"Lending by Example": Direct and Indirect Effects of Foreign Bank Presence in Emerging Markets*

Mariassunta Giannetti
Stockholm School of Economics, *CEPR*, and *ECGI*

Steven Ongena
CentER - Tilburg University and *CEPR*

Preliminary draft

December 2007

* Correspondence to: Mariassunta Giannetti, Department of Finance, Stockholm School of Economics, Sveavägen 65, Box 6501, SE-113 83, Stockholm, Sweden. Phone: +46-8-7369607. Fax: +46-8-31 23 27. E-mail: mariassunta.giannetti@hhs.se or Steven Ongena, Department of Finance, Tilburg University, PO Box 90153, NL 5000 LE Tilburg, The Netherlands. Phone: +31 13 4662417. Fax: +31 13 4662875. E-mail: steven.ongena@tilburguniversity.nl. Giannetti gratefully acknowledges financial support from Vetenskaprådet and Bankforskningsinstitutet.

Abstract

Using a novel dataset that allows us to trace the primary bank relationships of a sample of mostly unlisted firms, we explore to what extent foreign banks can improve the allocation of credit in emerging markets. Our results suggest that the limits of financial integration are less tight than what the previous literature based on a static picture of bank loan portfolios suggested. Foreign banks appear to allocate credit more efficiently than domestic banks do. Most importantly, using a propensity score methodology, we show that only in countries where foreign bank presence is limited, firms that (directly) borrow from a foreign bank obtain more financial loans than comparable firms and thus invest more and have higher increases in profitability. In other words, firms seem to benefit from foreign bank presence only if they maintain a direct relationship. In countries where foreign bank presence is large, on the contrary, firms appear to have the same access to financial loans and ability to invest whether they borrow from a foreign bank or not. Thus it appears that foreign banks presence affects domestic banks lending policies and improves access to credit for all firms.

Keywords: foreign bank lending, emerging markets, competition, lending relationships.

JEL: G21, L11, L14.

1. Introduction

A large body of research has established that financial development is an important engine of economic growth (Levine (2005)). Capital inflows and entry of foreign financial intermediaries can play an important role in the development of the financial system of a country by contributing both investment funds and financial expertise.

However, the literature has raised concerns about the limits of financial integration. For instance only large and visible firms appear to enjoy a reduction in the cost of capital after equity market liberalizations (Chari and Henry (2004)). In environments with high levels of asymmetric information and weak investor protection, agency problems may hamper not only the possibility of issuing equity to foreign investors, but also the banks' ability to lend even in the presence of a large amount of funds (Khwaja, Mian and Zia (2007)). Foreign banks may be even more reluctant than domestic financial intermediaries to lend to opaque borrowers (Dell'Ariccia and Marquez (2004)). Hence, not only are many firms permanently excluded from foreign banks' financing, as documented by Mian (2006a), but credit to the private sector may even be lower in countries with widespread foreign bank presence (Detragiache, Tressel and Gupta (2006)).

However, before concluding that only firms that directly access foreign banks or other foreign investors benefit from financial integration, one should explore whether all firms possibly *indirectly* benefit from the presence of foreign investors.

By poaching more creditworthy and transparent borrowers, foreign banks may induce domestic banks to increase lending to opaque firms (Dell'Ariccia and Marquez (2004)). Additionally, competition may force domestic banks to reduce costs in order to maintain market share. Domestic banks may also be induced to select borrowers more judiciously, if the intensification of competition prevents them from earning rents from creditworthy firms to subsidize connected borrowers. More in general, the removal of restrictions to foreign banks sharpens the threat of takeovers for domestic banks. This threat may discipline managers to improve their lending policies.

In this paper, we take a fresh look at these crucial issues by studying a novel dataset that reveals the primary bank relationships for a sample of mostly unlisted

firms that are located in a set of emerging markets in which foreign bank presence changed substantially over the sample period. Hence, we are able to uncover which firms receive credit from foreign banks and explore the dynamics of these bank-firm relationships by studying the characteristics of the firms that initiate or terminate relationships with foreign banks.

We find that large and foreign-owned firms are indeed more likely to borrow from foreign banks. This is consistent with the notion that large sectors of the economy remain excluded from foreign bank lending. However, foreign banks do not appear to drop their borrowers, even during the first three years after the acquisition of a domestic bank when they are more likely to restructure the loan portfolio. The only borrowers foreign banks appear to terminate relationships with are state-owned firms. Banks that are acquired by a foreign bank shift their portfolio towards younger and more productive firms.

Foreign banks appear to directly improve the allocation of capital. Banks lend on the basis of observable and unobservable firm characteristics. We show that firms that receive loans, in excess to what can be explained by their observable characteristics, have a decrease in profitability over the next two years unless they are clients of foreign banks. This suggests that foreign banks are able to use information unobservable to the econometrician in order to make loans. Alternatively, domestic banks may be more likely to extend large loans for reasons different from financial profitability.

More importantly, our results suggest that the limits of financial integration are less tight than the static picture of bank loan portfolios may suggest. Using a propensity score methodology, we show that only in countries where foreign bank presence is limited, firms that (directly) borrow from a foreign bank obtain more financial loans and thus invest more and have higher increases in profitability than the matched comparable firms. Hence, firms seem to benefit from foreign bank presence only if they maintain a direct relationship. In countries where foreign bank presence is large, on the other hand, firms appear to have the same access to financial loans and ability to invest whether they borrow from a foreign bank or not. Thus it appears that foreign banks presence may ultimately improve access to credit for all firms.

Our results help to interpret the findings of Giannetti and Ongena (2008) who show that in markets where foreign bank presence is more pervasive young and unconnected borrowers have access to cheaper loans, receive larger financial loans and as a consequence perform better. Giannetti and Ongena are unable to distinguish between direct and indirect effects of foreign bank lending. In this paper, we are able to identify firms' primary bank relationships and establish that foreign banks directly improve capital allocation and indirectly increase access to financial loans for all firms.

Our paper is also related to the literature analyzing the effects of bank consolidation within a country. Berger, Saunders, Scalise and Udell (1998) study the effects of mergers and acquisitions in U.S. local credit markets and show that the reduction in small business lending by the banks involved in the M&As activity is more than offset by the increase in small business lending by other local banks. Similarly, Jayaratne and Strahan (1998) have shown that after the U.S. deregulation of bank branching, bank loan losses and loan rates decrease. Sapienza (2002) studies the effects of (domestic) bank mergers on the probability of terminating bank relationships and cost of credit. We complement these studies by looking at international banking integration that, like domestic consolidation, is likely to improve efficiency in financial intermediation. Most importantly, similarly to Karceski, Ongena and Smith (2005) in the context of (domestic) bank mergers, we explore the effects on the allocation of credit and on firm outcomes, instead of focusing on bank lending policies and profitability. Additionally, we can explore how the extent of foreign bank presence is related to firm outcomes depending on whether firms are foreign bank clients.

