"Lending by Example": Direct and Indirect Effects of Foreign Banks in Emerging Markets [*]

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Abstract

Using a novel dataset that allows us to trace the primary bank relationships of a sample of mostly unlisted firms, we explore which borrowers are able to benefit from foreign bank presence in emerging markets. Our results suggest that the limits to financial integration are less tight than the static picture of bank-firm relationships implies. Even though foreign banks are more likely to engage large and foreign-owned firms, they do not terminate relationships with the clients of banks they acquire as often as domestic financial acquirers do. Most importantly, firms appear to have the same access to financial loans and ability to invest whether they borrow from a foreign bank or not. Since firms without bank relationships make lower use of financial loans, and invest less, our results suggest that by making relationships more stable and by indirectly enhancing access to the financial system, foreign banks may benefit all firms.

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 a country's financial system by contributing both investment funds and financial expertise.

However, the literature has raised concerns about the limits to 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 large amounts of funds (Khwaja, Mian and Zia (2007)).

Foreign banks may be even more reluctant than domestic financial intermediaries to lend to opaque borrowers. Warnings about the threat that foreign banks may pose for the domestic banking system have been issued in academic and policy circles alike (Stiglitz (2002)). Foreign banks could poach depositors and safe borrowers from domestic banks while remaining unwilling to lend to local entrepreneurial firms. In addition, foreign acquisitions could disperse the "soft" information local lenders have accumulated. Existing empirical studies support these fears by showing that not only foreign banks are more inclined to lend to large firms with foreign owners (Mian (2006a), Berger, Klapper, Martinez Peria and Zaidi (2008) and Berger, Klapper and Udell (2001)), but also that credit to the private sector may even be lower in countries with widespread foreign bank presence (Detragiache, Tressel and Gupta (2008)).

So far, the pessimistic view on the beneficial effects of foreign bank presence has mostly been supported by static investigations of the direct effects (i.e., focusing on who the clients of foreign banks are). Before concluding that only firms that directly access foreign banks or other foreign investors benefit from financial integration, however, one should explore whether all firms possibly *indirectly* benefit from the presence of foreign investors.

Indeed, foreign entry can initiate dynamic changes in the host countries' credit market that potentially affect all firms positively. 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 spurred 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 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 establish relationships with foreign banks and how the characteristics of a bank's customers change after a foreign acquisition. Crucially, we can also explore to what extent direct access to foreign lending affects firm access to financial loans and performance.

We find that large and foreign-owned firms are indeed more likely to establish relationships with foreign banks. This is consistent with the notion that foreign banks "cherry-pick" their customers and large sectors of the economy remain excluded from foreign lending. However, foreign banks are less inclined than other banks to terminate relationships with their clients, 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 that all banks appear inclined to terminate relationships with are state-owned firms. Recently entered foreign banks establish new relationships with younger and growing firms.

More importantly, our results suggest that the limits to financial integration are less tight than a static picture of the existing bank-firm relationships may suggest. Using a propensity score methodology, we show that firms appear to have the same access to financial loans and ability to invest whether or not they borrow from a foreign bank. Having a bank – rather than the nationality of the bank – seems to matter most for firm access to financial loans and investment behavior. Foreign bank presence could be

problematic if foreign banks were more inclined to terminate relationships, especially after their acquisitions of domestic banks. Instead, we find that relationships with foreign banks are less likely to be terminated. In addition, even though foreign banks do not directly expand access to the banking system by establishing relationships with previously unbanked firms, we find that an increase in foreign bank presence or an improvement in banking system development increase the probability that firms establish bank relationships. Thus, it appears that foreign bank presence may ultimately improve access to credit for all firms.

This paper is related to a growing literature exploring the effects of foreign bank presence on domestic credit markets. Most of the existing papers exploit bank level data without considering borrowers' investment opportunities. These papers provide mixed results: while Detragiache, Tressel and Gupta (2008) and Beck and Martinez Peria (2008) suggest that banks extend fewer loans after being acquired by a foreign investor, Clarke, Cull, Martinez Peria and Sanchez (2005) find that some foreign banks make more loans to small businesses than domestic banks.[1] Having no access to firm data, these papers are unable to evaluate whether bank lending policies negatively affect firm performance or are the result of a more efficient allocation of credit by foreign banks that − being outsiders − are likely to limit crony lending problems and thus lend less to non-creditworthy firms.

Some recent papers describe the characteristics of foreign banks' clients but are unable to go beyond the static picture either because they consider a context with relatively stable foreign bank presence (Mian (2006a)) or because they only have access to a cross-section (Berger, Klapper, Martinez Peria and Zaidi (2008) and Berger, Klapper and Udell (2001)). We complement their findings by exploring how bank clients change after an acquisition and by highlighting the effects of bank relationships on firm performance.

Finally, our results help to interpret the findings of Giannetti and Ongena (2008). They show that in markets where foreign bank presence is more pervasive, all firms, and

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[1] The empirical evidence is mixed even for the sample of Eastern European economies that we explore in this paper. For instance, Haselmann and Wachtel (2007) find that all banks, including the foreign ones are more inclined to lend to small and medium enterprises if creditor protection is strong, while in De Haas, Ferreira and Taci (2008) foreign banks lend to large firms independently from the legal environment.

especially 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 provide evidence suggesting that foreign banks 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) and Berger, Bonime, Goldberg and White (2004) 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) show 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.

The remainder of this paper is organized as follows. Section 2 describes data and sample characteristics. Section 3 studies bank-firm relationships both statically and dynamically, while Section 4 analyzes the impact of these relationships on firm performance and financing. Section 5 explores whether an increased access to the banking system improves firm performance. Section 6 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. The way we identify bank relationships is similar to Ongena and Smith (2001), Karceski, Ongena and Smith (2005), and Ongena and Smith (2000) who obtain information on primary bank relationships reported in a Norwegian firm register and a European survey, respectively. Firms in these datasets 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.

