THE VALUE OF FINANCIAL INTERMEDIARIES: EMPIRICAL EVIDENCE FROM SYNDICATED LOANS TO EMERGING MARKET BORROWERS

by

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Version: 9/29/2004

Abstract

Empirical estimates of the benefit of financial intermediation are constructed by examining the role played by local banks in facilitating syndicated loans to borrowers in emerging market countries. Assuming that local banks possess a superior monitoring ability, the market is ideal for studying the value of intermediation since cross-border lending into emerging markets is plagued by particularly high information and agency costs and the supply of local bank capital is in limited short run supply. Using variation in the propensity of local banks to participate in foreign arranged syndicates, there are two economically important results. First, local banks are much more likely to participate in unconditionally riskier loans. Second, after controlling for borrower characteristics, loan characteristics, and the endogeneity of the local bank lending decision, loans with local bank participation have spreads that are 10 percent lower (29 basis points) than otherwise similar loans. Combined, the results support the conclusion that local banks, a particularly special type of financial intermediary, provide value by considerably reducing financing costs, especially for riskier borrowers.

JEL Classification: G20, G21, G15.
Keywords: financial intermediation, bank loans, emerging market finance.

1 Introduction

In the years since the work of Diamond (1984) and James (1987), it has become conventional wisdom that financial intermediaries (hereafter "banks") act as delegated monitors and that their activity adds value to firms. The understanding is that banks perform credit screening and monitoring that is not done by investors in publicly issued bonds or equity. More recently, the literature on "finance-and-growth" has established a link between banking sector size and the economic progress of nations, providing empirical support that banks' unique value is important enough to affect macroeconomic outcomes (Levine, Loayza, and Beck 2000 provides a review).

The research reported here contributes to these literatures by quantifying part of the benefit transferred to borrowers in emerging markets by locally domiciled banks, who are likely acting as a delegated monitor à la Diamond. Syndicated loans to borrowers in emerging markets are supplied by a combination of foreign developed country lenders and local banks, providing the empirical opportunity to examine the role played by local banks. Emerging market financings are a useful vehicle for identifying the role of banks for two reasons. First, emerging market borrowers are typically presumed to be more opaque than developed country borrowers and legal protections for investor are often weaker (La Porta et al 1998). Moreover, local banks are presumed to be better informed about local borrowers and more able to navigate the local legal system (Berger, Klapper, and Udell 2001). Second, limited short run lending capacity of the local banking system prevents banks from participating in all syndicated loans, providing a sample of firms who borrow entirely from foreign banks to serve as a comparison group for statistical testing.

A rich, loan-level data set on loan syndications is used to compare loans with and without a local bank participating in the syndicate. Assuming that local banks face capital or funding constraints that prevent them from participating in all local firm loans, the empirical tests are of a joint hypothesis: local emerging market banks are better monitors than foreign banks; and monitoring matters, benefiting borrowers through a reduced cost of capital. Empirical results support the hypothesis: Local banks are much more likely to participate in loans to riskier firms, where the benefits of monitoring are larger; and interest rate spreads paid by borrowers are 10 percent (29 basis points) smaller on average when a local bank participates in the syndicate, a large effect despite local banks typically funding only a small share of the loan. These results are from tests that control for borrower characteristics, loan characteristics, and the endogeneity of syndicate participation decisions by local banks.

This new evidence makes three contributions to the literature. First, much of the existing empirical evidence that bank monitoring has value is from the behavior of equity returns. On average, a firm's equityholders react positively to the announcement of a bank loan but negatively to issuance of bonds or common equity (Hadlock and James 2002). This suggests

that bank involvement, or characteristics unique to loan contracts, offer positive externalities not conveyed by other forms of finance. Moreover, excess equity returns are largest for loans to small firms (Slovin, Sushka and Poloncheck 1993) and relatively opaque firms (Best and Zhang 1993), suggesting that bank monitoring is most valuable when adverse selection and/or moral hazard are most severe. The results here add significantly to the case for valuable bank monitoring because they are the first based on loan prices, and they confirm that costs of loan finance are reduced by valuable monitoring.

Second, the evidence suggests that mechanisms supporting bank monitoring activity are more complex than has been presumed to date. Loan syndicates deviate from the canonical Diamond model in that several lenders jointly advance funds to a borrower under the same loan contract, potentially raising the need for duplication of monitoring effort. The lead arranging bank in the syndicate has been presumed to do all the monitoring, to be diligent in order to maintain its reputation, and to fund a larger share of the loan the more challenging the monitoring task (Dennis and Mullineaux 2000 present some evidence supporting this view). The evidence here suggests that non-lead banks funding only a small portion of the loan can perform a monitoring function; and the size of the spread impact suggests that the monitoring benefit provides significant externalities to other lenders in the syndicate.

Third, the evidence offers fresh support for an important role for banks in economic growth. Since financial development is often measured as the size of the local banking sector relative to the size of the economy, prior research results suggest that domestic banks have no close substitute.[1] Here, the role served by local banks in securing financing for riskier borrowers and reducing loan spreads is shown to be large enough to plausibly lead to a substantial increase in economic activity. Recently, financial development has further been linked to larger average firm size (Beck, Demirgic-Kunt, and Maksimovic, 2003) and longer average debt maturity (Demirguc-Kunt and Maksimovic, 1999), suggesting that the value of banks stems from their superior screening and/or monitoring abilities that reduce information and agency costs. The empirical results here support this conclusion, since the evidence indicates that riskier borrowers benefit most from local banks. For example, local bank participation rates and loan spread reductions are larger during periods of high country credit risk, such as Latin America during 2002 and in Eastern Europe during 1999. Monitoring services are likely to be most beneficial during such periods. These results suggests that the positive externalities extending to other syndicate members likely reflect local banks' superior screening and/or monitoring capabilities.

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[1] In this paper, the definition of a local bank excludes the subsidiaries of foreign parent banks, which would be included in the country level aggregate measure of financial development. However, Berger, Klapper, and Udell (2001) show that foreign owned institutions are less likely to lend to opaque small business, suggesting a competitive disadvantage.

The remainder of the paper is organized as follows. The next section provides a discussion of syndicated lending to emerging market borrowers, highlighting features of the syndication process that relevant for the empirical predictions. Section 3 introduces the empirical set-up, an endogenous switching regression model that endogenizes the local bank funding decision. Section 4 describes the construction of the loan sample and explanatory variables, including the instruments for local bank participation that are used to identify the model. Section 5 discusses of the results, and the final section summarizes section draws some conclusions.

2 Syndicated Lending to Emerging Market Borrowers

Syndicated loans involve a collection of banks jointly extending a loan to a particular borrower. Typically, a single loan contract is negotiated by a small number of *arranging banks*, and a larger number of *participant banks* join in funding the loan.[2] In addition to fees shared among the lenders, all lenders providing funds are entitled to receive the contractually determined loan spread, set as a floating rate over a common reference rate such as LIBOR. In general, participants in syndicated loans to emerging markets are motivated by the high spreads offered on the assets as well as the opportunity to diversify their loan portfolios.