The remainder of this paper is organized as follows. Section II describes data and sample characteristics. Section III analyzes statically and dynamically the characteristics of firms with foreign bank connections, while Section IV studies the impact of these connections on firm performance and financing. Section V concludes.

2. Data and Sample Characteristics

2.1. DATA SOURCES AND SAMPLE CONSTRUCTION

We rely on a variety of sources. The most important data source for our analysis is a directory of firms distributed by *Kompass*. Kompass provides directories for over two million firms in 70 countries including firm address, executive names, industry, profits, turnover, date of incorporation and, crucially for our purposes, the firms' primary bank relationships.[1] Kompass collects this information from the chambers of commerce and their firm registries but also conducts phone interviews with firm representatives. Firms are also able to voluntarily register with Kompass. Kompass directories are mostly sold to companies searching for customers and suppliers and are updated at least every 2 years.

We obtain the firm directories for thirteen emerging economies (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia, Ukraine) for the years 2000 and 2005. The directories contain 45,961 and 35,953 complete firm records in the years 2000 and 2005, respectively. The identity of the registered firms' banks is reported for 49 and 66 percent of the firms in 2000 and 2005 respectively. Banks are listed in order of importance and, while the median firm has one bank, up to ten banks are reported for some firms.

We decided to concentrate on the 13 Eastern European economies for several reasons. First, to be able to thoroughly control for firm characteristics and explore the effect of foreign bank lending on firm performance, we need to match the Kompass firm directories with *Amadeus*, a dataset distributed by Bureau Van Dijk that contains financial information for all limited liabilities companies in Europe for up to ten years. Since these are the firms that are more dependent on bank loans, we believe

[1] Ongena and Smith (2001), Karceski et al. (2005), and Ongena and Smith (2000) for example also rely on primary bank relationships reported in a Norwegian firm register and a European survey, respectively. Firms in these datasets apparently use their primary banks for both short-term and long-term borrowing, and most firms also obtain deposit, cash management, and foreign exchange services from their primary bank.

that it is crucial to have access to information on their performance and capital structure to explore the effects of foreign bank lending. This restricts us to Europe.

Second, while Amadeus also includes firms in Western European countries, most of these countries do not have a substantial foreign bank presence nor did they experience foreign bank entry during the sample period. Assets of foreign bank branches and subsidiaries remained virtually constant in all Western European countries during the last few decades and never exceeded more than 15 percent of total bank assets in Finland, Germany, Greece, Italy, the Netherlands, Spain, and Sweden. Since our main objective is to explore the dynamic effects of banking system integration in countries with underdeveloped financial system, we focus on the 13 emerging Eastern European economies.

We have access to the 2006 edition of Amadeus. We extract consolidated financial statements and other firm-specific information for all companies in the thirteen emerging economies listed above. Amadeus contains more than one million firms for these countries during the sample period (1997-2006).

Since Kompass does not report firm identification numbers such as SEDOL codes, we match firms in Amadeus and Kompass using firm name, address, city and telephone. Given the recurrent different spellings, some typos and a few questionable entries, after some study we end up using the following practical set of matching criteria. Records are considered a match if the following conditions are jointly satisfied: (a) the first thirteen letters of the names in both databases contain an equal string of six consecutive characters, and (b) the first fifteen letters of the addresses in both databases contain an equal string of eight consecutive characters, and (c) the first six letters of the city in both databases contain an equal string of three consecutive characters, and (d) the last six numbers of the telephone number in both databases contain an equal string of five consecutive numbers (in case of multiple phone numbers and in case of fax numbers all possible combinations are checked). If records are missing (which for these four fields is very unlikely) the respective criterion is dropped.

Back-testing suggests that this procedure delivers quite well. In a number of cases, it identifies multiple records in both Kompass and Amadeus, but in most cases these

records identify companies with same phone numbers, addresses and similar names, which probably refer to the different legal entities of the same business. In a second step, these multiple matches are identified, and the record with the larger amount of assets is hand-selected. Any excess matches are removed. We also check a couple of hundred of the unique procedural matches for consistency and find no errors.

At the end of this procedure, we are left with 8,569 unique firm matches in 2000, and 10,154 firms in 2005, of which 4,430 (52%) and 6,795 (67%), respectively, report their bank connections.

Third, we obtain information on bank characteristics from the 2006 version of *Bankscope*, also distributed by Bureau Van Dijk. Bankscope only provides information on current ownership; to determine when domestic banks were acquired by foreign banks or other foreign investors, we turn to previous editions of Bankscope, and to *SDC Platinum* (distributed by Thomson Financial) and *Zephyr* (distributed by Bureau Van Dijk). The latter two databases allow the identification foreign acquisitions of Eastern European banks. We then manually match the bank names of the matched records with the names of the banks in *Bankscope*. We are able to identify 280 banks. For 271 and 674 matches in 2000 and 2005, involving 146 and 307 different bank names, respectively no banks can be matched. For these cases, which mainly concern small local banks, we searched websites in order to establish bank ownership. We retain the observations in all specifications in which we do not need other bank characteristics available through Bankscope. We are left with 4,159 and 6,121 observations in 2000 and 2005 of uniquely matched firms with reported banks that are also present in Bankscope. The three steps needed for the construction of our dataset are summarized in Figure I.

Finally, we complement our main dataset with country GDP statistics from the *World Development Indicators* and the great circle distance between the capital city of the foreign bank country of origin and the capital city of the host country from *infoplease.com*.

2.2. DESCRIPTIVE STATISTICS

2.2.1. Dependent Variables

A bank is defined as foreign if foreign individuals, corporations, financial institutions or governments combined own more than 50 percent of the bank. This cutoff is similar to the one used in previous literature (see, for instance, Mian (2006b) and Giannetti and Ongena (2008)), and reflects common majority voting rules. As the distribution of foreign ownership is highly bimodal, changing the cutoff hardly affects the results. Indeed, 63 percent of all banks in the sample are 100 percent domestically owned. While foreigners own (more than zero but) less than 50 percent in only 11 percent of the banks, they own more than 90 percent in almost 20 percent of the cases.

Having defined the domestic versus foreign affiliation of all banks in the sample in this way, we can then characterize and study the firm – bank connections we observe. Table II Panel A provides the definitions and summary statistics for the four relationship variables we explore empirically. *Foreign Bank* is a dummy variable that equals one if at least one bank a firm employs is foreign, and equals zero otherwise. 14% of the firms report to employ at least one foreign bank.

Exploiting the ranking of the list of banks reported by each firm in Kompass (which for none of the countries and years is observably alphabetical), we construct a dummy variable *Foreign 1st Bank* that equals one if the first bank a firm employs is foreign, and equals zero otherwise. 12% of the firms report a foreign bank as their first bank, only slightly below the 14% of firms that reported to have a foreign bank.