Kompass collects data using information provided by chambers of commerce and 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 two years.

We obtain the firm directories for thirteen emerging economies (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Slovenia, and 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.[2] 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 concentrate on the thirteen 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 unlisted firms are more dependent on bank loans, we believe 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.

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[2] It thus appears that the number of firms reported in Kompass drops between 2000 and 2005, but the quality of reports improves as we more often observe bank relationships. This is probably due to the fact that the 2000 edition of the survey reports firms that were no longer active. These firms drop from our sample because Amadeus, the source of financial information to which we match the Kompass firms as explained below, drops inactive firms after five years.

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 (see also Berger (2007)). On the other hand, in the thirteen Eastern European economies we study, foreign to total bank assets jumped from an average of 15 percent prior to 1997 to more than 55 percent in 2005 (foreign to total bank assets then exceeds 50 percent in ten countries). Since our main objective is to explore the dynamic effects of banking system integration in countries with underdeveloped financial system, we focus on these Eastern European Economies.

We believe that our sample can provide insights that we believe go well beyond the Eastern European Economies. Even though these countries had a peculiar experience of transition from a Socialist system, our sample starts at the end of the nineties, more than 10 years after the start of the process of transition, a time when transition was basically completed and the countries had become comparable in their economic and institutional development to other emerging markets (Shleifer and Treisman (2005)).[3]

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). While the much larger number of firms reported in Amadeus may suggest that Kompass can provide only an incomplete view of the firms accessing bank services in a country, half of the firms in Amadeus are actually mere legal entities showing little sign of any economic activity by reporting neither sales, assets, nor employees. Less than 20 percent of the firms in the initial sample report more than 100 thousands dollars in sales and assets, and more than 10 employees. Thus,

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[3] Nor can one argue that domestic banks in these countries were different for instance because they did not have the time to accumulate "soft" information on their borrowers. Cole (1998) for example argues that banks acquire soft information on firms in one to three years.

Kompass allows us to observe roughly 25 percent of the active and economically relevant firms in 2000 and 2005, respectively.

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, we use 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; (b) the first fifteen letters of the addresses in both databases contain an equal string of eight consecutive characters; (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 few hundred 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.

We also 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 of 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 firm 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. Figure I also reveals that different countries are differently represented in the sample. For this reason, in the empirical analysis, we make sure that our results are not influenced by the observations of any particular country by dropping countries in turn. The results are qualitatively equivalent to the ones we present.

Finally, we complement our main dataset with country GDP statistics from the *World Development Indicators*, indexes capturing the strength of the institutional environment from the International Country Risk Guide (ICRG), and the great circle distance between the capital city of the foreign bank's 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 characterize firm-bank relationships. A comment is in order to interpret the sample size of the descriptive statistics reported in Table I. In our dataset, we

observe firms' primary bank relationships in 2000 and 2005 only. However, in some specifications, as, for instance, when we explore the effects on firm performance, 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 1999 to 2001, the second period from 2002 to 2005. We assume that firms maintain relationships with banks as reported in the 2000 and 2005 directories in each of the two periods, respectively. We present the descriptive statistics of variables that we use in specifications in which we exploit the panel nature of firm characteristics for all firm year observations from 1999 to 2005, even though most of our results are obtained using only the 2000 and 2005 cross-sections.

Panel A of Table I provides the definitions and summary statistics of the main relationship variables. *Foreign Bank* is a dummy variable that equals one if at least one bank a firm employs is foreign, and equals zero otherwise; 14 percent of the firms report to employ at least one foreign bank. Interestingly, the percentage of firms that have a relationship with a foreign bank is much smaller that the percentage of loans granted by foreign banks (which is roughly 40 percent for the sample firms over the sample period). This suggests that foreign banks tend to grant large loans to a minority of borrowers, as is consistent with the findings of previous literature.

Firms report banks in Kompass not in alphabetical order but in order of importance. We find no evidence that firms with multiple relationships tend to report foreign banks first for reputational reasons. Hence, we can capture the primary relationship of a firm by constructing a dummy variable *Foreign 1st Bank* that equals one if the first bank a firm employs is foreign, and equals zero otherwise; 12 percent of the firms report a foreign bank as their first bank, only slightly below the 14 percent of firms that reported to have a foreign bank.[4]

Similarly, *Large Domestic Bank* is a dummy variable that equals one if at least one bank a firm employs is domestic with assets above the median of the banks in the

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[4] This depends on the fact that most of firms with a foreign bank entertain a relationship with only one bank.

sample; 12 percent of the firms appear to employ a large domestic bank. Finally, *State-Owned Bank* is a dummy variable that equals one if at least one bank the firm employs is domestic and government owned. Approximately, 8 percent of the firms are clients of state-owned banks.

In addition to these static relationship variables, we also construct two dynamic relationship variables that capture changes in the bank-firm relationships. + *Foreign Bank* is a dummy variable that equals one if a firm establishes a new connection with a foreign bank, and equals zero if the firm establishes a new connection with a domestic bank. This variable is defined only for firms that are in our sample and report banks both in 2000 and 2005; the unit of observation is now the firm. Panel A of Table 1 shows that 46 percent of the firms for which we can trace bank relationships over time 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 during the sample period.

Finally, + *Bank* (- *Bank*) is a dummy variable that equals one if a firm's relationship with a given bank has been added (dropped) in 2005, and equals zero otherwise. It is important to note that here our unit of observation is no longer the firm or the firm-year as before, but the specific bank relationship of a given firm in 2005 (2000); over 40 per cent of the relationships are established during the sample period, while nearly 80 percent of the relationships observed in the 2000 survey are terminated by 2005. This suggests that firms may have decreased the average number of bank relationships.