2.1 The Syndication Process

The life-cycle of a syndicated loan consists of three distinct phases. During the *pre-mandate* phase, borrowers typically initiate discussions with potential arranging banks and solicit competitive offers to arrange the loan. Individual banks or groups of banks then make proposals to the borrower, indicating their initial preference for various loan terms (e.g. final maturity and covenants) and pricing. From the proposals, the borrower chooses an arranging bank or group of banks and negotiates a more complete loan contract and tentative pricing structure. During the *post-mandate* phase, the arranger(s) commences with the actual syndication process, which includes drafting an initial version of the loan contract, preparing an information package to send to potential participants, and formally inviting participant banks to join the syndicate. Finally, during the *post-signing* phase, the loan becomes operational and both borrowers and lenders are bound by the stipulations of the loan contract. Further discussion of the post-mandate phase highlights how participating banks can influence the structure and pricing of a syndicated loan.

The post-mandate phase begins with the borrower and arranger collectively organizing an *information memorandum*, which documents the principal credit issues associated with

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[2] Non-bank financial institutions (including investment banks, insurance companies, hedge funds, and special purpose financing vehicles) also participate in loan syndications. However, the term 'bank' will often refer to any member of the syndicate.

the loan. The purpose of the information memorandum is to inform potential participants about the credit quality of the borrower and specific terms and conditions associated with the particular loan. Market participants suggest that the exact nature of this document varies across both borrowers and potential participants. Less well known borrowers and borrowers of poorer credit quality require a more extensive release of information. Similarly, potential lenders that are less familiar with the borrower or the borrower's industry and location often demand more disclosure.

The initial set of targeted participants is largely determined by the arranging bank(s), possibly with some input from the borrower. Market participants suggest that several initial criteria are used to identify potential interest, including banks with previous working relationships with the arranger(s), banks who have participated in loans to borrowers from a similar region or industry, and banks with previous experience with the particular borrower. If this set of banks appears too small, the arranger(s) will cast a wider net by more broadly advertising the deal. Here is where the arranger's experience and reputation are particularly important.

After distributing the information memorandum, the borrower and arranging bank(s) often launch a 'roadshow', where they have the opportunity to sell the transaction to interested participants. The arranger and borrower jointly present information similar to that in the information memorandum but also permit participants to ask questions and personally meet the individuals associated with the transaction. Market participants again suggest that this process is particularly important for less well known borrowers, such as first-time borrowers in the market.

The information memorandum and roadshow suggest that information asymmetries are an important source of friction in the lending process. Obviously, information asymmetries are loan specific, varying with the borrower's country and industry, the borrower's history, and other borrower specific characteristics. Additionally, the post-mandate phase suggests that information asymmetries are primarily mitigated through increased disclosure and selective choice of potential participants who are likely to be at the least information disadvantage.

After the roadshow, the arranging bank(s) makes formal invitations to potential participants. While the borrower may have some input in this step, the arranger is generally free to determine the set of potential participants. The number and choice of participants is influenced by the arranger's opinion of the market's potential supply of funds. Arrangers want to avoid over-subscription, since that can leave participants with smaller amounts than they were anticipating. They also want to avoid under-subscription, since the remedies can leave an impression of failure that will hurt future business. The result is that arrangers tend to target participants with the "largest appetite" for the loan and make invitations to banks willing to supply the most funds given the structure of the loan.

The final step is for the arranging bank(s) to determine the allocation given to each participant, with the arranger adjusting participant commitments to match the borrower's desired loan size. In the case of over-subscription, the borrower may choose a larger loan or the arranger can scale back allocations. If the syndication is under-subscribed, the arranger must either make up the difference or change loan terms and re-market the deal. With fully underwritten loans, the arranger(s) must make up the difference under the existing loan terms. More common, however, is that the syndication is done on a best efforts basis, so the arranger(s) can change the terms of the loan (e.g. increase pricing or shorten maturity) to make it more attractive to participants. Some portion of the post-mandate phase is then repeated to attract larger commitments or new participants.

The various steps of the syndication process highlight that problems of asymmetric information present a considerable concern related to the provision of the loan. Moreover, information acquisition is the primary means for addressing the problem, and the arranging banks work to minimize the cost of this process.

2.2 Syndicated Lending into Emerging Markets

Syndicated loans represent an important source of external finance to emerging markets. Table 1 compares three components of the flow of private market financing into emerging markets: equity, bond, and syndicated loan financing. In general, loan syndications provide financing comparable to bond markets and much larger than equity markets. While importance varies across regions and over time, syndicated loans have served an important role in financing emerging market borrowers during this period.

Syndicated loans are most often arranged by banks from developed countries who may or may not have a local presence in the borrower's country. Loan arrangers tend to be large, internationally active banks who have the networking ability to place the loan with a wide range of participants. Table 2 presents syndicated loan market shares in Latin America and Eastern Europe for lenders from several regions around the world. The data suggest that Western European lenders have been significant lenders into both regions, while North American lenders have done significant lending into Latin America.

The market shares of banks from Latin America and Eastern Europe provide circumstantial support for two important assumptions. First, despite being a natural source of funds to local borrowers, banks from Latin America and Eastern Europe provide only 6 percent of the funding to their local borrowers. While not conclusive, the small share suggests that capital constraints are severe enough to keep local banks from controlling the market. Second, banks from Latin America and Eastern Europe lend only to their local borrowers and have not participated in any loans to borrowers outside their local region.[3]

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[3] Emerging market banks have participated across country borders but not across regions.

This intimates that emerging market banks have an advantage lending to their local borrowers that does not transfer to foreign borrowers.[4] Combined, the market share statistics are consistent with the assumption that local banks have limited means to offer their unique abilities to all borrowers.

3   Empirical Set-Up

Participation decisions of local banks are presumably based on the benefits and costs of inclusion versus the alternative of using only foreign banks. Treating the participation decision as endogenous, loan spreads are modeled with an endogenous switching regression model first analyzed in Maddala and Nelson (1975),[5] The model consists of two spread equations and an equation that determines which syndicate structure is actually observed. Correlation between the error terms in the equations controls for the endogeneity of the participation decision, since both participation and loan spreads are likely related to variables not observed in the data.