In addition to these two static relationship variables, we also construct two dynamic relationship variables that capture the changes in the firm – bank connections we observe. + *Foreign Bank* is a dummy variable that equals one if a firm establishes a new connection with a foreign bank, and equals zero otherwise; - *Bank* is a dummy variable that equals one if a firm drops a bank, and equals zero otherwise. 46% of the firms for which we can trace bank additions started a relationship with a foreign rather than with a domestic bank. This reflects the widely observed gains in market share for the foreign banks in the sample countries during the sample period.

We not only study the determination but also the impact of firm – bank connections on firm performance and financing. We focus on four key firm variables. *Leverage* is the firm leverage, *ΔROA* is the two-year change in firm return on assets (we employ two years to because loans may be used for capital investment that affect productivity only in the long-run), *ΔAssets* is the growth in firm assets, and *Investment* is firm investment over assets.

2.2.2. Independent Variables

We investigate which firms borrow from foreign banks and the impact of this choice on firm performance and financing. Firm size and age − measured by the number of employees and the number of years since registration, respectively − are widely used proxies for firm opaqueness. Foreign banks that are large, centralized, and with the headquarters abroad may lack the organizational dexterity to engage opaque, i.e., small and young, firms successfully (Stein (2002), Berger, Miller, Petersen, Rajan and Stein (2005)). In addition, large firms may require specialized foreign exchange services for example only foreign banks can provide.

Firm ownership may also be an important role in determining bank choice. Three firm ownership dummies, *d(Foreign Firm)*, *d(Bank-Owned Firm)*, and *d(State-Owned Firm)*, equal one if the firm is owned by foreigners, a bank, or the state, respectively, and equal zero otherwise. Though foreign firms not necessarily engage only home country banks (Berger, Dai, Ongena and Smith (2003)), *ceteris paribus* a home country bank, that "followed its customers" into the host country (Kindleberger (1983)), may be an attractive alternative or additional bank for the foreign firm. Bank or state ownership (both mainly domestic) may sway the firm towards engaging only domestic banks, for instance because the latter give preferential treatment to connected borrowers.

Foreign banks may not only differ from the domestic banks in the efficiency of their credit granting process, but more importantly may be much more selective in financing firms. To capture this difference in allocative efficiency, we consider three firm proxies, i.e., *Δ Sales(t-1)*, which is defined as the growth in firm sales in the previous year, *Efficiency*, which is defined as the difference between firm and median

return on assets in the industry that year, and *Total Factor Productivity*, which is the residual of an ordinary least squares regression of the logarithm of firm sales on the logarithm of the firm employees number, the logarithm of firm assets and two-digit industry dummies.

Finally, we also control for the *Number of Banks* a firm employs, a choice that is often considered to precede the actual bank selection (Detragiache, Garella and Guiso (2000), Ongena and Smith (2000)). We return to this issue later in the paper. A this point we also note that our data do not allow us to observe the proportion of debt financed by banks or by each individual bank. However, financial institutions provide virtually all financial debt to firms in Eastern Europe (Bonin and Wachtel (2003)). Hence the financial leverage provides a good proxy for a firm access to debt depending on the nature of its bank relationships, of which concentration proxied by the number of bank relationships is a defining characteristic (Elsas (2005), Degryse and Ongena (2007)).

The other independent variables presented in Table II Panel B, i.e., *Excess Leverage*, *Foreign Bank*, *Foreign Bank Acquired the Bank*, *State-Owned Bank*, *Time Since Entry* and *Low Foreign Bank Presence* will be discussed later.

2.3. SAMPLE SELECTION

Our dataset allows us to make a significant step forward in studying the dynamic effects of foreign bank entry. However, the fact that starting from basically the population of limited liabilities companies in Amadeus, we are able to obtain observations about primary bank relationships only for a minority of firms raises concerns about sample selection. We need to explore this issue to be able to interpret our results.

For this reason, starting from the Amadeus sample, we explore the characteristics of the firms for which we are able to observe primary bank relationships through Kompass. We observe banks for larger and more profitable firms. However, financial leverage appears unrelated to the probability that we observe bank relationships, suggesting that any sample selection bias should not be systematically related to the ability to access financial loans.

Interestingly, the firms in the 2000 (2005) Kompass directory that we are unable to match with Amadeus are on average 4 (3) years older, have 60 (69) fewer employees and lower profit turnover, though only the age differential is statistically significant at the 10% level, though not necessarily economically relevant (the mean age is around 30 years in both samples). It seems selection is not systematically related to any directly observable characteristic.

3. Bank-Firm Relationships

3.1. STATICS

We investigate which firms borrow from foreign banks. Since Kompass updates firm records with a lag we use firm characteristics in 1999 (2004) to explain the probability that a firm is recorded to borrow from a foreign bank in the 2000 (2005) edition of the directory.

Results are reported in Table III, Panel A. Large firms and firms who have a foreign investor between the major shareholders appear more likely to maintain a relation with a foreign bank. Also, firms that maintain multiple banking relationships are more likely to engage a foreign bank. These findings are consistent with the results in Berger, Klapper, Soledad Martinez Peria and Zaidi (2008). They find that foreign banks tend to establish relationships with more transparent firms in India. Other firm characteristics capturing past performance measured by the growth of sales or efficiency and total factor productivity do not appear to matter. Firms who have a domestic bank as a shareholder are less likely to have a relationship with foreign banks, suggesting that connected firms are less likely to seek or obtain access to foreign banks.

Results are similar whether we look at the probability that the firm maintains a relationship with a foreign bank (Model 1) or the probability that the firm's most important relationship is with a foreign bank (Model 2). In the latter model, however, the number of firm relationships is not significant. This suggests that the positive correlation between the probability of having a foreign bank and the number of

relationships is mechanical (firms with more banks are also more likely to engage a foreign bank). When they have a primary relationship with a foreign bank, firms do not appear to look for other bank relationships in order to insure against the supposed fragility of the relationship with the foreign bank. This finding qualifies the findings in Berger et al. (2008) who interpret the positive effect of multiple bank relationships on the probability of having at least a foreign bank as evidence of the fickle behavior of the latter.

Interestingly, if we exclude observations related to banks that have been acquired during the last three years (Model 3), we find that firm size becomes less important. Since banks that have recently been acquired, have portfolios that reflect more the past decisions than the active choices by the foreign banks (as the new owners), this suggests that foreign banks do not necessarily select the largest and most visible borrowers. Previous results in the literature could partially be driven by the fact that foreign banks acquire domestic banks with more transparent borrowers, a characteristic that may make the target easier to evaluate for the foreign investor.