We not only study the determinants, but also the impact of bank relationships on firm performance and financing. We focus on four key firm variables. *Leverage*, *Sales per Employee* (as a measure of productivity), *ΔSales* which is the growth in firm sales, and *Investment* which is defined as the ratio of fixed assets over total 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. The median firm in our dataset is less than 10 years old and has slightly more than 200 employees confirming that we are able to focus on relatively small unlisted companies. Foreign banks being large, centralized, and with the

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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 services, such as specialized foreign exchange, that only foreign banks can provide.

However, if crony-lending policies prevail, as is often the case in emerging markets, domestic banks direct loans to politically and socially connected borrowers, independently of their creditworthiness, and discriminate against small and especially young firms (see, for instance, La Porta, Lopez-de-Silanes and Zamarripa (2003) and Mian (2006b)). In this case, small and young firms may be the ones that benefit most from foreign bank presence if foreign banks are willing to lend to unestablished borrowers with profitable investment opportunities.

Firm ownership may also be related to the type of bank a firm maintains relationships with. We define three firm ownership dummies, *Foreign Firm*, *Bank-Owned Firm*, and *State-Owned Firm*, that equal one if foreigners, a bank, or the state owns the firm, respectively, and equal zero otherwise. Foreign firms are generally more likely to engage home country banks because these are better able to provide the services that they need (Berger, Dai, Ongena and Smith (2003) and Kindleberger (1983)). 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 may also be 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's number of employees, 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 actual bank selection (Detragiache, Garella and Guiso (2000), Ongena and Smith (2000)). We return to this issue later in the paper. 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's use of financial 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)).

We are also interested in whether the mode of bank entry affects the characteristics of foreign banks' customers. We define a dummy *Greenfield* that equals one if the bank entered through a greenfield investment and equals zero otherwise. The number of foreign banks in the country that entered as greenfield investment varies. All active foreign banks acquired a domestic bank in Estonia, Lithuania and Slovenia, while more than a quarter of all active foreign banks in Bulgaria, Rumania, Russia, Slovakia, and Ukraine are greenfield investments.

At the country level, we further control for *Financial Development* and *Foreign Loans*. The former variable is defined as total bank assets over GDP, while the latter variable equals foreign over total bank loans. Financial development varies widely across the sample countries and years, from 15 percent in the Ukraine in 2000 to 176 percent in Estonia in 2005, for example. The percentage of foreign loans steadily increases over the sample period, from 35 percent in 2000 to 55 percent in 2005, surpassing 50 percent in eleven of the sample countries.

The other independent variables presented in Table I Panel B, i.e., *Foreign Bank*, *Foreign Bank Acquired the Bank* and *Domestic Bank Acquired the Bank* 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.

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. Only the age differential is statistically significant at the 10 percent level, though not necessarily economically relevant (the mean age is around 30 years in both samples). Hence, inability to find a match in Kompass does not seem to be systematically related to any directly observable characteristic, but mostly driven by random factors such as the spelling of the company's name.

In Table II (Models 1 and 2), we report the estimates of the multivariate analysis. We observe primary bank relationships for larger and less profitable firms. Thus, our matched sample is not biased towards the best performing firms. Most importantly, 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 firm's ability to access financial loans.

In Subsection 3.3, we further explore to what extent sample selection problems may bias our results by analyzing the full Kompass sample and the limited amount of information on firm characteristics provided by Kompass.

In Model 3, we consider the subsample of firms in Amadeus and Kompass that we are able to match. Also in this case, we explore the determinants of the probability that a firm reports a bank in Kompass. Firms that do not report a bank are smaller and more profitable. Their higher profitability makes unlikely that these firms are not creditworthy. Most importantly, it appears that not reporting a bank in Kompass conveys useful information regarding a firm's financial structure. Firms that do not report banks in Kompass have lower leverage, suggesting that the lack of primary bank relationships is related to a less intensive use of the banking system. In what follows, we consider these firms as "unbanked" and explore to what extent foreign bank presence improves their access to the banking system.

Table III summarizes the salient characteristics of bank-firm relationships across the different credit markets. Firms for which we observe a bank, firms with foreign bank relationships, and firms with relationships with foreign banks that entered through a greenfield investment appear roughly equally distributed across credit markets with high and low financial development, high and low foreign bank presence, high and low competition (proxied by the Herfindahl-Hirschman index of bank loans), and weak and

strong economic performance (as measured by the country's investment profile). Something is, however, immediately apparent. In countries with higher percentage of foreign loans, more firms report relationships with domestic banks. This is also the case in 2005 for countries with more developed banking system. As we show later, this may depend on the fact that foreign bank presence indirectly expands credit access.

3.   Bank-Firm Relationships

3.1.   STATICS

We investigate which firms have a relationship with 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. Additionally, to take into account the fact that different firms face different domestic credit markets, we include country fixed effects in all specifications. Thus, our specifications ask whether firms with certain characteristics are more likely to have relationships with certain banks within a given credit market.

Results are reported in Table IV, Panel A. Large firms and firms that have a foreign investor among 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 effects are not only statistically significant but also economically large. Foreign-held firms are 7 percentage points more likely than domestically held firms to employ a foreign bank. Similarly, a marginal increase in the logarithm of the number of employees increases the probability of engaging a foreign bank by more than 1 percentage point. This is a large effect since the unconditional probability of having a foreign bank in the sample is 14 percent.

These findings are consistent with the results in Mian (2006a) and Berger, Klapper, Martinez Peria and Zaidi (2008), who show that foreign banks tend to establish relationships with more transparent firms in Pakistan and India, respectively. The fact that the static picture of bank-firm relationships confirms the findings of the existing literature increases our confidence that any results challenging the received wisdom are

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more likely derived from the richness of our dataset rather than from the specific institutional context or from a sample selection bias.