Empirically, letting I be a 0-1 variable that indicates the presence of a local bank and S_L and S_N be loan spreads with and without local participation, respectively, the model is given by the following equations:

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\begin{aligned}
\ln S_L &= \boldsymbol{b}_L{}' X + \boldsymbol{m}_L \quad &\text{if } I = 1 \\
\ln S_N &= \boldsymbol{b}_N{}' X + \boldsymbol{m}_N \quad &\text{if } I = 0 \\
I^+ &= \boldsymbol{b}_I{}' Z - \boldsymbol{m}_I \\
I &= \begin{cases} 1 \text{ if } I^+ > 0 \\ 0 \text{ otherwise} \end{cases},
\end{aligned}
\tag{1}
$$

where X is a set of exogenous variables affecting loan spreads, Z is a set of exogenous variables affecting the probability of local participation, and $\boldsymbol{m}_L$, $\boldsymbol{m}_N$, and $\boldsymbol{m}_I$ are error terms capturing the effect of unobservable risk factors. The vector of variables Z includes all the variables in X, plus additional variables that assist with model identification.

Correlation between the random variables $\boldsymbol{m}_I$ and $\boldsymbol{m}_L$, $\boldsymbol{m}_N$ truncates the sample of observed loan spreads, since $E(\boldsymbol{m}_L \mid X, I = 1) \neq 0$ and $E(\boldsymbol{m}_N \mid X, I = 0) \neq 0$. Intuitively, the inclusion of a local bank reveals information about unobservable characteristics that may also influence the resulting loan spread. OLS estimates of $\boldsymbol{b}_L$ and $\boldsymbol{b}_N$ from (1) are inconsistent.

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[4] Carey and Nini (2004) document a similar 'home bias' for borrowers from developed countries.

[5] Miller and Puthenpurackal (2002) compare spreads on Yankee bonds and Eurodollar bonds using a switching regression model that permits issuance choice to be endogenous.

However, assuming that the error terms are independently and identically distributed across observations as multivariate normal with zero mean vector and covariance matrix

$$\text{cov}\left(\boldsymbol{m}_L, \boldsymbol{m}_N, \boldsymbol{m}_I\right) = \begin{bmatrix} \boldsymbol{s}_L^2 & \boldsymbol{s}_{LN} & \boldsymbol{s}_{LI} \\ & \boldsymbol{s}_N^2 & \boldsymbol{s}_{NI} \\ & & 1 \end{bmatrix},$$

the model is estimated by full information maximum likelihood.

Since only one spread per loan is observed, counterfactual loan spreads must be constructed with the estimated model parameters. The counterfactual loan spreads are then used to assess the impact of local lender participation. The error terms in (1) are conditionally normally distributed:

$$\left(\boldsymbol{m}_N \mid X, I=1\right) \sim \text{N}\left[-\boldsymbol{s}_{NI}\boldsymbol{l}_L,\ \boldsymbol{s}_N^2 - \boldsymbol{s}_{NI}^2\boldsymbol{l}_L\left(\boldsymbol{b}_I{}'Z + \boldsymbol{l}_L\right)\right]$$

$$\left(\boldsymbol{m}_L \mid X, I=0\right) \sim \text{N}\left[\boldsymbol{s}_{LI}\boldsymbol{l}_N,\ \boldsymbol{s}_L^2 - \boldsymbol{s}_{LI}^2\boldsymbol{l}_N\left(\boldsymbol{b}_I{}'Z + \boldsymbol{l}_N\right)\right] \qquad (2)$$

$$\text{where } \boldsymbol{l}_L = \frac{f\left(\boldsymbol{b}_I{}'Z\right)}{\Phi\left(\boldsymbol{b}_I{}'Z\right)},\quad \boldsymbol{l}_N = \frac{f\left(\boldsymbol{b}_I{}'Z\right)}{1-\Phi\left(\boldsymbol{b}_I{}'Z\right)}.$$

For loans with local participation, the counterfactual of interest is the expected loan spread without local participation, conditional on the fact that the loan did have local participation, $\text{E}\left(S_N \mid X, I=1\right)$. The impact of local participation is then given by the difference between the actual loan spread S_L and this counterfactual. Using (1) and the properties of the log-normal distribution, the counterfactual is given by

$$\text{E}\left(S_N \mid X, I=1\right) = \exp\left(\boldsymbol{b}_N{}'X + \text{E}\left(\boldsymbol{m}_N \mid i=1\right) + .5\text{Var}\left(\boldsymbol{m}_N \mid i=1\right)\right). \qquad (3)$$

Substituting empirical estimates into (2) and (3) yields the estimates used to construct the counterfactual and the estimated local lender impact. The counterfactual is constructed for each sample loan, resulting in a sample of loan spreads and estimated counterfactuals. Various statistics from this sample are used to make inferences about the impact that local borrowers have on borrowing costs.

4 Sample Construction and Identification

4.1 Loan Data Generation

Loanware is a dataset compiled by a division of Dealogic, a joint venture by Computasoft Ltd. and Euromoney Institutional Investor Plc. Dealogic compiles new issue information on global syndicated loans, collecting borrower information, syndicate composition, and various

details of each loan. The original sample consists of all loan tranches in the Loanware database where the borrower is from a country in Eastern Europe or Latin America. Restricting the sample to loans signed between the beginning of 1995 and the end of 2002, the May 2003 release yields 3,969 unique loan tranches.[6] In order to create a homogeneous sample of syndicated loans to non-sovereign entities, several categories of loans are removed from this set: first, tranches identified as amendments to existing loans and loans remaining uncommitted as of the release date; second, loans identified as private placements and bilateral loans between a borrower and a single lender; third, loans to borrowers identified as government entities and project finance companies; fourth, loans not made in U.S. dollars or Euros (including legacy currencies) and loans not priced over LIBOR. These restrictions reduce the sample to 3,095 tranches. Next, tranches without complete syndicate information (including all arranging and participant banks, along with amounts provided), pricing information, and maturity are dropped. These restrictions reduce the sample to 1,384 loan tranches.[7] Finally, the sample is restricted to countries with at least 20 tranches meeting the above criteria. This final restriction leaves a final sample of 1,143 loan tranches to borrowers in 13 countries.

Table 3 provides the list of countries included in the sample along with the number of tranches from each country. In Latin America, the sample is dominated by borrowers from Argentina, Brazil, Chile, and Mexico. The distribution is more even in Eastern Europe, except that Russian borrowers represent roughly 40 percent of the sample.

For each lender in the syndicate, Loanware provides both the lender's country of domicile as well as information about any parent organization, including country of domicile. For the purpose of this study, a *local lender* is defined as a bank domiciled in the same country as the borrower that does not have a foreign parent. Since considerable merger and acquisition activity occurred during the sample period, the *Bankers Almanac World Ranking* is used to verify the nationality of each bank's head office.[8]

Using this definition of a local lender, foreign banks with subsidiaries in the borrower's country are not considered as local and are grouped with foreign banks that do not have a local subsidiary. This definition of a local bank is potentially restrictive, but it isolates banks

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[6] On occasion, a single borrower will enter into more than one loan tranche organized by the same arranger(s) and commencing on the same day. Rather than aggregate multiple tranches into a single loan "deal", each tranche is treated as a separate observation. Results are robust to the random exclusion of all except one tranche in a deal.