3.2. DYNAMICS

Focusing on firms that we are able to match to their primary banks both in 2000 and 2005, we explore the firm characteristics that affect the probability of becoming clients of a foreign bank (Table III, Panel B). First, we explore which firms add a foreign bank to the set of their bank relationships in the 2005 directory as a function of firm characteristics in 2004 (Models 5 to 7).[2] We find that this is crucially related to growth. Firms that have performed better in terms of higher sale growth are more likely to establish a relation with a foreign bank. Other firm characteristics such as size, age, foreign ownership or efficiency are unimportant. Banks that have recently become foreign because of an acquisition appear the only ones to select clients that are more efficient than average. These banks are more likely to establish relationships with smaller firms. Overall, the evidence about cherry-picking is limited.

[2] We could invariantly use another year to capture firm characteristics.

This conjecture is confirmed by the fact that foreign banks − independent of whether or not there was a recent acquisition − are less likely to drop their clients (Models 8 to 10). Indeed, for firms for which we are able to observe primary bank relationships both in 2000 and 2005, we find that the probability that the relationship with a bank that we observe in 2000 is dropped in 2005 is lower if the bank is foreign. Hence, it does not appear that foreign acquired banks are more likely to terminate relationships. Firms with multiple banks (in 1999) are more likely to terminate a bank relationship suggesting that the decision to terminate is likely to be initiated by firms with a low dependence on certain banks. State-owned firms are also more likely to terminate relationships. Other firm characteristics (that in this case we measure in 1999) do not appear to explain the decision to terminate a relationship.

4. Foreign Lending and Firm Performance

Due to our matching procedure, we observe foreign banks in 2000 and 2005 only. When we explore the effects on firm performance, however, we want to exploit the panel nature of the data in order to follow firm performance and capital structure over time. For this reason, we assume that a firm that reports a relationship with a bank maintains the relationship for a number of years. In particular, we split the sample in two periods: The first period goes from 1997 to 2000, the second period from 2001 to 2005. We assume that firms maintain relationships with banks as reported in the 2000 and 2005 directory respectively.

4.1. DIRECT EFFECTS

To begin with, we would like to explore whether foreign banks help to improve the allocation of capital. In particular, we ask whether foreign banks systematically lend more to firms that subsequently perform better. However, we do not want to capture situations in which firms that are client of foreign banks have larger credit needs, for instance, because they are larger, and for this reason have larger increment in performance.

To overcome this problem, we proceed as follows. In Model 1 of Table IV, we

regress the financial leverage of a firm on the variables that are generally expected to determine leverage (Rajan and Zingales (1995)). Interestingly, without controlling for selection issues firms that maintain a relationship with a foreign bank appear to have lower leverage. We then save the residuals of this regression that we interpret as any lending in excess of the amount warranted by the observable characteristics of the firm. We refer to this new variable as *Excess Leverage*. It may reflect favorable private information of the bank about the borrower that is not directly observable. It may also reflect non-financial benefits from lending to certain borrowers.

We ask whether some banks systematically make better decisions when they lend in excess to what observable firm characteristics would justify either because they have private information or some other non-financial benefits from doing so. For this reason, we regress the increase in ROA over the following two years on the excess leverage variable and firm characteristics. We interact the excess leverage variable with a dummy that takes a value equal one if the firm has at least one relationship with a foreign bank. We further include the foreign bank dummy as a regressor to control for the fact that foreign banks may systematically select firms that are going to perform better in the future.

Finally, to mitigate concerns that firms with certain characteristics systematically self-select in establishing relationships with foreign banks, we model the treatment effect (i.e., having a relationship with a foreign bank) as follows. We estimate the probability that a firm borrows from a foreign bank and include the inverse Mills' ratio to correct for self-selection in the second stage (see Greene (2003), pp. 788-789, for example). Estimates in Models 3 to 8 are obtained by maximum likelihood estimation under the assumption that the joint distribution of the errors of the selection equation (Model 2) and the second stage performance equation is normal. Since it is desirable to have at least one exclusion restriction for the selection equation, even though the non-linearity of the inverse Mills' ratio would allow for identification, we include the number of relationships in the selection equation but not in the second stage. We see no reason why the number of relationships should directly affect firm future performance once we have controlled for firm access to funds.

We find that the change in ROA of firms that are allowed to borrow more than

what their observable characteristics would justify is lower than for other firms (Model 3). This is the case even if these firms invest more than others (Model 4). This is not the case however for firms borrowing from foreign banks: we can never reject the hypothesis that the coefficient of the interaction between the foreign bank dummy and excess leverage completely offsets the negative effect of the excess leverage variable. This suggests that domestic banks allow firms to over-invest.

Interestingly, foreign banks appear to be special because they are outsiders: For banks that have only recently been acquired by foreign investors more private information lending is negatively related to future performance. Not so, for banks that have made greenfield investments and that have been acquired more than three years before (Model 5). Interestingly, in this specification domestic banks' private information lending have no effect on future performance. Also, state-owned banks do not appear to make worse lending decisions than other domestic banks (Model 6). Hence, it appears that foreign banks perform a role in improving the efficiency of the banking sector by acquiring domestic banks with worse lending policies as past lending policies are likely to still affect the outstanding loans in the first three years after the acquisition.

Additionally, the distance from the foreign bank headquarter to the firm country does not appear to affect the quality of lending decisions. But over time foreign bank decisions become slowly similar to the ones of domestic banks, probably because also foreign banks become insiders. As our estimates suggest (by comparing the estimated coefficients on *Excess Leverage * Time Since Entry* and *Excess Leverage * d(Foreign Bank)*), it takes around five years on average for this process to run its course. This result suggests that while foreign banks may improve capital allocation, the effects may be limited to the first few years after foreign bank entry. Another possibility, consistent with the results we present below, is that as foreign bank presence becomes more pervasive, domestic banks start allocating loans more judiciously.

It may also be interesting to note that the coefficient on the inverse Mills' ratio is never significant in the second stage. Since the selectivity correction for firms borrowing from foreign banks can be interpreted as an omitted variable proxying for private information (see Li and Prabhala (2007) for such an interpretation), the

insignificant coefficient suggests that foreign banks do not select firms based on private information and that any private information about the borrower is already incorporated in the excess leverage.

4.2. DIRECT AND INDIRECT EFFECTS

We now analyze to what extent borrowing directly from a foreign bank can make a difference for firm performance. So far we have shown that foreign banks appear to improve capital allocation by limiting over-investment. Foreign banks could also relax financing constraints for the companies they fund. This would allow companies that maintain a relationship with a foreign bank to invest and grow more than similar companies. It would also imply that firms that do not directly borrow from foreign banks would be unable to benefit from foreign bank presence.

