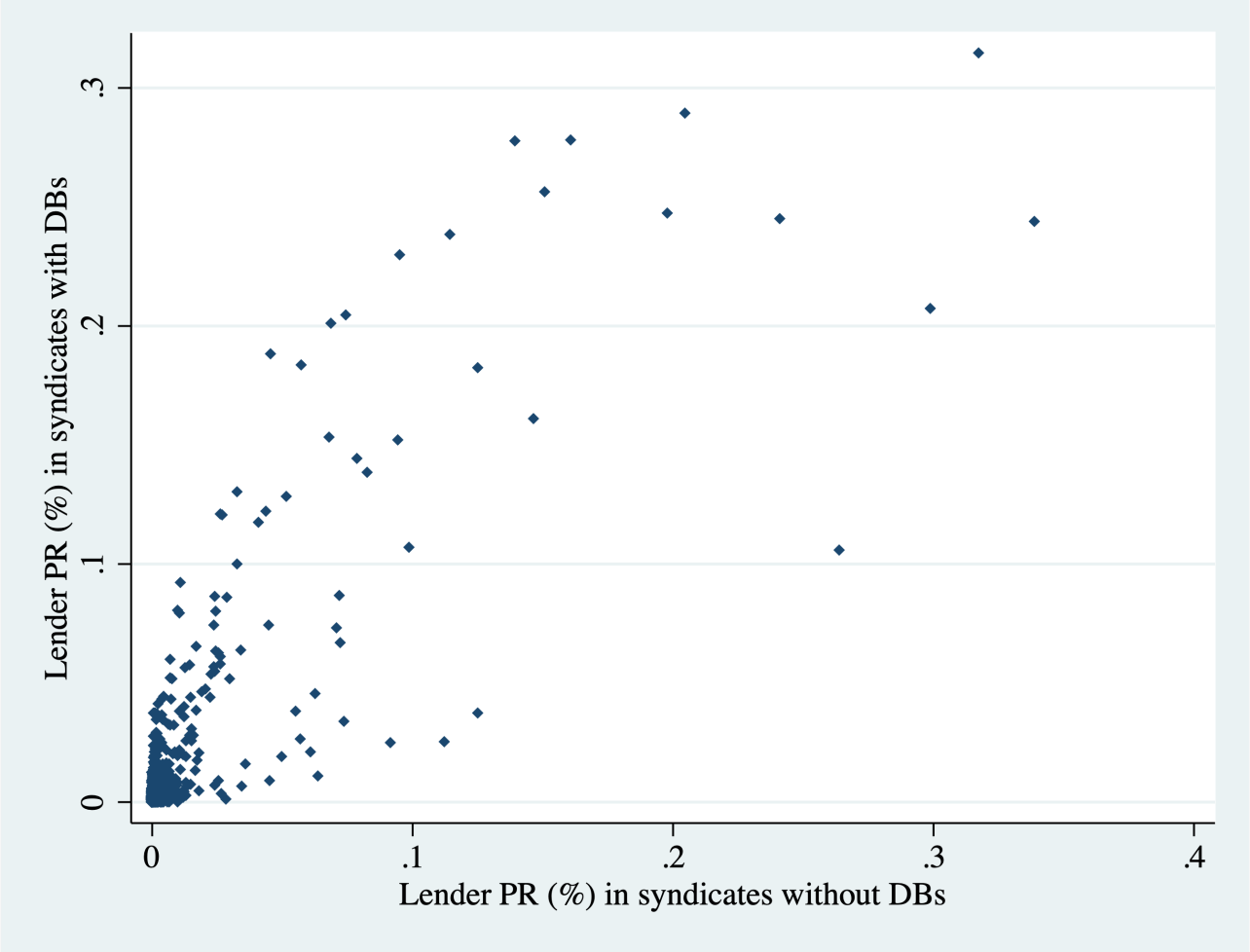
Dependent variable:	Syndicate size (number of lenders)	Lead Share (per cent kept by lead bank)	Concentration (Herfindahl)	Number of foreign participant lenders	Foreign Share (per cent kept by foreign lenders)
	(1)	(2)	(3)	(4)	(5)
DB participant	4.97***	-2.62***	-0.03***	3.70***	4.69***
	[0.47]	[0.97]	[0.01]	[0.40]	[1.17]
The lead bank is a former lender	0.16**	-0.76*	-0.01***	-0.12**	-0.53
	[0.08]	[0.44]	[0.00]	[0.05]	[0.41]
The lead bank is foreign	1.33***	-2.74***	-0.02*	1.95***	16.99***
	[0.16]	[0.79]	[0.01]	[0.12]	[1.08]
Reputation: lead to participant	8.12***	-22.32***	-0.30***	2.82***	3.43**
	[0.29]	[1.85]	[0.02]	[0.17]	[1.62]
Reputation: reciprocal	0.40***	-22.46***	-0.27***	-0.61***	4.39***
	[0.12]	[1.57]	[0.01]	[0.08]	[0.96]
Borrower characteristics	YES	YES	YES	YES	YES
Syndicate characteristics	YES	YES	YES	YES	YES
Country-year characteristics	YES	YES	YES	YES	YES
Loan purpose dummies	YES	YES	YES	YES	YES
Lead bank effects	YES	YES	YES	YES	YES
Country effects	YES	YES	YES	YES	YES
Year effects	YES	YES	YES	YES	YES
Industry (division) effects	YES	YES	YES	YES	YES
Observations	33,216	10,080	10,080	33,216	10,080
r2	0.43	0.46	0.48	0.51	0.64