Past firm performance, measured by the growth of sales, and efficiency or total factor productivity do not appear to affect the likelihood of engaging a foreign bank. Firms with 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. Thus, to the extent that firms establish multiple bank relationships to ensure their access to the banking system (Detragiache, Garella and Guiso (2000)), this suggests that relationships with foreign banks are not more fragile than relationships with domestic banks.

The propensity of foreign banks to establish relationships with larger and foreign owned firms does not appear to decrease with the time elapsed since their entry (results are unreported). We also explore whether the geographic origin of banks matters (results unreported). Closer European banks, that is, banks with headquarters that are within 3,000 km from the capital of the host countries, appear even more inclined to engage firms with foreign owners, possibly because there is more foreign investment in the host country originating from their own country. On the other hand, distant banks, mostly headquartered in the U.S., are even more inclined to lend to the largest borrowers as the effect of firm size we report more than doubles.

Interestingly, only foreign banks that entered through a greenfield investment appear more likely to establish relationships with large firms (Model 3). The effect is economically large as it increases the effect of firm size on the likelihood of a foreign

bank more than six-fold.[5] The bias of foreign banks entered through a greenfield investment does not appear to decrease over time. This result is unlikely to capture differences in bank behavior across credit markets because all regressions include countries fixed effects. Since a few countries in our sample did not experience foreign bank entry through both acquisition and greenfield investment, we repeated the estimates excluding countries that experienced foreign bank entry only through acquisitions. Results are similar to the ones we report. This finding suggests that foreign banks that enter by acquiring domestic banks inherit their clients and, possibly, some of the soft information of the domestic banks. Different modes of entry can potentially explain why foreign banks appear willing to engage smaller firms in some Latin American economies (Clarke, Cull, Martinez Peria and Sanchez (2005)) but not in India and Pakistan (Mian (2006a) and Berger, Klapper, Martinez Peria and Zaidi (2008)).

Finally, we explore the characteristics of the clients of large domestic banks (Model 5) as well as (domestic) government owned banks (Model 6). While large domestic banks are more likely to establish relationships with smaller firms than foreign banks do, government owned banks privilege large firms somewhat as well. The clients of large domestic banks are on average significantly older and are likely to have a bank among their large shareholders. This suggests that large domestic banks are more likely to favor established borrowers that are well connected to the financial system, possibly to the large bank itself. More in general, these findings show that foreign banks are not simply large or privately owned banks. Their status as outsiders appears more important than the fact that they are large and private organizations in shaping their lending policies.

3.2.   DYNAMICS

Focusing on firms that we are able to match to their primary banks both in 2000 and 2005, we explore the characteristics of firms that establish or terminate a relationship with a foreign bank during the sample period (Table IV, Panel B). As in Section 3.1, and unless otherwise noted, we control for differences across credit markets by including country fixed effects.

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[5] Note that here we are not calculating a cross derivative, but simply looking at the marginal effect of firm size given that the Greenfield dummy is equal to one.

First, we explore which firms add a foreign bank rather than a domestic bank to the set of their bank relationships in the 2005 directory as a function of firm characteristics in 2004 (Model 7).[6] We find that adding a foreign bank is crucially related to growth. A marginal increase in firm performance, measured by the growth of sales, increases by over 2 percentage points the probability of establishing a relation with a foreign bank. Other firm characteristics such as size, age, foreign ownership or efficiency, some which appeared important on the basis of the static picture of bank-firm relationships, become irrelevant. Banks that have recently become foreign because of an acquisition or that have recently entered through a greenfield investment are more likely to establish relationships with younger firms (not reported). Thus, foreign bank entry can potentially increase access to financial loans for unestablished firms.

In Models 8 and 9, we address this question more directly by exploring which firms that do not report bank relationships in the 2000 edition of the survey are likely to have established at least one bank relationship in 2005. Unsurprisingly, the firms that according to the Kompass survey acquire better access to the financial system are larger. Interestingly, foreign and state owned firms are less likely to establish bank relationships if they did not have any in 2000. This suggests that these firms may have different ways to access the financial system. More importantly, previously unbanked firms are significantly less likely to establish relationship with foreign banks. The effect does not appear to depend on the foreign bank's mode of entry. This suggests that foreign banks are unlikely to expand credit access and that the direct benefits of foreign bank presence are limited.

In Model 9, we omit country fixed effects and explore how some characteristics of the local credit market affect the likelihood that the firm establishes at least one bank relationship. We control for the country's banking system development by including the ratio of bank assets to GDP and for investment opportunities and institutional environment by including an indicator of the country's investment profile in terms of macroeconomic performance and institutional quality. The estimates, which are admittedly only suggestive given the small number of countries, show that an increase in

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

foreign bank presence increases the probability that a previously unbanked firm reports a bank relationship in 2005. Thus, foreign banks appear to have a positive indirect effect on unbanked firms' access to credit.

More domestic credit instead does not increase the probability that these firms establish bank relationships. Firms are more likely to establish bank relationships in less competitive credit markets, as is consistent with the notion that less competition improves credit access for opaque firms (Petersen and Rajan (1995)). This effect is particularly large. The following approximation gives an idea of its economic magnitude. Moving two standard deviations around the mean from a competitive (0.08) to a concentrated (0.24) market increases the probability of having a bank by almost 22 percentage points (31 percent of the firms report engaging their first bank in 2005).

Interestingly, foreign bank presence decreases the probability that firms that report bank relationships establish additional ones. In Model 10, we consider all bank-firm relationships in 2005 and explore the determinants of the probability that any of the relationships is newly established. As noted before, to the extent that firms seek multiple bank relationships to ensure their access to the banking system, this is consistent with the possibility that foreign bank presence makes firm access to credit less volatile.