[7] The significant exclusion predominately reflects loans without pricing information. The incidence of missing information is slightly higher than that for loans to borrowers in developed countries. The excluded tranches tend to be smaller and have fewer lenders but otherwise appear similar.

[8] The Bankers Almanac data is hand collected from printed sources, which is the primary reason that the sample is restricted to Latin America and Eastern Europe. Among emerging market regions, developing Asia has the most advanced syndicated loan market but has significantly more banks to check ownership.

most likely to have an information and/or monitoring advantage as well as banks subject to capacity constraints. Foreign banks with a local subsidiary have a foreign source of capital at their disposal, making it empirically much harder to identify exogenous factors that affect the likelihood of inclusion in the syndicate. Identifying differences between foreign banks with and without a local presence is left for future research.

Table 3 also provides information about the lenders participating in each country. The second and third columns report the total number of unique local and non-local lenders that have participated in at least one sample loan. Notice that the number of local banks varies significantly across countries, with Brazil having 15 local banks and the Czech Republic having only 2 local banks. In the multivariate results presented below, the number of local banks is used as a variable to control for differences in the likelihood of local participation. Similarly, columns 5 and 6 report the aggregate frequency with which local and non-local banks participated in sample loans. While non-local banks are present in every syndicate, local banks participate in roughly 27 percent of the loans across the whole sample. Again, there is significant heterogeneity across countries. Finally, columns 7 and 8 report the average share of the loan provided by local and non-local banks, conditional on local participation. Most importantly, when local banks do participate, they provide a modest but non-trivial share of the loan, averaging 13 percent of the total in Eastern Europe and 16 percent in Latin America.

4.2 Local Bank Inclusion Variables

One cost of including a local bank is related to the cost of capital that the local bank must use to support the loan. Local bank capital is scarce and in inelastic supply in the short-run, which creates both a direct cost and an opportunity cost since capital committed to a syndicated loan becomes unavailable for alternative uses. Empirically identifying variables related to capital costs is difficult, and Table 3 suggests that they likely vary by country. Moreover, capital costs likely vary over time as conditions in local savings and investment markets change.

Two variables are used to capture variation in capital costs. First, NUMBNK is the natural logarithm of the number of local banks that have participated in a syndicate in the borrower's country. This variable represents the total number of local banks available to arranging banks when selecting participants. While this variable is potentially endogenous, comparison of the values with the *Bankers Almanac World Ranking* suggests that nearly all large local banks have participated in at least one syndicated loan. So this variable really captures the total count of potential local banks.

Second, LOCALLIQ is the ratio of the liquid liabilities of banks to GDP in the borrower's country, constructed annually from the IMF's *International Financial Statistics*. This variable is available historically in the World Bank's Financial Development Database and is often

used as a measure of financial development. Here, variation across countries and over time is used to capture variation in financing capabilities. Liquid liabilities are comprised primarily of time, savings, and foreign currency deposits of resident sectors other than the central government. This represents the primary source of funding for local banks and is likely to be highly correlated with the cost of local bank capital. Esty (2003) uses this country level variation in this variable and finds that domestic banks supply a larger fraction of funds in project finance loans when the domestic banking market is deep.

4.3 Credit Risk Variables

Institutional Investor country credit ratings control for variation in credit risk across countries. This variable, labeled IICREDIT, is taken from the most recent issue of *Institutional Investor* magazine prior to the signing of the loan. The measure is based on a bi-annual survey of approximately 100 international bankers that results in a score between 0 and 100, with higher values representing better risk. The variable is measured at the country level and only varies at a twice per year frequency. Both a linear term and a squared term IICREDITSQ are included to permit non-linear effects. Further since credit risk varies with macroeconomic business cycles, IICREDIT and IICREDITSQ are interacted with year dummy variables to permit the marginal effects to vary over time. This interaction helps remove some of the ordinal nature that is likely part of the ratings. The 8 years of data yields 16 total variables to capture country and year level variation in credit risk. Esty (2003) finds this variable is significantly related to spreads on project finance loans.

Since NUMBNK and LOCALLIQ capture differences in local bank inclusion costs and IICREDIT-year variables measure credit risk, empirical identification of the local bank effect results primarily from comparing loans made in country-years of similar credit risk with different numbers of local banks and/or liquid liabilities. The implicit assumption is that NUMBNK and LOCALLIQ are correlated with the probability of local bank participation but conditionally uncorrelated with credit risk so as to not affect loan spreads. The data support this assumption.

Several other explanatory variables related to the loan and the borrower are used to provide additional controls for observable differences in credit risk. Only a small percentage of borrowers have outstanding debt that is rated by a rating agency (Standard and Poor's or Moody's), so the dummy variable UNRATED is set to one to simply indicate the lack of an agency rating. Borrowers without a rating are likely to be of worse credit quality, less transparent, and carry higher spreads.

Three dummy variables are related to the type of borrower. First, FINANCIAL indicates that the borrowing firm is a financial intermediary. Financials are known to have unique credit risk related to the nature of their liabilities (which are often deposits) and explicit or implicit public support. Second, PUBLIC is a dummy variable that indicates the borrower is

at least partially owned and controlled by the government. Similar to a financial firm, a public firm may receive explicit or implicit financial support that makes it a better credit risk. Finally, LOCALFIRM is an indicator that the firm is locally owned and controlled, as opposed to an affiliate of a foreign firm. Most borrowers are not subsidiaries of foreign parents, who likely present a unique credit risk due to the existence of a parent organization based in another country. Borrower industry dummy variables are included as further controls for credit risk. Telecommunications, real estate, and energy-related firms are responsible for a large portion of total borrowing, measured by the count and quantity of total loans, in emerging markets during the period.

Several dummy variables are related to the type and purpose of the loan. The dummy variable TYPE_REV indicates that the tranche is a revolving credit facility, with the alternative being a funded term loan. Under a revolving facility, many of the proceeds available to the borrower are not drawn, exposing lenders to less credit risk and typically resulting in smaller spreads. PURP_CHGCTRL indicates that the loan is funding an event that changes significant control of assets, such as a merger or acquisition. PURP_CAPSTR indicates that the loan funds are being used to manage the borrower's capital structure, for example by refinancing existing debt. Relative to a loan for working capital, the excluded category, such loans are typically considered riskier and carry higher spreads. These variables help control for differences in credit quality across sample loans and may also be related to the propensity for local banks to fund the loan.