Table A5: Placebo test

This table reports the coefficient of "DB participant" dummy (randomly assigned) for 1,000 random resamples. Estimations are obtained from the same baseline specification of Table 4.

	Dependent Variable				
	Syndicate size (number of lenders)	**Lead Share (per cent kept by lead bank)**	**Concentration (Herfindahl)**	**Number of foreign participant lenders**	**Foreign Share (per cent kept by foreign lenders)**
Mean	-0.011	0.030	0.000	-0.004	0.024
S.E.	[0.138]	[0.818]	[0.008]	[0.085]	[0.780]
Controls	[see Tab. 5]	[see Tab. 5]	[see Tab. 5]	[see Tab. 5]	[see Tab. 5]

Figure A1: Participation rate by lender (Lender PR)



Appendix B. List of Development Banks

	DB Type	Loan Volume (US$ mio)	Number of Loans	Foreign Share (avg.)
All development banks		2,429,845	1,988	44.0
National-level DFIs		2,333,567	1,855	42.4
Regional-Level DFIs		75,753	94	73.0
Global-Level DFIs		12,249	22	82.1
Sub-National Level DFIs		8,277	17	21.4
Individual development banks:				
Kfw Bankengruppe	National-level DFIs	749,584	349	64.3
Export Development Canada [Edc]	National-level DFIs	545,146	491	56.6
Banco Do Brasil	National-level DFIs	214,214	71	70.3
Ico [Instituto De Credito Oficial]	National-level DFIs	190,665	67	56.2
Development Bank Of Japan Inc	National-level DFIs	89,346	127	15.1
Korea Development Bank	National-level DFIs	77,064	138	46.1
Caisse De Depot Et Placement Du Quebec	National-level DFIs	74,913	50	5.1
Mcc Spa [Ex-Mediocredito Centrale]	National-level DFIs	54,037	23	35.7
Export-Import Bank Of The Republic Of China	National-level DFIs	49,835	116	37.4
China Development Bank [Cdb]	National-level DFIs	46,251	44	39.7
Bank Of Maharashtra	National-level DFIs	33,386	38	0.9
Export-Import Bank Of India	National-level DFIs	33,135	55	16.4
Bladex [Banco Latinoamericano De Comercio Exterior Sa]	Regional-Level DFIs	32,878	43	82.1
Business Development Bank Of Canada	National-level DFIs	21,297	35	
European Investment Bank [Eib]	Regional-Level DFIs	19,922	8	58.9
Export Import Bank Of The United States	National-level DFIs	18,893	17	14.6
Bancomext	National-level DFIs	16,691	20	54.4
Power Finance Corp Ltd	National-level DFIs	15,979	12	0.1