This conjecture is also supported by the fact that foreign banks − independent of whether there was a recent acquisition − are not more likely than other banks to terminate relationships with their clients in Models 11 to 14, where we explore whether any of the bank-firm relationships that we observe in 2000 has been dropped by 2005. This contrasts with the behavior of domestic banks that after a (domestic) acquisition are more likely to drop their clients as has been documented in previous literature (see, for instance, Sapienza (2002)) and is apparent from Model 13. The different behavior of domestic and foreign banks leads to economic sizable effects of the probability of terminating a relationship. A relationship with a foreign bank is on average 8 percentage points less likely to be terminated. If the foreign bank entered in the last three years by acquiring a domestic bank, the probability of a termination decreases by further 13 percentage points. In contrast, if a domestic bank has been acquired during the last three years by another domestic bank the probability of a termination increases by 5 percentage points.

Interestingly, the different behavior of domestic and foreign banks does not appear to depend on the fact that domestic and foreign banks acquire banks with systematic differences. Descriptive statistics (not reported) reveal that the proportion of bad loans is similar for banks acquired by domestic and foreign financial institutions. Nor the different behavior of domestic and foreign acquirers appears to be due to the fact that they face different competitive environments. In fact, the change in the Herfindahl-Hirschman index of loans for the median firm that in 2000 was client of a foreign and a domestic acquired bank is the same (as foreign and domestic acquisitions occur in the same credit market).

Foreign banks appear less likely to drop their clients especially if they acquire banks with a high proportion of non-performing loans (Model 14). Possibly, being able to infuse more capital than domestic banks, they are able to lend more and do not need to terminate relationships.

Other control variables also provide useful insights. 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. Relationships with bank-owned firms are also more likely to be terminated. To the extent that this variable captures connected borrowers, this suggests that connected lending becomes less pervasive during the sample period.[7] Other firm characteristics (that in this case we measure in 1999) appear unrelated to the decision to terminate a relationship.

3.3. ROBUSTNESS

Kompass provides some – even though limited – information about the firms included in the directory. To have a sense about possible biases in the above results, we reproduce the main specifications presented in Table IV with proxies that mimic, where possible, the more precise firm characteristics that we construct with Amadeus.

In particular, we can control for number of employees and firm age, both reported in the Kompass survey, and we define a proxy for firm visibility as a dummy variable that

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[7] This effect does not seem to depend on the extent of foreign bank presence or on whether the relationship entails a foreign bank.

takes value equal to one if the survey reports the firm's website and equal to zero otherwise.

The results in Table V confirm the picture that emerges in Table IV. The static picture suggests that foreign banks favor large (although the coefficient is not significant at conventional levels) and visible companies. However, domestic banks do not necessarily appear more inclined to lend to opaque borrowers: Large domestic banks are also more likely to have relationships with visible firms even though they are more inclined to lend to small firms. Additionally, state-owned banks engage older firms.

As above, the dynamic picture provides less evidence of cherry-picking by foreign banks. The new clients of foreign banks appear to be neither larger nor more visible. Furthermore, while foreign banks do not appear to establish relationships with firms without primary bank relationship in 2000, they may improve these firms ability to access the banking system indirectly to the extent that they increase bank credit. Differently, from the regressions we report in Table IV, here an increase in the percentage in foreign loans is not positively related to the probability that firms start reporting at least one bank relationship. This, however, does not have a dramatic effect in the interpretation of our results as change in foreign loans and increase in domestic credit are highly correlated in this sample.

Finally, relationships with foreign banks still appear to less likely to be terminated even after an acquisition. The complete Kompass sample also confirms that domestic acquirers on the contrary are more likely to terminate relationships.

Overall, our main results on the statics and the dynamics of bank-firm relationships are broadly consistent with the ones we obtain in the matched sample. This increases our confidence that selection biases are unlikely to be a problem.

4.   Foreign Lending and Firm Performance

So far, we have shown that the direct benefits of foreign bank presence are indeed limited to large and foreign owned firms, arguably the ones that have easier access to external finance. These firms benefit from more stable relationships with their banks, as foreign banks appear less likely to terminate relationships, possibly thanks to their better and more stable access to funds. However, foreign banks are unlikely to establish

relationships with firms that did not previously report bank relationships thus suggesting that foreign banks do not directly expand credit access.

Even if the direct benefits are limited, all firms may indirectly take advantage of foreign bank presence to the extent that they are able to access credit at similar terms from domestic banks or other informal sources. In this section, we investigate whether the limited direct effects of foreign bank entry should be a cause for concern and explore whether firms with (direct) access to foreign banks make greater use of financial loans and achieve better performance. If foreign banks relax financing constraints only for the companies they fund, the companies that maintain a relationship with a foreign bank should invest and grow more than similar companies that do not deal with a foreign bank. On the other hand, firms that do not directly borrow from foreign banks should be unable to benefit from foreign bank presence.

Since banks do not select their borrowers randomly (nor do borrowers select their banks randomly), evaluating the effect of foreign bank relationships on corporate outcomes poses a serious econometric challenge. Differences in performance between firms with and without foreign bank relationships may depend on differences in the economic environment and differences in observable and unobservable firm characteristics. Thus, to evaluate whether having a relationship with a foreign as opposed to a domestic bank has an effect on firm outcomes, it is important to carefully select a control group of firms.

We rely on propensity score matching techniques, developed by Rosenbaum and Rubin (1983). Using a probit model we estimate the propensity score as the probability that each firm in our sample has a foreign bank. This is similar to what we do in Table IV (more details are in the caption of Table VI). Then, for each country, two digit industry and year, we match firms on the basis of the propensity scores making sure to eliminate from the treated and the control samples, those firms whose propensity scores do not belong to the intersection of the supports of the propensity scores of treated and control observations.[8] This has been shown to greatly reduce the bias in the estimation of average treatment effects (Heckman, Ichimura and Todd (1997)).