Several contract specific loan terms are used to provide further controls for credit risk: the size of the loan, the maturity of the loan, and an indicator of the presence of collateral. Since all of these variables are endogenous, estimated coefficients are likely biased and not directly interpretable. However, they do provide a control for the credit risk associated with the borrower. Moreover, discrete variables are created to minimize the endogeneity problem, using endpoints near sample quartile values to create dummy variables. SIZE50100 indicates a loan between $50M and $100M; SIZE100150 indicates a loan between $100M and $150M; SIZE150250 indicates a loan between $150M and $250M; and SIZE250p indicates a loan larger than $250M. The largest category includes roughly the top 10 percent of loans by size. MAT1836 indicates a maturity between 18 months and 3 years; MAT3660 indicates a loan between 3 years and 5 years; and MAT60P indicates a loan longer than 5 years. Finally, SECURED indicates a loan that is specifically collateralized. Reported results are robust to the specific form of the maturity variable and the exclusion of SECURED. Results are rather sensitive to the specific form of the size variable, but the qualitative conclusions remain. The likelihood of local bank participation appears highly non-linear in the size of the loan, likely due to the fact that loan size reflects both the nature of the underlying project and the credit risk of the borrower. Larger loans are typically granted to less risky borrowers, yet larger

loans require more capital that can strain the capacity of foreign banks.[9] These confounding effects are difficult to separate.

Finally, the number of members in the syndicate is used to provide an additional control for various factors that influence both the credit risk of the borrower and the likelihood that a local bank is included in the loan. Carey and Nini (2004) show that syndicated loan spreads are positively correlated with the number of lenders in the syndicate, possibly due to reduced access to ancillary business from developing a relationship with the borrower. Alternatively, the number of syndicate members may be a proxy for the credit risk of the borrower, since lenders manage exposure to riskier borrowers. A discrete version of lender number is created as follows. NBANK46 indicates a loan with at least 4 lenders but no more than 6 lenders; NBANK713 indicates a loan with at least 7 lenders but no more than 13 lenders; NBANK14P indicates a loan with at least 14 lenders; and the excluded category is loans with less than 4 lenders. These categories are roughly the sample quartiles, but results are robust to the exact specification of this variable.

5 Empirical Results

The empirical model (1) is estimated by maximum likelihood, using the Newton-Raphson algorithm with numerical derivatives. The estimated variance is given by the inverse of the information matrix, computed numerically using the final Hessian matrix. All hypothesis tests use simple Wald statistics, which use the asymptotic standard errors and assume that the estimated model is the true model.[10]

As suggested in Heckman et al (1998), the sample is pared slightly to create a more comparable set of loans with and without local participation. Inspection of the sample indicates that loans with local participation are slightly larger, slightly longer in maturity, and have larger syndicates on average. Some of the average difference is created by very large loans, very long maturity loans, and very large syndicates. In order to create more homogeneous samples, very large loans (greater than $500M), very long loans (longer than 8 years), and loans with large syndicates (more than 35 members) are excluded. These restrictions exclude 44 observations. reducing the sample to 1,099 observations. The remaining credit risk variables are indicator variables, so these restrictions ensure that the samples are comparable along the dimension of observable variables.

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[9] While foreign capital is often less constrained than local bank capital, in practice foreign banks place limits on the exposure that their loan desks can take. Risk management practices typically result in country and borrower specific limits that serve as a ceiling on the total exposure to a particular country or borrower. These limits are allocated by product, often resulting in loan specific country and borrower limits. Moreover, the number of potential foreign participants is limited, so large loans can put a strain on foreign bank capacity.

[10] Likelihood ratio statistics, which do not make such a strong assumption about the model, produce similar results.

5.1 Determinants of Local Lender Participation

The first two columns of Table 5 present estimates for the model of local participation. The first column reports the coefficient estimates, and the second column reports the estimated probability impact computed at the sample average probability of local participation.

The two variables used as instruments for local bank participation have the expected sign and are statistically significant. The number of local banks active in loan syndications is positively related to the likelihood that a local bank participates in a loan. For example, increasing the number of local banks from 7 (as in Chile) to 13 (as in Columbia) increases the probability of local participation by 6.4 percentage points. With the unconditional likelihood of local participation in Latin America only 27 percent, this represents nearly a 25 percent increase in the frequency of local lender participation. Similarly, the level of local liquidity, measured by LOCALLIQ, is significantly positively related to local participation. For example, increasing the level of local liquidity from .21 (Poland in 1997) to .31 (Poland in 2001) increases the probability of local participation by 3.1 percentage points. This represents nearly a 15 percent increase in the frequency of local participation in Poland.

The remaining coefficients indicate a local bank preference for riskier loans, as identified by the independent variables. Local lenders significantly prefer local firms (LOCALFIRM is positive), non-financial firms (FINANCIAL is negative), and unrated firms (UNRATED is positive). These variables likely indicate riskier borrowers who are more opaque to foreign lenders. In the sample, such borrowers have higher average loan spreads, consistent with them being more risky. While not shown in the table, the country credit risk measures suggest that local banks participate more often in riskier countries, with IICREDIT generally positive and IICREDITSQ generally negative, although statistical significance varies across years.

Finally, local lenders are significantly more likely to participate in loans that have larger syndicates. Increasing the syndicate size from less than four members to at least seven members increase the probability of local participation by 50 percentage points, a very large increase. Given the syndication process discussed above, this result is not surprising. Larger syndicates require the arrangers to broaden their search, increasing the likelihood that a local bank will be targeted. Results are qualitatively robust to segmenting the sample into loans with at least seven lenders and loans with strictly less than seven members.[11]

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[11] The data indicates that participation increases rather quickly as syndicate size moves above three members. However, further segmenting the sample drastically reduces sample sizes. Above six lender, the participation frequency remains relatively constant.

5.2 Determinants of Loan Spreads

The last three columns of Table 5 present results for the model of loan spreads. The third and fourth columns report coefficient estimates for loans with no local bank participation and loans with local bank participation, respectively. The fifth column reports the difference between the coefficient estimates.

In unreported OLS regressions, adjusted R-squareds indicate that the models do a rather good job in explaining loan spreads, with the variables explaining roughly 50 percent of the variation in the data. Much of the explanatory power comes from the IICREDIT and IICREDITSQ variables, which vary by year and provide 16 additional variables not shown in the table. The estimated coefficient on IICREDIT is negative in every year and significantly different from zero at the 1 percent level in all cases. Borrowers from higher ranked countries receive lower spreads. IICREDITSQ is positive in every year and significantly different from zero at the 5 percent level in six of the eight years, suggesting a non-linear relationship between the Institutional Investor rating and spreads. Estimated coefficients do tend to vary over time, and the data easily rejects the hypothesis that IICREDIT and IICREDITSQ are constant over time. In general, the coefficients suggest that a higher ranking provides more benefit during periods of global macroeconomic stress, such as in 1999 and 2001 when average loan spreads were very high.

The coefficients on other control variables tend to have the expected pattern. Financial firms (FINANCIAL), firms with public ownership (PUBLIC), and firms with a foreign parent (the complement of LOCALFIRM) receive significantly lower spreads, but only when there is no local bank participation. Given the result that local banks are less likely to participate in loans to such borrowers, the results suggest that local bank participation is most valuable where spreads would otherwise be higher: non-financial firms, purely privately owned firms, and firms domestically owned. Compared to the complement borrower types, these firms are likely to be more opaque, subject to higher agency costs, and generally riskier. However, with a local bank participating in the syndicate, these firms receive prices similar to other firms.