Infrastructure Development Finance Co Ltd	National-level DFIs	13,814	22	1.9
Export-Import Bank Of China [China Eximbank]	National-level DFIs	10,979	17	35.2
World Bank	Global-Level DFIs	10,394	18	91.0
International Investment Bank Bsc [Iib]	Regional-Level DFIs	9,304	3	
Eksportkreditt Norge As [Export Credit Norway]	National-level DFIs	6,801	15	52.1
Japan Bank For International Cooperation	National-level DFIs	6,561	14	79.5
Export-Import Bank Of Korea	National-level DFIs	6,091	15	54.4
Industrial Development Bank Of India	National-level DFIs	6,056	4	0.0
Islamic Development Bank	Regional-Level DFIs	5,845	3	0.0
National Agricultural Cooperative Federation	National-level DFIs	5,788	19	34.0
Svensk Exportkredit Ab Publ [Sek] [Swedish Export Credit Corp]	National-level DFIs	4,804	8	85.2
Caisse Des Depots Et Consignations [Cdc]	National-level DFIs	4,617	3	62.1
European Bank For Reconstruction And Development Ebrd	Regional-Level DFIs	4,455	20	81.2
Government Savings Bank	National-level DFIs	4,297	4	11.6
Societe Nationale De Credit Et D'Investissement	National-level DFIs	3,719	1	
Irfis Mediocredito Della Sicilia Spa	Sub-National Level DFIs	3,112	1	37.5
Banco Estado	National-level DFIs	3,050	13	86.0
Export-Import Bank Of Thailand	National-level DFIs	2,834	4	3.3
Bank Gospodarstwa Krajowego [Bgk]	National-level DFIs	2,688	2	100.0
Banobras	National-level DFIs	2,604	2	10.0
Garanti-Instituttet For Eksportkreditt [Giek] [Norwegian Guar Inst For Ec]	National-level DFIs	2,514	13	9.1
International Finance Co Ksc [Ifc]	Global-Level DFIs	1,855	4	68.8
Nederlandse Financierings-Maatschappij Voor Ontwikkelingslanden Nv [Fmo]	National-level DFIs	1,647	6	57.4
Bank Pembangunan Malaysia Bhd	National-level DFIs	1,585	2	0.0
Bayernlb	Sub-National Level DFIs	1,500	1	
Investitionsbank Berlin	Sub-National Level DFIs	1,402	2	
Cassa Depositi E Prestiti Spa [Cdp]	National-level DFIs	1,354	3	55.2
Rural Electrification Corp Ltd	National-level DFIs	1,179	1	0.0
Eksport Kredit Fonden	National-level DFIs			89.7

		1,142	3	
Nordic Investment Bank	Regional-Level DFIs	1,072	3	64.7
Asian Development Bank	National-level DFIs	1,064	1	
Banco Agrario De Colombia	National-level DFIs	979	1	
Instituto Catalan De Finanzas [Icf]	Sub-National Level DFIs	935	5	13.3
Export Finance And Insurance Corp	National-level DFIs	907	2	58.6
Banca Del Mezzogiorno Mediocredito Centrale Spa	National-level DFIs	865	1	
Lfa Forderbank Bayern	Sub-National Level DFIs	823	7	
Banque Publique D'Investissement [Bpi France]	National-level DFIs	820	1	
Turkiye Halk Bankasi As	National-level DFIs	693	2	
African Export-Import Bank [Afreximbank]	Regional-Level DFIs	650	2	
Investitionsbank Des Landes Brandenburg	Sub-National Level DFIs	505	1	
Turkiye Vakiflar Bankasi Tao [Vakifbank]	National-level DFIs	500	1	
Indonesia Eximbank	National-level DFIs	420	3	59.4
Development Bank Of Southern Africa	National-level DFIs	393	1	
Black Sea Trade And Development Bank [Bstdb]	Regional-Level DFIs	390	1	96.3
Danish Export Credit Fund Eksport Kredit Fonden Ekf	National-level DFIs	378	2	
Agence Francaise De Development [Afd]	National-level DFIs	341	1	
Banco De La Provincia De Buenos Aires	National-level DFIs	310	1	
National Federation Of Fisheries Cooperatives Suhyup Bank	National-level DFIs	303	3	19.0
Compania Espanola De Creditos A La Exportacion Cesce	National-level DFIs	252	1	
Ecowas Bank For Investment And Development	Regional-Level DFIs	250	1	
China Export And Credit Insurance	National-level DFIs	229	1	
African Development Bank [Afdb]	Regional-Level DFIs	220	1	100.0
Finnish Fund For Industrial Cooperation	National-level DFIs	212	2	25.6
Inter-American Development Bank	Regional-Level DFIs	200	1	
Caf Bank	Regional-Level DFIs	150	1	
Sace Spa [Servizi Assicurativi Del Commercio Estero]	National-level DFIs	139	2	
Pak Oman Investment Co Ltd	Regional-Level DFIs	123	3	0.0

Bank Kerjasama Rakyat Malaysia Bhd	National-level DFIs	101	1	
European Investment Fund	Regional-Level DFIs	96	1	
International Bank For Economic Cooperation	Regional-Level DFIs	92	1	
East African Development Bank [Eadb]	Regional-Level DFIs	60	1	16.7
Pak Libya Holding Co Ltd	National-level DFIs	60	1	0.0
North American Development Bank	Regional-Level DFIs	45	1	60.6
Osterreichische Kontrollbank Aktiengesellschaft	National-level DFIs	26	1	
Saudi-Pak Industrial And Agricultural Investment Co Pvt Ltd	National-level DFIs	10	1	
Saudi Pak Industrial And Agricultural Investment Co Ltd	National-level DFIs	6	1	0.0