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[8] In addition, we also ensure that the covariates are balanced: observations are stratified so that there is no significant difference in the propensity score of treated and control firms within each stratum.

The average treatment effect is finally computed by matching each treatment observation (i.e., firm with a foreign bank) with one or more control observations with similar propensity score. The average treatment effect is then calculated as the average difference in the outcomes of the treated observation and the matched controls.

Propensity score estimators can provide a fair assessment of the average treatment effect, which in our case consists in having a foreign bank as opposed to a domestic bank, if the following two conditions are satisfied (Rosenbaum and Rubin (1983)). First, given some firm observable characteristics, firms with foreign banks should have had the same expected performance of firms that rely only on domestic banks had they had no relationships with foreign banks. Second, having a foreign bank should not be perfectly predictable on the basis of firm observable characteristics, but it should also be driven by random factors.

The first condition is not satisfied if bank selection is affected by firm unobserved characteristics. While we cannot provide firm statistical evidence, we show below, using alternative econometric techniques, that selection on unobservables is unlikely to be important.[9]

The propensity score estimates support the second condition. If we group firms according to their estimated propensity score, the lowest group has an estimated probability of engaging a foreign bank below 0.1 percent and includes 51 (65) percent of firms with (without) at least one foreign bank. Similarly, in the highest group, the probability of engaging a foreign bank is 6 percent and roughly 40 percent of the observations in this group refer to firms that do not engage a foreign bank. Thus, firms with similar propensities may or may not engage a foreign bank, probably due to random factors, such us costs from switching banks, chemistry with the loan officer etc.

We present results for four alternative propensity score estimators of the treatment effect (see Becker and Ichino (2002) for details). The nearest neighbor with replacement estimator matches each treated observation to the *n* observations with closest propensity

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[9] Interestingly, Heckman, Ichimura and Todd (1997) show that most of the bias in the estimation of treatment effects in observational studies derives from comparing subjects that differ in observable characteristics or in their economic environment. Selection on unobservables represents a surprisingly small fraction of the bias.

score. [10] We set *n* equal to 10 and 50. The Gaussian and Epanechnikov estimators match all treated observations with a weighted average of all controls with weights that are inversely proportional to the distance between the propensity scores of treated and controls.

Results are presented in Table VI. We find no significant differences in financial leverage, investment, sales per employee, and growth of sales between firm with at least one foreign bank and firms with domestic banks only. In unreported tests, we also find that the average cost of debt, proxied by the ratio of financial expenses to financial liabilities, does not differ between treated and control observations. The average treatment effect is not significantly different from zero even if we use a difference-in-difference estimator of the treatment effect and compare the outcome of firms that establish a new relationship with a foreign bank with firms that maintain relationships with domestic banks (Panel B of Table VI). Nor do we find any difference in performance if we restrict the sample to subset of countries with high or low development of the banking system or foreign bank presence.

These results suggest that firms with and without foreign bank relationships do not have differential access to the financial sector and, as a consequence, they have similar level of investment, ability to generate revenues, and growth. This evidence is consistent with the notion that foreign banks indirectly benefit all borrowers by affecting bank-lending policies. Such an interpretation would also be consistent with empirical evidence showing that in developing countries, and Eastern Europe in particular, the entry of foreign banks is followed by a decrease in profitability and margins for domestic banks, suggesting that competition increases (Claessens, Demirgüç-Kunt and Huizinga (2001)). It is also possible, however, that foreign as well as domestic banks do not enhance their borrowers' access to credit and thus neither hurt nor benefit the domestic banking system.

Note that if foreign banks cherry picked firms on the basis of characteristics that we do not include in the estimation of the propensity score and that are positively related to future performance, our estimates of the treatment effect should, if anything, be biased

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[10] As noted by Dehejia and Wahba (2002), using an estimator with replacement allows us to reduce the bias of the treatment effect estimates, but increases their variance.

upwards making our results even more surprising. On the other hand, if domestic banks had an informational advantage, they could select firms on the basis of unobservable firm characteristics that are related to future performance. In this case, our estimate of the treatment effect could be biased downward by the informational disadvantage of foreign banks, instead of indicating that direct and indirect effects of foreign bank presence are equally important.

To mitigate concerns that firms with certain unobservable characteristics systematically establish relationships with foreign banks, we thus estimate a treatment effects model (see, for instance, Heckman and Robb (1985)). This approach imposes more restrictions than the propensity score methodology as it assumes a linear functional form for the effects of firm observable characteristics on performance and requires that the errors are normally distributed. However, it allows to estimates the treatment effects also in presence of selection on unobservables and provides a check of the robustness of our results.

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 are obtained using a two-step consistent estimator 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 instrument 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 in this setting the number of relationships should directly affect firm future performance once we have controlled for firm access to funds.

Table VII shows that the coefficient of the foreign bank dummy is never significant.[11] This confirms our previous results that foreign banks do not directly benefit firms. Moreover, the coefficient on the inverse Mills' ratio is also not 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

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[11] In these specifications, we include country-specific time effects in order to control for country-specific macroeconomic events and institutional changes that may have had an effect on firm performance.

(2007) for such an interpretation), the insignificant coefficient suggests that foreign banks are not better at screening firms than domestic banks and that the firm's characteristics we control for capture all salient information about the borrower. This supports the identification assumption of the propensity score estimator.

5.   Bank relationships and Firm Performance

So far, we have shown that having a relationship with a foreign bank is immaterial for firm performance. A possible interpretation of this evidence is that foreign lending indirectly benefits all firms even if they have only relationships with domestic banks. However, the results are also consistent with the possibility that foreign banks do not have positive impact on firm performance, for instance, because they do not expand credit access.