Note however that the estimates of the equation for leverage in Table IV (Model 2) suggest that, if anything, firms borrowing from a foreign bank have lower leverage. Before concluding that these firms are able to borrow less we should control for sample selection problems. The coefficient of the foreign bank dummy may be biased if, for instance, foreign banks are inclined to lend to cash rich companies.[3]

To overcome these problems, we match firms using the nearest-neighbor with-replacement propensity score methodology suggested by Dehejia and Wahba (2002). For each firm the observed outcome (i.e., performance if the firm borrows from a foreign bank) is its own estimates. The counterfactual (i.e., the performance of the firm if it did not borrow from a foreign bank) is estimated by averaging the performance of the most similar firms that borrow from a domestic bank in the same country and year of the original firm.

Results are presented in Panel A of Table V. We find that in countries with low overall foreign bank presence, borrowing from a foreign bank indeed makes a difference. In these countries, firms that are customers of foreign banks have

[3] In Model II of Table IV, our aim is to construct a measure of excess leverage that does not depend on observable information.

significantly higher leverage than similar firms in the same country and consequently invest more and have higher increases in profitability over the following two years.

It appears that the main limit of financial integration is the extent of penetration of foreign banks (in other words, the extent of financial integration itself). In fact, as foreign bank presence grows, firms borrowing from foreign banks appear to be able to borrow to the same extent of their matching firms that are customers of domestic banks. The customers of foreign banks do not subsequently perform better or invest more than their matching firms.

This interpretation is confirmed if compare similar firms with a foreign (domestic) bank based in different countries. In Panel B of Table V, we find no difference in access to financial loans, investment behavior and performance for firms based in countries with low and high foreign bank presence if these firms have a foreign bank. However, firms that can rely exclusively on domestic banks have lower financial loans and invest less than their matching firms in countries with low foreign bank presence.

5. Conclusion

Using a novel dataset that allows us to trace the primary bank relationships of a sample of mostly unlisted firms in Eastern Europe, we explore to what extent foreign banks can improve the allocation of credit. Our results suggest that the limits of financial integration are less tight than what previous literature based on a static picture of bank loan portfolios suggested. Foreign banks appear to allocate credit more efficiently than domestic banks do. Most importantly, using a propensity score methodology, we show that only in countries where foreign bank presence is limited, firms that (directly) borrow from a foreign bank obtain more financial loans than comparable firms and thus invest more and have higher increases in profitability. In other words, firms seem to benefit from foreign bank presence only if they maintain a direct relationship. In countries where foreign bank presence is large, on the contrary, firms appear to have the same access to financial loans and ability to invest whether they borrow from a foreign bank or not. Thus it appears that foreign banks presence

affects domestic banks lending policies and improves access to credit for all firms.

References

Berger, A.N., Q. Dai, S. Ongena, and D.C. Smith (2003) To What Extent Will the Banking Industry be Globalized? A Study of Bank Nationality and Reach in 20 European Nations, *Journal of Banking and Finance* **27**, 383-415.

Berger, A.N., L.F. Klapper, M. Soledad Martinez Peria, and R. Zaidi (2008) Bank Ownership Type and Banking Relationships, *Journal of Financial Intermediation* **17**, 37-62.

Berger, A.N., N.M. Miller, M.A. Petersen, R.G. Rajan, and J.C. Stein (2005) Does Function Follow Organizational Form? Evidence From the Lending Practices of Large and Small Banks, *Journal of Financial Economics* **76**, 237-269.

Berger, A.N., A. Saunders, J.M. Scalise, and G.F. Udell (1998) The Effects of Bank Mergers and Acquisitions on Small Business Lending, *Journal of Financial Economics* **50**, 187-230.

Bonin, J., and P. Wachtel (2003) Financial Sector Development in Transition Economies: Lessons from the First Decade, *Financial Markets, Institutions and Instruments* **12**, 1-66.

Chari, A., and P.B. Henry (2004) Risk Sharing and Asset Prices: Evidence from a Natural Experiment, *Journal of Finance* **59**, 1295-1324.

Degryse, H., and S. Ongena (2007) The Impact of Competition on Bank Orientation, *Journal of Financial Intermediation* **16**, 399-424.

Dehejia, R.H., and S. Wahba (2002) Propensity Score-Matching Methods For Nonexperimental Causal Studies, *Review of Economics and Statistics* **84**, 151-161.

Dell'Ariccia, G., and R. Marquez (2004) Information and Bank Credit Allocation, *Journal of Financial Economics* **72**, 185-214.

Detragiache, E., P.G. Garella, and L. Guiso (2000) Multiple versus Single Banking Relationships: Theory and Evidence, *Journal of Finance* **55**, 1133-1161.

Detragiache, E., T. Tressel, and P. Gupta (2006) Foreign Banks in Poor Countries: Theory and Evidence, *Journal of Finance* Forthcoming.

Elsas, R. (2005) Empirical Determinants of Relationship Lending, *Journal of Financial Intermediation* **14**, 32-57.

Giannetti, M., and S. Ongena (2008) Financial Integration and Firm Performance: Evidence from Foreign Bank Entry in Emerging Markets, *Review of Finance* Forthcoming.

Greene, W.H. (2003) *Econometric Analysis*, Prentice Hall, Upper Saddle River NJ.

Jayaratne, J., and P.E. Strahan (1998) Entry Restrictions, Industry Evolution, and Dynamic Efficiency: Evidence from Commercial Banking, *Journal of Law and Economics* **41**, 239-274.

Karceski, J., S. Ongena, and D.C. Smith (2005) The Impact of Bank Consolidation on Commercial Borrower Welfare, *Journal of Finance* **60**, 2043-2082.

Khwaja, A.I., A. Mian, and B.H. Zia (2007) Dollars Dollars Everywhere and Not a Dime to Lend, Mimeo, Harvard University.

Kindleberger, C.P. (1983) International Banks as Leaders or Followers of International Business, *Journal of Banking and Finance* **7**, 583-595.

Levine, R. (2005) Finance and Growth: Theory and Evidence, in Philippe Aghion, and Steven N. Durlauf (eds.) *Handbook of Economic Growth*, North Holland, Amsterdam, 865-934.

Li, K., and N.R. Prabhala (2007) Self-Selection Models in Corporate Finance, in Espen B. Eckbo (eds.) *Handbook of Corporate Finance I*, Elesevier, New York, 37-86.

Mian, A. (2006a) Distance Constraints: The Limits of Foreign Lending in Poor Economies, *Journal of Finance* **61**, 1005-1056.

Mian, A. (2006b) Foreign, Private Domestic, and Government Banks: New Evidence from Emerging Markets, *Journal of Banking and Finance* Forthcoming.

Ongena, S., and D.C. Smith (2000) What Determines the Number of Bank Relationships? Cross-Country Evidence, *Journal of Financial Intermediation* **9**, 26-56.

Ongena, S., and D.C. Smith (2001) The Duration of Bank Relationships, *Journal of Financial Economics* **61**, 449-475.

Rajan, R.G., and L. Zingales (1995) What Do We Know about Capital Structure? Some Evidence from International Data, *Journal of Finance* **50**, 1421-1460.