The type of loan matters for pricing, with revolving credit lines (TYPE_REV) receiving lower spreads. This result replicates the finding in Carey and Nini (2004) for a larger sample of loans to borrowers from developed countries. Similarly, the purpose of the loan matters, as loans funding significant growth (PURP_CHGCTRL) or changes in capital structure (PURP_CAPSTR) carry spreads higher than loans funding working capital used for unspecified purposes. The impact of these variables does not vary with the participation of a local lender.

The maturity variables (MAT1836, MAT3660, MAT60p) suggest that loans with maturity longer than 18 months receive slightly lower spreads, and the effect appears slightly stronger for loans without local participation. The loan size variables (SIZE50100, SIZE100150, SIZE150250, SIZE250P) indicate that larger loans receive slightly lower spreads, and the

effect does not vary based on local participation. Secured loans (SECURED) carry larger spreads, likely reflecting unobserved risk related to the borrower that is correlated with the use of collateral in the loan. Finally, the number of banks in the syndicate (NBANK46, NBANK713, NBANK14P) does not appear related to loan spreads.

Finally, the estimated covariance between error terms indicates a significantly negative correlation between the error term in the local bank participation equation and the error term in the spread equation without local participation. This implies that when the participation error is unexpectedly high, making it less likely that a local bank will participate in the loan, the loan spread tends to be unexpectedly low. This likely reflects the exclusion of certain borrower specific risk traits that have an effect similar to the variables FINANCIAL, PUBLIC, and LOCALFIRM. These variables all suggest that loans carrying lower spreads are less likely to have a local lender, likely because arranging banks can more easily find foreign banks for such loans, since they likely require less monitoring.

5.3 *The Impact of Local Participation on Loan Spreads*

The coefficient estimates reported in Table 5 are used to construct the counterfactual loan spreads derived in (3). For loans with local participation, comparing the counterfactual with the actual loan spread yields an estimate of the difference in spreads that would have resulted had no local lender participated in the loan. For the 304 loans with local participation, the sample mean (median) impact is -29 (-29) basis points, meaning that the average loan with local participation had an economically significantly lower spread than an otherwise similar loan without local participation. The standard error of the mean estimate is 11.7 basis points, so the average impact is statistically different from zero at conventional significance levels. The 25th percentile of the distribution -98 bps, but the 75th percentile is +84 bps. Several sources of variation in the estimated impact are addressed in Table 6.

Panel A presents the impact of local bank participation by the borrower's country. The median estimate is similar in Latin America and Eastern Europe but shows significant variation by country. In 10 of the 13 countries, the median impact is negative, confirming the extensive effect of local bank participation. However, the impact appears larger in some countries, Venezuela and Croatia for example, than in other countries, such as Chile, Colombia, and Russia, where the effect is positive.

Panel B presents the results by year of the loan. Again, the median impact is negative in most years but displays substantial variation. The variation is, in part, due to sampling variation created by the small sample size in any particular year. However, the estimates also suggest a pattern that reflects the underlying costs and benefits of locally provided finance. In years of macroeconomic crisis, Latin America and 2002 and Eastern Europe in 1999, the impact of local bank participation is relatively large. During these episodes, local banking capacity (confirmed by measure of banking liquidity relative to GDP) was relatively scarce,

making the inclusion of a local bank relatively costly. However, the benefit conveyed to the borrower is relatively large, as reflected by the large spread impact.

Panel C shows the local participation impact across various categories of borrowers and time periods. Most noticeably, local firms, non-financial firms, and private firms receive a larger benefit than the average loan, with the mean and median impact in these groups more negative than average. Such firms are generally considered to be more opaque and likely to be plagued by larger agency and information costs. Without local participation, Table 5 indicates significantly higher spreads for such firms, reflecting their larger credit risk. Finally, the bottom two rows of Table 6 show the estimated impact during times when country credit risk is relatively high and times when country-level banking liquidity is relatively high. The splits are formed by country by taking observations above and below the median values of LOCALLIQ and IICREDIT, so each country contributes observations to each portion of the sample. During periods of high LOCALLIQ, the impact of local participation is slightly smaller than periods of low LOCALLIQ, reflecting the smaller cost of including a local bank and the equilibrium result that more local banks are included in syndicates. However, during periods of high IICREDIT, the impact is even larger than average, indicating that local participation is most valuable when country credit risk is high. It is during these times when monitoring services are most valuable.

6 Conclusions

Variation in the inclusion of a local bank in syndicated loans to emerging market borrowers confirms two important results regarding the benefit of financial intermediation. First, local banks appear to reduce borrowing costs that would otherwise be charged by a syndicate composed of all foreign lenders. Second, the benefit conveyed by local lenders is largest for riskier borrowers, resulting in foreign arranging banks strategically using local banks for such loans.

The reduction in loan spreads is economically quite large, roughly 10 percent of the average spread. The size of the benefit suggests that local banks provide a positive externality that permits other lenders to increase their supply of funds at a given spread, or equivalently, reduce their required spread for a given amount of funding. The externality likely reflects a reduction in information or agency costs that benefits all syndicate members, a conjecture supported empirically by identifying cases where the benefit is largest: local, non-financial, and non-public firms borrowing during periods of high country risk.

The data confirms the industry's perception that syndicate members are strategically chosen to maximize the likelihood of successful syndication. Here, all-foreign-lender syndicates tend to have lower spreads, suggesting that foreign banks are attracted to firms with lower credit risk. This is consistent with industry practice of finding willing foreign banks first before moving on to local banks.

Finally, those concerned that foreign banks 'cherry pick' the best borrowers and leave local banks with 'lemons' must account for the likely advantage that local banks have in serving riskier borrowers. The data used here do confirm an unconditional positive correlation between local banks and loan spreads, reflecting that local banks are more often included in syndicates for riskier borrowers. However, local banks appear to have a beneficial influence on realized spreads by lowering them from what they would be otherwise. The aggregate result is a lower cost of capital for local borrowers, which is an unambiguous positive for the country. Any increased risk concentrated in local banks should be handled through bank capital and/or prudential regulation rather than through restrictions on the borrower-lender matching process.

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Table 1. Gross Private Market Financing to Emerging Markets

Numbers in bold are the total amount of private financing to emerging market countries within a particular region, measured in billions of U.S. dollars. The share amounts are the dollar shares of each instrument reported in percentage points. The source of all the data is IMF, Global Financial Stability Report (2003).