To shed light on whether there are any benefits from foreign bank presence, we compare the performance of firms with and without bank relationships using propensity score estimators, as we do in Table VI. We estimate the probability that a firm has no bank relationships and, then, using the newly computed propensity score, we match firms that report no bank with firms that do. Also in this case, the estimated propensity score supports the notion that being unbanked is related to random factors as well as to firm characteristics. The group of firms with the highest probability of being unbanked (on average, an estimated probability of being unbanked of 2 percent) includes 77 percent of firms that do report relationships with either domestic or foreign banks. Similarly, the group with lowest propensity score (on average, 0.1 percent) includes 60 percent of firms that we classify as unbanked.

Panel A of Table VIII suggests that unbanked firms have less access to financial loans and thus invest less and generate lower revenues per employee. We do not find significant differences in sales growth, suggesting that the differences in investment and leverage are unlikely to depend on weak growth opportunities and low demand for financial loans. On average, firm with bank firm relationships appear to use more labor and less capital in their activities. To the extent that wages require less upfront investment, this suggests that these firms are financially constrained (Garmaise (2008)).

In Panel B of Table VIII, we repeat the analysis considering changes in performance of firms that establish the first bank relationship during the sample period in comparison to firms that already had bank relationships. The estimates of the average treatment effect suggest that acquiring access to the banking system allows firms to increase investment. The increase is not only statistically significant but also economically large as our estimates of the treatment effect suggest that firms more than double their investment rate. We find no stable effect on other measure of firm performance such as the sales per employee or the growth of sales, possibly due to the relatively short sample period, or on firm financial leverage. It is important to note, however, that since firms' total assets (i.e., the denominator of the firm's leverage) increase, a constant leverage indicates that firms increase their financial loans to expand their assets.

Overall, these results indicate that firm, and ultimately macroeconomic performance may be hampered if some firms have no access to the financial system. In other words, having a bank is important, but which bank a firm has a relationship with is irrelevant. In this respect, it must be considered favorably that relationships with foreign banks are unlikely to be terminated. In addition, to the extent that an increase in foreign bank presence or banking system development increase the probability that previously unbanked firms establish bank relationships, as Model 9 of Table IV and Model 6 of Table V suggest, our results indicate that foreign banks may benefit all firms.

6.   Conclusions

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 enhance credit access. Our results suggest that the limits to financial integration are less tight than what the previous literature based on a static picture of bank loan portfolios suggests. We show that firms appear to have the same access to financial loans and ability to invest whether they borrow from a domestic or a foreign bank.

Possibly, foreign bank presence affects the lending policies of domestic banks and improves access to credit for all firms as the positive effects of country aggregate changes in foreign bank presence on firm performance suggest (Giannetti and Ongena (2008)).

Since the investment of firms without any bank relationships appears constrained by credit access, our results indicate that foreign banks may benefit firms in two ways. First, they are less likely to drop their clients, even in the aftermath of an acquisition. By providing stable access to the financial system, foreign banks do not provoke drops in investments for the firms they funds. Second, an increase in foreign bank presence and a deepening in the development of the banking system seem to be correlated with a higher probability that previously unbanked firms establish bank relationships. Even if these relationships are rarely established with foreign banks, firm access to the banking system is certainly not impaired and possibly even favored by foreign bank presence.

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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**

1. Procedural matching on:
   - Name
   - Address
   - City
   - Telephone

2. Manual removal:
   of multiple matches

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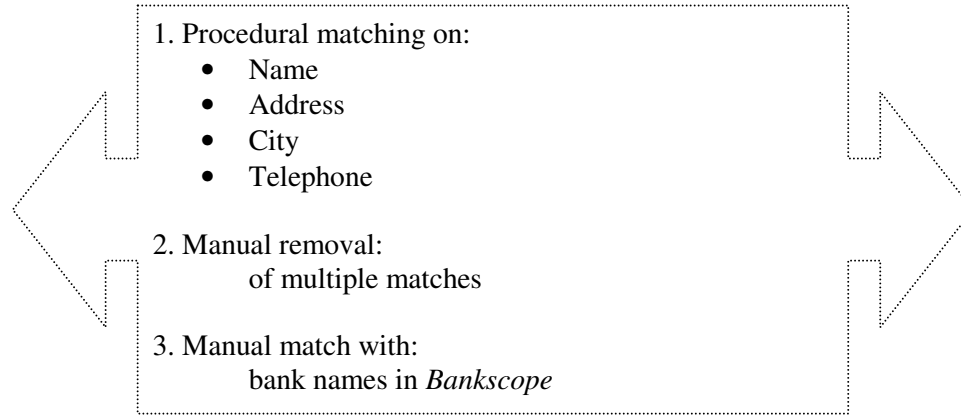
Firm Directories (Kompass)		
Country	Obs. 2000	Obs. 2005
Bulgaria	7,263	1,289
Croatia	1,240	950
Czech Rep.	2,958	3,211
Estonia	382	550
Hungary	2,151	2,075
Latvia	651	705
Lithuania	597	417
Poland	7,103	1,677
Romania	2,437	2,903
Russia	12,837	14,425
Slovakia	1,901	1,121
Slovenia	925	740
Ukraine	5,516	5,890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