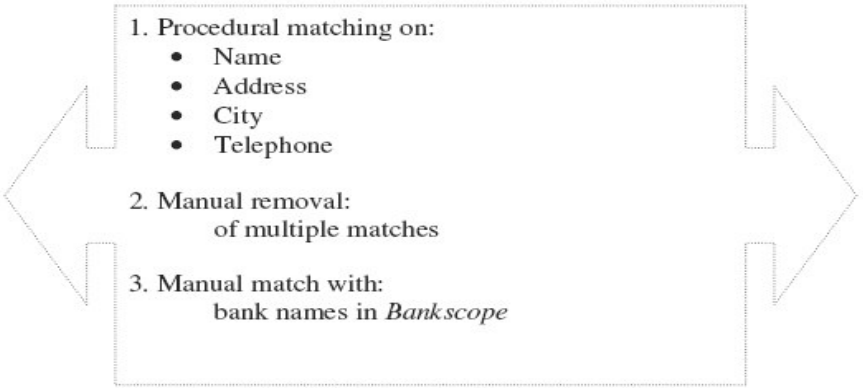
Sapienza, P. (2002) The Effects of Banking Mergers on Loan Contracts, *Journal of Finance* 329-368.

Stein, J. (2002) Information Production and Capital Allocation: Decentralized versus Hierarchical Firms, *Journal of Finance* **57**, 1891-1922.

Figure I. Datasets and Number of Observations, by Country, and Matching Procedure

The figure reports the number of observations for each dataset, by country, and the matching procedure.

Amadeus (Bureau van Dijk)	
Country	Obs.
Bulgaria	106,781
Croatia	19,761
Czech Rep.	42,050
Estonia	52,909
Hungary	190,342
Latvia	6,546
Lithuania	5,250
Poland	27,159
Romania	480,744
Russia	149,931
Slovakia	4,690
Slovenia	31,715
Ukraine	20,200
Total	**1,138,078**



Firm Directories (Kompass)		
Country	Obs. 2000	Obs. 2005
Bulgaria	7,263	1,289
Croatia	1,240	950
Czech Rep.	2,958	3,211
Estonia	382	550
Hungary	2,151	2,075
Latvia	651	705
Lithuania	597	417
Poland	7,103	1,677
Romania	2,437	2,903
Russia	12,837	14,425
Slovakia	1,901	1,121
Slovenia	925	740
Ukraine	5,516	5,890
Total	**45,961**	**35,953**

Uniquely Matched Firms						
	Without Reported Banks		*With Reported Banks*		*With Banks in Bankscope*	
Country	Obs. 2000	Obs. 2005	Obs. 2000	Obs. 2005	Obs. 2000	Obs. 2005
Bulgaria	1,227	284	441	148	437	146
Croatia	85	396	593	325	518	313
Czech Rep.	461	702	934	1594	927	1,552
Estonia	101	230	56	107	54	103
Hungary	47	161	349	646	332	640
Latvia	9	73	240	268	228	268
Lithuania	3	33	11	165	10	162
Poland	52	177	1,055	747	1,037	736
Romania	1,068	0	79	0	76	0
Russia	487	876	351	1,885	245	1,368
Slovakia	330	398	137	217	128	207
Slovenia	232	4	0	250	0	249
Ukraine	37	25	184	443	167	377
Total	**4,139**	**3,359**	**4,430**	**6,795**	**4,159**	**6,121**

Table I. Samples

The table reports by sample names, definitions, and the number of observations for each sample.

Samples	Definition	# Observations
All	Observations of uniquely matched firms with known banks and with relevant firm characteristics between 1997 and 2005	10,719
2000 & 2005	Observations of uniquely matched firms with known banks and with relevant firm characteristics in 2000 and 2005	5,112
2000 & 2005 Not Acquired	Observations of uniquely matched firms with known banks that were not acquired in the past 2 years and with relevant firm characteristics in 2000 and 2005	3,336
2005	Observations of uniquely matched firms with known banks and with relevant firm characteristics in 2005	1,047
2005 & in 2000	Observations of uniquely matched firms with known banks in both 2000 and 2005 and with relevant firm characteristics in 2005	906
2005 & Acquired	Observations of uniquely matched firms with known banks that were acquired in the past two years and with relevant firm characteristics in 2005	441

Table II. Variable Definitions

The table reports the names, definitions, units, number of observations (# Obs.), mean, standard deviation (St. D.), and the 25, 50, and 75th percentiles for the main dependent and independent variables in Panel A and B respectively. The sample includes the maximum number of observations available. The units (U) used are: bivariate dummy (0/1) and percentage (%).

Dependent Variables	Definition	Units	# Obs.	Mean	St. D.	25th	50th	75th
Foreign Bank	=1 if at least one bank a firm employs is foreign; =0 otherwise	0/1	95,993	0.135	0.342	0	0	0
Foreign 1st Bank	=1 if the first bank a firm employs is foreign; =0 otherwise	0/1	95,993	0.121	0.326	0	0	0
+ Foreign Bank	=1 if the bank a firm adds to its set is foreign; =0 otherwise	0/1	2,122	0.457	0.498	0	1	1
- Bank	=1 if a firm drops a bank; =0 otherwise	0/1	2,067	0.272	0.445	0	1	1
Δ ROA	Growth in firm return on assets during the previous two years	%	34,603	2.6	11.2	-5.9	-0.3	4.4
Δ Assets	Growth in firm assets during the previous year	%	42,648	9.6	53.5	-8.1	5.6	21.0
Leverage	Firm leverage at the end of the previous year	%	41,621	36.2	3699.5	0	5.6	21.9
Investment	Firm investment over assets at the end of the previous year	%	43,575	5.5	20.5	-3.4	2.1	10.5

Independent Variables	Definition	Units	# Obs.	Mean	St. D.	25th	50th	75th
Firm Employees	The number of firm employees	-	46,142	592	2,067	132	223	500
Firm Age	The age of the firm	Years	53,164	15.4	20.9	6.2	9.6	13.5
d(Foreign Firm)	=1 if the firm is owned by foreigners; =0 otherwise	0/1	76,619	0.203	0.402	0	0	0
d(Bank-Owned Firm)	=1 if the firm is owned by a bank; =0 otherwise	0/1	76,619	0.015	0.122	0	0	0
d(State-Owned Firm)	=1 if the firm is owned by the state; =0 otherwise	0/1	76,619	0.078	0.269	0	0	0
Δ Sales(t-1)	Growth in sales in the previous year	-	35,749	0.088	0.657	-0.075	0.097	0.257
Efficiency	Difference between firm and median return on assets in the industry that year	-	53,263	-0.015	9.023	-0.043	0.000	0.056
Total Factor Productivity	The residual of an ordinary least squares regression of the log of firm sales on the log of firm employees, the log of firm assets and sector effects	-	35,311	0.001	0.865	-0.297	0.103	0.465
Number of Banks	The number of banks the firm employs	-	95,993	1.172	0.544	1	1	1
Excess Leverage	The residual of an ordinary least squares regression of firm leverage on the log of firm employees, firm tangibility, country, year and sector effects	-	20,663	-0.009	42.515	-1.372	0.070	1.634
d(Foreign Bank)	=1 if the firm employs at least one foreign bank; =0 otherwise	0/1	95,993	0.135	0.342	0	0	0
d(Foreign Bank Acquired the Bank)	=1 if the firm employs at least one bank that was acquired by a foreign bank	0/1	95,993	0.080	0.271	0	0	0
d(State-Owned Bank)	=1 if the firm employs at least one state-owned bank; =0 otherwise	0/1	95,993	0.038	0.192	0	0	0
Time Since Entry	The time since the foreign bank entered the domestic market	Years	95,993	0.876	2.912	0	0	0
Low Foreign Bank Presence	Country where the percentage of foreign loans over total loans is smaller than 30%	0/1	95,993	0.323	0.467	0	0	1