Region	1995	1996	1997	1998	1999	2000	2001	2002
Eastern Europe	**17.3**	**21.6**	**38.9**	**35.6**	**26.2**	**37.0**	**22.8**	**30.3**
Bond Share	38	35	42	67	53	38	51	49
Equity Share	3	6	8	7	5	9	1	5
Loan Share	58	59	50	26	42	53	48	45
Latin America	**35.9**	**63.0**	**89.2**	**65.7**	**61.4**	**69.1**	**52.7**	**31.4**
Bond Share	65	74	58	60	62	52	64	58
Equity Share	2	6	6	0	1	7	0	0
Loan Share	34	20	36	40	36	41	36	42

Table 2. Market Shares and Portfolio Allocations by Lender Region

Market shares are based on actual loan allocation amounts in 2002 only. The borrower's country is based on the location of the borrowing entity, while the lender's region is based on the location of the lenders parent. The World Share row reports the market share of lenders in the global syndicated loan market for 2002. All data is taken from the Loanware sample described in Section 4.1.

Borrower Country	Lender Region					
	North America	Western Europe	Japan	Latin America	Eastern Europe	Other
Latin America	**34**	**51**	**7**	**6**	**0**	**3**
Argentina	33	54	3	5	0	5
Brazil	33	44	11	8	0	3
Mexico	36	50	6	5	0	2
Other	32	56	5	5	0	3
Eastern Europe	**8**	**72**	**7**	**0**	**6**	**7**
Poland	9	68	8	0	9	5
Russia	4	77	7	0	4	8
Other	10	71	5	0	6	8
World Share	46	41	8	0	0	4

Table 3. Syndicate Composition

The borrower's country is based on the location of the borrowing entity. Loan Tranches is the total number of observations. Number of banks reports the aggregate number of unique banks participating in loans to borrowers from each country. Local banks are based in the borrowers country and not subsidiaries of foreign institutions. Number of Banks reports the total number of unique local and non-local lenders that have participated in at least one sample loan. Incidence Frequency the aggregate frequency, by loan count, with which local and non-local banks participated in sample loans. Condition Allocation reports the average percentage of a loan provided conditional on a local bank in the syndication. The source of the data is Loanware over the entire sample period 1995-2002, as described in Section 4.1.

Borrower Country	Loan Tranches	Number of Banks		Incidence Frequency		Conditional Allocation	
		Local	Other	Local	Other	Local	Other
Latin America	786	65	88	27	100	16	84
Argentina	142	10	21	30	100	15	85
Brazil	153	15	27	48	100	16	84
Chile	151	7	14	9	100	19	81
Colombia	65	13	14	25	100	24	76
Mexico	216	7	12	21	100	12	88
Peru	21	4	8	43	100	22	78
Venezuela	38	7	10	37	100	16	84
Eastern Europe	357	40	69	28	100	13	87
Czech Republic	46	2	19	9	100	9	91
Croatia	34	3	6	35	100	6	94
Hungary	67	5	20	24	100	8	92
Poland	38	10	20	26	100	29	71
Romania	27	12	22	67	100	14	86
Russia	145	8	21	28	100	10	90

Table 4. Univariate Comparison of Loans With and Without Local Participation

In panel A, the borrower's country is based on the location of the borrowing entity. In panel B, the loan year is based on the signing date of the loan. Loan Tranches is the total number of observations. Remaining values are sample means for four loan characteristics conditioned on the presence of a local participant. Size is the total amount of funds borrowed, measured in millions of nominal U.S. dollars. Spread is the interest rate spread charged on the loan, including all fees paid, measured in basis points. Maturity is the total tenor of the loan, measured in months. Percent secured is the percentage, by count, of the loans that have a specific pledge of collateral. Loans with a local participant have at least one syndicate member that is domiciled in the same country as the borrower but does not have a foreign parent.

A. By Country

Borrower Country	Loan Tranches	Size ($millions)		Spread (bps)		Maturity (months)		Percent Secured	
		No Local Participant	With Local Participant	No Local Participant	With Local Participant	No Local Participant	With Local Participant	No Local Participant	With Local Participant
Total All Countries	1143	145	128	213	296	40	38	24	30
Latin America	786	156	150	206	301	42	40	23	25
Argentina	142	119	121	283	343	33	35	24	10
Brazil	153	156	207	248	298	32	32	43	43
Chile	151	184	107	111	253	51	50	9	15
Columbia	65	124	89	248	295	56	44	16	6
Mexico	216	169	136	199	263	39	46	28	22
Peru	21	65	95	250	340	54	60	0	11
Venezuela	38	162	128	246	350	53	52	29	21
Eastern Europe	357	120	81	227	285	36	32	25	41
Czech Republic	46	159	132	68	57	49	60	12	0
Croatia	34	69	51	122	134	35	53	9	0
Hungary	67	74	76	52	108	53	60	8	13
Poland	38	90	135	61	107	39	50	4	20
Romania	27	87	81	209	301	29	20	11	50
Russia	145	148	74	445	456	23	15	49	68

Table 4 (continued). Univariate Comparison of Loans With and Without Local Participation

B. By Loan Year

Loan Year	Loan Tranches	Size ($millions) No Local Participant	Size ($millions) With Local Participant	Spread (bps) No Local Participant	Spread (bps) With Local Participant	Maturity (months) No Local Participant	Maturity (months) With Local Participant	Percent Secured No Local Participant	Percent Secured With Local Participant
Latin America	786	156	150	206	301	42	40	23	25
1995	33	126	124	215	513	46	32	33	0
1996	64	131	139	160	236	51	37	11	0
1997	126	171	168	149	210	49	48	26	24
1998	130	167	237	201	248	38	32	30	15
1999	97	175	150	331	522	35	37	28	14
2000	122	147	128	211	318	40	40	21	41
2001	124	148	125	171	293	42	39	16	38
2002	90	152	126	236	297	42	43	23	20
Eastern Europe	357	120	81	227	285	36	32	25	41
1995	22	86	131	106	304	39	38	6	0
1996	51	143	87	161	199	41	51	2	0
1997	104	144	64	241	300	34	40	12	17
1998	55	109	65	254	183	33	40	33	13
1999	17	70	61	139	332	32	9	29	67
2000	23	56	116	212	229	38	25	46	50
2001	25	62	75	306	340	35	24	55	79
2002	60	124	88	314	346	37	23	62	74

Table 5. Determinants of Local Participation and Conditional Loan Spreads

The table reports maximum likelihood estimates of the empirical model presented in Section 4. Results for the local participation equation are reported in the first two columns. The first column reports coefficient estimates and asymptotic standard errors, in parentheses. The Probability column reports the change in probability of local participation due to a change in the independent variable, computed at the sample average probability of local participation. All variables except NUMBNK and LOCALLIQ are dummy variables, so the change is conditional on a change from 0 to 1. For NUMBNK and LOCALLIQ, the change is based on a move from the 25th percentile to the 75th percentile. The spread equations are reported in the final three columns. The dependent variable is the log of the loan spread and the coefficients are permitted to vary conditional on the presence of a local lender. The difference column reports the difference between coefficients. Throughout the table, ** (*) denotes values significantly different from zero at the 1 (5) percent level based on a Wald test using the estimated asymptotic standard errors.