Table III. Foreign Bank Relationships

Panel A. Estimates

The panel reports the estimated coefficients and significance levels. All models are probit models estimated by maximum likelihood. The dependent variables are Foreign Bank, a dummy that equals one if the firm employs at least one foreign bank, in Models 1, 3 and 4 and 1st Foreign Bank, a dummy that equals one if the first bank the firm employs is foreign in Model 2. The definition of the samples and variables can be found in Tables I and II respectively. *, **, and *** = significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	**1**	**2**	**3**	**4**
	Probit	Probit	Probit	Probit
Dependent Variable	Foreign Bank	Foreign 1st Bank	Foreign Bank	Foreign Bank
Sample	2000 & 2005	2000 & 2005	2000 & 2005 Not Acquired	2000 & 2005
Number of Observations	5,112	5,112	3,336	5,101
ln(Firm Employees)	1.32 ***	1.16 ***	0.58	1.36 ***
	(0.45)	(0.41)	(0.63)	(0.45)
ln(Firm Age)	-0.38	-0.24	0.68	-0.31
	(0.84)	(0.81)	(1.13)	(0.85)
d(Foreign Firm)	7.42 ***	5.81 ***	5.65 ***	7.27 ***
	(1.46)	(1.36)	(1.78)	(1.46)
d(Bank-Owned Firm)	-6.76 ***	-5.88 **	-3.50	-6.83 ***
	(1.86)	(1.77)	(3.47)	(1.85)
d(State-Owned Firm)	1.12	-0.33	-0.28	1.33
	(2.95)	(2.75)	(2.90)	(2.98)
Δ Sales(t-1)	0.04	0.37	-0.55	-0.36
	(0.66)	(0.60)	(1.09)	(0.74)
Efficiency	-1.96	-2.28	-8.51 *	
	(2.29)	(1.71)	(4.46)	
Total Factor Productivity				0.73
				(0.68)
Number of Banks	8.40 ***	0.93	10.56 ***	8.34 ***
	(1.16)	(0.87)	(1.04)	(1.16)
Year and Country Dummies	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)	747 (0.00)	738 (0.00)	592 (0.00)	760 (0.00)
Pseudo R-squared	0.23	0.22	0.20	0.23

Panel B. Estimates

The panel reports the estimated coefficients and significance levels. All models are probit models estimated by maximum likelihood. The dependent variables are + Foreign Bank, a dummy that equals one if the bank a firm adds to its set is foreign, in Models 5 to 7, and - Bank, a dummy that equals one if the firm drops a bank, in Models 8 to 10. The definition of the samples and variables can be found in Tables I and II respectively. *, **, and *** = significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	**5**	**6**	**7**	**8**	**9**	**10**
	Probit	Probit	Probit	Probit	Probit	Probit
Dependent Variable	**+** Foreign Bank	**+** Foreign Bank	**+** Foreign Bank	**-** Bank	**-** Bank	**-** Bank
Sample	2005	2005	2005 & Acquired	2005 & in 2000	2005 & in 2000	2005 & in 2000
Number of Observations	1,047	1,046	441	906	906	906
ln(Firm Employees)	-1.18	-1.12	-0.27 ***	-1.07	-1.06	-1.08
	(1.65)	(1.65)	(0.22)	(1.33)	(1.32)	(1.31)
ln(Firm Age)	-4.18	-4.12	-0.13	-2.91	-0.96	-1.07
	(3.08)	(3.08)	(0.18)	(1.79)	(1.71)	(1.72)
d(Foreign Firm)				-3.56	-4.63	-4.58
				(3.05)	(2.87)	(2.87)
d(Bank-Owned Firm)				-7.10	-4.37	-4.29
				(5.75)	(6.67)	(6.66)
d(State-Owned Firm)				17.62 **	22.21 ***	22.58 ***
				(8.23)	(9.29)	(9.27)
Δ Sales(t-1)	4.41 *	4.17 *	0.24 **	2.64	2.78	2.51
	(2.26)	(2.42)	(0.25)	(2.54)	(2.49)	(2.49)
Efficiency	-4.40		0.70 **	-7.94	-9.83	-2.40
	(15.15)		(0.54)	(13.41)	(14.21)	(21.38)
Total Factor Productivity		0.34				
		(2.10)				
Number of Banks	2.12	2.18		21.40 ***	22.72 ***	22.62 ***
	(3.06)	(3.05)		(3.26)	(3.43)	(3.43)
d(Foreign Bank)				-4.92	-8.96 **	-9.09 **
				(3.98)	(3.60)	(3.57)
d(Foreign Bank Acquired the Bank)					-21.98 ***	-22.00 ***
					(3.84)	(3.85)
Efficiency * d(Foreign Bank)						1.32
						(29.12)
Efficiency * d(Foreign Bank Acquired the Bank)						-14.96
						(30.40)
Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)	132 (0.00)	130 (0.00)	24 (0.00)	90 (0.00)	103 (0.00)	104 (0.00)
Pseudo R-squared	0.12	0.12	0.16	0.11	0.16	0.16