Table 5 (continued). Determinants of Local Participation and Conditional Loan Spreads

	Local Participation Equation		Log Loan Spread Equation		
	Coefficient	Probability	No Local	With Local	Difference
INTERCEPT	-2.139 *		8.283 **	7.276 **	1.008
	(0.911)		(0.350)	(0.896)	(0.962)
NUMBNK	0.263 *	6.4%			
	(0.117)				
LOCALLIQ	0.368 *	3.1%			
	(0.158)				
UNRATED	0.262 *	9.4%	-0.022	-0.073	0.051
	(0.109)		(0.057)	(0.077)	(0.096)
FINANCIAL	-0.359 *	-10.6%	-0.463 **	0.066	-0.529 **
	(0.151)		(0.078)	(0.131)	(0.153)
PUBLIC	-0.077	-2.5%	-0.307 **	-0.109	-0.198 *
	(0.125)		(0.061)	(0.085)	(0.104)
LOCALFIRM	0.427 **	15.7%	0.239 **	-0.053	0.292 *
	(0.142)		(0.065)	(0.125)	(0.141)
TYPE_REV	-0.034	-1.1%	-0.228 **	-0.143	-0.085
	(0.117)		(0.055)	(0.076)	(0.094)
PURP_CHGCTRL	0.233	8.3%	0.521 **	0.496 **	0.025
	(0.181)		(0.090)	(0.123)	(0.152)
PURP_CAPSTR	0.126	4.4%	0.191 **	0.174 *	0.017
	(0.111)		(0.055)	(0.075)	(0.093)
MAT1836	0.200	7.1%	-0.174 *	-0.055	-0.119
	(0.130)		(0.068)	(0.090)	(0.113)
MAT3660	-0.029	-0.9%	-0.145 *	-0.064	-0.080
	(0.132)		(0.064)	(0.085)	(0.106)
MAT60P	-0.041	-1.4%	-0.060	-0.013	-0.048
	(0.207)		(0.093)	(0.140)	(0.168)
SIZE50100	-0.114	-3.7%	-0.157 **	-0.029	-0.127
	(0.124)		(0.060)	(0.078)	(0.099)
SIZE100150	-0.094	-3.1%	-0.077	-0.234 *	0.157
	(0.150)		(0.076)	(0.091)	(0.119)
SIZE150250	-0.191	-6.0%	-0.031	-0.106	0.074
	(0.158)		(0.083)	(0.098)	(0.128)
SIZE250P	-0.482 *	-13.5%	-0.170	-0.011	-0.160
	(0.196)		(0.101)	(0.144)	(0.176)
SECURED	-0.072	-2.4%	0.128 *	0.121	0.007
	(0.112)		(0.057)	(0.072)	(0.092)
NBANK46	0.766 **	29.2%	0.011	-0.174	0.185
	(0.174)		(0.087)	(0.224)	(0.240)
NBANK713	1.359 **	50.2%	-0.001	-0.180	0.179
	(0.168)		(0.120)	(0.307)	(0.330)
NBANK14P	1.342 **	49.6%	-0.019	-0.311	0.292
	(0.195)		(0.127)	(0.313)	(0.338)
Error Term Covariance			-0.213 *	-0.023	
			(0.107)	(0.281)	
INDUSTRY DUMMIES					
IICREDIT * YR DUMMIES					
IICREDITSQ * YR DUMMIES					
Number of Observations	1099		795	304	

Table 6. Sample Statistics for Impact of Local Bank Participation

The model results from Table 5 are used to infer the effect that local bank participation has on loan spreads. For each sample loan, counterfactual loan spreads are derived using (3), and the impact of local participation is given by the difference between the actual spread and the counterfactual. (Negative numbers mean that the spread is lower with local participation than the counterfactual without local participation.) The table reports the sample mean, median, and quartile values across the sample loans that have local participation. The "Basis Point Impact" is the impact measured in basis points, and the "Percentage Impact" is the basis point impact divided by the sample mean spread. Panel A reports the results by borrower country; Panel B by loan year; Panel C reports the impact across various categories of loans.

A. By Country

Borrower	Basis Point Impact				Percentage Impact	
Country	Mean	25th Pctl	Median	75th Pctl	Mean	Median
Total All Countries	-29	-98	-29	84	-10	-10
Latin America	-20	-95	-29	114	-7	-10
Argentina	-95	-96	-35	133	-28	-10
Brazil	-7	-111	-23	114	-2	-8
Chile	59	-31	74	114	23	29
Colombia	3	-144	43	121	1	15
Mexico	27	-52	-6	117	10	-2
Peru	-25	-69	-28	56	-7	-8
Venezuela	-107	-183	-117	-90	-30	-33
Eastern Europe	-48	-103	-28	40	-16	-10
Czech Republic	-42	-56	-48	-29	-73	-83
Croatia	-177	-260	-191	-89	-132	-143
Hungary	-55	-88	-49	-21	-57	-51
Poland	-56	-89	-76	-25	-53	-71
Romania	-47	-130	-17	97	-16	-6
Russia	-5	-52	33	80	-1	7

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Table 6 (continued). Sample Statistics for Impact of Local Bank Participation

B. By Loan Year

Loan Year	Basis Point Impact				Percentage Impact	
	Mean	25th Pctl	Median	75th Pctl	Mean	Median
Latin America	-20	-95	-29	114	-7	-10
1995	226	10	264	404	44	51
1996	-48	-93	-57	-31	-20	-24
1997	-26	-93	-32	21	-12	-15
1998	-43	-162	-42	105	-19	-18
1999	83	-122	79	219	16	16
2000	3	-95	-44	120	1	-14
2001	51	-48	100	152	17	34
2002	-124	-137	-46	74	-42	-16
Eastern Europe	-48	-103	-28	40	-16	-10
1995	20	6	10	81	7	3
1996	-51	-79	-30	-12	-26	-15
1997	-55	-191	-5	57	-18	-2
1998	-71	-145	-56	-25	-37	-29
1999	-230	-613	-217	138	-69	-65
2000	-128	-151	-77	-30	-56	-34
2001	0	-90	22	79	0	6
2002	-11	-54	-12	47	-3	-3

C. By Various Loan Characteristics

	Basis Point Impact				Percentage Impact	
	Mean	25th Pctl	Median	75th Pctl	Mean	Median
Total All Loans	-29	-98	-29	84	-10	-10
Local Firms (LOCALFIRM=1)	-37	-104	-31	79	-13	-10
Non-Financial Firms (FINANCIAL=0)	-40	-110	-45	80	-14	-15
Private Firms (PUBLIC=0)	-43	-107	-39	71	-14	-13
High LOCALLIQ	-5	-107	-20	97	-1	-6
High IICREDIT	-72	-130	-38	78	-22	-11