Table IV. Firm Performance

The table reports the estimated coefficients and significance levels. All models are estimated by ordinary least squares, except Model 2 that is a probit model estimated by maximum likelihood. The dependent variables are firm leverage in Model 1, Foreign Bank, a dummy that equals one if the firm employs at least one foreign bank, the two-year change in Return on Assets in Models 3, and 5 to 8, and the change in firm assets in Model 4. The definition of the samples and variables can be found in Tables I and II respectively. *, **, and *** = significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	1	2	3	4	5	6	7	8
	OLS	Probit	OLS	OLS	OLS	OLS	OLS	OLS
Dependent Variable	Leverage	d(Foreign Bank)	Δ ROA	Δ Assets	Δ ROA	Δ ROA	Δ ROA	Δ ROA
Sample	All	All	All	All	All	All	All	All
Number of Observations	20,674	10,719	10,719	13,765	10,719	10,719	10,719	10,719
log(Firm Employees)	-0.74	2.75 *	0.40	0.95 ***	0.39	0.39	0.39	2.76 *
	(1.84)	(1.52)	(0.79)	(0.36)	(0.79)	(0.79)	(0.79)	(1.52)
ln(Firm Age)	-7.27 ***	2.46	0.49	-3.25 ***	0.46	0.51	0.49	2.38
	(2.74)	(3.19)	(1.34)	(0.62)	(1.34)	(1.34)	(1.34)	(3.19)
d(Foreign Firm)	6.27 *	29.73 ***	2.78	-1.04	2.62	2.94	2.77	29.75 ***
	(3.70)	(3.98)	(2.38)	(1.13)	(2.38)	(2.39)	(2.38)	(3.98)
d(Bank-Owned Firm)	0.41	-19.27 *	-0.10	-5.92 **	-0.05	-0.11	-0.08	-19.30 *
	(2.79)	(11.59)	(6.08)	(2.87)	(6.08)	(6.08)	(6.08)	(11.59)
d(State-Owned Firm)	3.90	-8.89	-1.68	-5.77 ***	-1.83	-2.28	-1.68	-8.90
	(4.50)	(8.40)	(3.47)	(1.56)	(3.47)	(3.49)	(3.47)	(8.40)
Number of Banks	-0.64	37.56 ***	1.84	2.68 *	1.62	1.64	1.82	37.55 ***
	(0.52)	(3.37)	(2.97)	(1.44)	(2.97)	(3.00)	(2.97)	(3.37)
Excess Leverage			-0.99 ***	0.02 **	-0.23	-0.96 ***	-0.99 ***	-0.88 ***
			(0.28)	(0.01)	(0.19)	(0.12)	(0.12)	(0.12)
d(Foreign Bank)	-1.95 **		-3.24	-0.20	-2.70	-1.31	-3.15	-5.74
	(0.91)		(20.46)	(9.35)	(20.44)	(20.96)	(20.46)	(20.46)
d(Foreign Bank Acquired the Bank)	-2.15				0.28			
	(2.05)				(2.30)			
d(State-Owned Bank)						1.33		
						(6.07)		
d(State-Owned Bank) * d(State-Owned Firm)						-1.98		
						(7.14)		
Excess Leverage * d(Foreign Bank)			0.76 ***	0.11	1.14 ***	0.73 ***	0.74 ***	1.17 ***
			(0.23)	(0.08)	(0.23)	(0.23)	(0.23)	(0.24)
Excess Leverage * d(Foreign Bank Acquired the Bank)					-1.18 ***			
					(0.23)			
Excess Leverage * d(State-Owned Bank)						0.16		
						(0.46)		
Excess Leverage * d(State-Owned Firm)						-1.41		
						(0.87)		
Excess Leverage * d(Distance > 1,000 km)							0.13	
							(0.45)	
Excess Leverage * Time Since Entry								-0.23 ***
								(0.06)
Country Dummies	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country * Year Dummies	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Constant	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)			114,549 (0.00)	3,813 (0.00)	2,021 (0.00)	1,999 (0.00)	1,995 (0.00)	17,535 (0.00)
Adjusted R-square	0.01							

Table V. Firm Performance, Bank Relationships and Foreign Banks

Panel A. Firms with Foreign versus Domestic Bank Relationships

The table compares the two-year change in leverage, investment, the two-year change in return on assets and sales growth for firms that have a relationship with a foreign bank and their matching firms that do not have any relationship with a foreign bank. We match the firms with foreign bank relationships to six firms (that have only domestic bank relationships) with the closest propensity score in the same country and year. The propensity score is calculated using the following variables: Excess Leverage, log(Firm Employees), ln(Firm Age), ROA, Tangibility, d(Foreign Firm), d(Bank-Owned Firm), d(State-Owned Firm), dSales(t-1), Efficiency, and Number of Banks. We compare the firms with a foreign bank relationship and their six matching firms in all countries and in countries with a low and high foreign bank presence. A low (high) foreign bank presence country is defined as a country - year combination when the percentage loans granted by foreign banks is smaller (larger or equal) than 30 percent of the total amount of loans granted. All estimates are obtained using six matching firms. The number of observations (n) is indicated between parentheses. The definition of the variables can be found in Table II. *, **, and *** = significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Matching Model	**1**	**2**	**3**	**4**
Dependent Variable (in %)	**Δ Leverage**	**Investment**	**Δ ROA**	**Δ Sales**
Firms with *Foreign versus Domestic* Bank Relationships	-40.847 **	0.830	0.095	1.467
in *All* Countries	(n=17,430)	(n=13,900)	(n=10,719)	(n=13,750)
Firms with *Foreign versus Domestic* Bank Relationships	8.280 **	3.085 *	2.643 ***	-3.444
in *Low* Foreign Bank Presence Countries	(n=4,588)	(n=3,976)	(n=3,449)	(n=4,474)
Firms with *Foreign versus Domestic* Bank Relationships	-58.269 ***	-0.978	0.059	1.952
in *High* Foreign Bank Presence Countries	(n=12,842)	(n=9,924)	(n=7,270)	(n=9,276)

Panel B. Firms with Foreign or Domestic Bank Relationships in Countries with Low versus High Foreign Bank Presence

The table compares the two-year change in leverage, investment, the two-year change in return on assets and sales growth for firms that have a relationship with a foreign or a domestic bank in countries with low versus high foreign bank presence. A low (high) foreign bank presence country is defined as a country - year when the percentage loans granted by foreign banks is smaller (larger or equal) than 30 percent of the total amount of loans granted. We match firms with a foreign (domestic) bank relationship in low and high foreign bank presence countries in a given year using a propensity score methodology. The propensity score is calculated using the following variables: Excess Leverage, log(Firm Employees), ln(Firm Age), ROA, Tangibility, d(Foreign Firm), d(Bank-Owned Firm), d(State-Owned Firm), d Sales(t-1), Efficiency, and the Number of Banks. The number of observations (n) is indicated between parentheses. The definition of the variables can be found in Table II. *, **, and *** = significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Matching Model	**1**	**2**	**3**	**4**
Dependent Variable (in %)	**Δ Leverage**	**Investment**	**Δ ROA**	**Δ Sales**
Firms with *Foreign* Bank Relationships	-6.842 **	-5.364	1.070	-10.965
in *Low versus High* Foreign Bank Presence Countries	(n=2,871)	(n=2,237)	(n=1,710)	(n=2,221)
Firms with *Domestic* Bank Relationnships	-57.700 ***	-5.405 ***	0.659	-6.393 ***
in *Low versus High* Foreign Bank Presence Countries	(n=14,559)	(n=11,663)	(n=9,009)	(n=11,529)