Panel A. Dependent variables

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
Large Domestic Bank	=1 if at least one bank a firm employs is a domestic bank with assets above the median of all banks in the sample; =0 otherwise	0/1	95,993	0.117	0.321	0	0	0
State-Owned Bank	=1 if at least one bank a firm employs is a domestic state-owned bank; =0 otherwise	0/1	76,619	0.078	0.269	0	0	0
+ Foreign Bank	=1 if the bank a firm adds is foreign; =0 otherwise	0/1	2,122	0.457	0.498	0	0	1
+ 1st Bank	=1 if a firm engages its first bank; =0 otherwise	0/1	2,640	0.319	0.466	0	0	1
+ Bank	=1 if a firm adds a bank; =0 otherwise	0/1	3,745	0.434	0.495	0	0	1
- Bank	=1 if a firm drops a given bank; =0 otherwise	0/1	4,777	0.790	0.407	1	1	1
Leverage	Firm leverage at the end of the previous year	-	41,621	0.362	36.995	0	0.056	0.219
Investment	Firm investment over assets at the end of the previous year	-	43,575	0.055	0.205	-0.034	0.021	0.105
Δ Sales	Growth in sales in the previous year	-	35,749	0.088	0.657	-0.075	0.097	0.257
Sales / Employee	Sales per employee	000$	29,145	77.7	443	12.9	26.3	56.1

Panel B. Independent variables

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
Foreign Firm	=1 if the firm is owned by foreigners; =0 otherwise	0/1	76,619	0.203	0.402	0	0	0
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
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	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
Number of Banks	The number of banks the firm employs	-	95,993	1.172	0.544	1	1	1
Greenfield	=1 if the bank entered as a greenfield; =0 otherwise	0/1	18,499	0.034	0.181	0	0	0
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
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
Financial Development	Bank assets to GDP	-	86,306	0.361	0.735	0.125	0.257	0.333
Foreign Loans	Foreign to total loans	-	86,306	0.417	0.306	0.118	0.419	0.713
Financial Development in 2000	Bank assets to GDP in 2000	-	3,914	0.814	1.241	0.607	0.640	0.842
Δ Financial Development	Increase in bank assets to GDP between 2000 and 2005	-	3,914	0.640	2.351	-0.073	0	0.460
Δ Foreign Loans	Increase in foreign to total loans between 2000 and 2005	-	3,914	0.255	0.301	0	0.157	0.475
Investment Profile	ICRG investment profile of the country	-	7,135	9.387	2.282	8.5	9	11.5
HHI	National Herfindahl-Hirschman index of bank loan shares	-	7,135	0.161	0.082	0.118	0.157	0.170
Foreign Bank Acquired the Bank	=1 if the firm employs at least one bank that was acquired by a foreign bank during the last two years; =0 otherwise	0/1	95,993	0.080	0.271	0	0	0
Domestic Bank Acquired the Bank	=1 if the firm employs at least one bank that was acquired by a domestic bank during the last two years; =0 otherwise	0/1	95,993	0.007	0.083	0	0	0

Table II. Selection Issues

All models are probit models estimated by maximum likelihood. The table reports the marginal effects at the means (and the effect of a change from zero to one for dummy variables), multiplied by 100, and the standard errors below in parentheses. The dependent variables are Observe Bank, a dummy that equals one if the firm in Amadeus reports a bank in Kompass, and equals zero otherwise. In Models 1 and 2, the sample includes all firms in Amadeus. In Model 3, the sample includes only Amadeus firms matched with the Kompass survey. The definition of the variables can be found in Table I. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	1	2	3
	Probit	Probit	Probit
Dependent Variable	**Observe Bank**	**Observe Bank**	**Observe Bank**
Sample	Amadeus	Amadeus	Matched
Number of Observations	570,249	422,682	6,372
ln(Firm Employees)	0.0200 ***	0.0032 ***	1.6550 ***
	(0.0020)	(0.0006)	(0.6264)
ln(Firm Age)		-0.0002 ***	-0.4335
		(0.0000)	(0.3275)
ROA	-0.0032 ***	-0.0014 ***	-11.1456 **
	(0.0011)	(0.0004)	(5.0785)
Leverage	0.0000	0.0000	0.2094 *
	(0.0000)	(0.0000)	(0.1182)
Sector Dummies	Yes	Yes	No
Year and Country Dummies	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)	9,077　(0.00)	5,557　(0.00)	1,624　(0.00)
Pseudo R-squared	0.39	0.47	0.25

Table III. Financial System and Type of Banks

The table reports the percentage of firms for which we observe at least (a) one bank, (b) one foreign bank, and (c) one foreign bank that entered as a greenfield investment across countries with a low or high (a) ratio of *Total Assets over GDP*, (b) ratio of *Foreign to Total Loans*, (c) Herfindahl-Hirschman index (*HHI*), and (d) *Investment Profile*.

	Year	2000				2005			
	Sample	Kompass		Matched		Kompass		Matched	
Country Characteristics									
Total Bank Assets / GDP		*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
% Firms for which We **Observe a Bank**		34.0	34.7	38.0	37.8	51.6	24.0	56.2	35.1
% Firms with at Least One **Foreign Bank**		11.6	16.9	15.1	16.0	38.6	14.3	43.9	21.3
% Firms with at Least One Foreign Bank that was **Greenfield**		0.9	8.7	1.0	9.5	8.3	0.3	9.4	0.4
% Foreign Loans		*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
% Firms for which We **Observe a Bank**		42.5	24.9	44.6	30.0	37.7	40.2	43.3	53.1
% Firms with at Least One **Foreign Bank**		23.0	3.5	24.8	4.7	32.7	21.2	37.2	30.8
% Firms with at Least One Foreign Bank that was **Greenfield**		8.2	0.2	9.0	0.2	2.9	6.5	3.1	9.1
HHI		*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
% Firms for which We **Observe a Bank**		25.6	44.6	27.1	50.5	37.5	40.4	48.3	46.5
% Firms with at Least One **Foreign Bank**		16.8	10.8	17.0	13.9	27.1	27.7	35.7	33.3
% Firms with at Least One Foreign Bank that was **Greenfield**		7.8	0.7	8.4	0.9	2.1	7.5	3.0	8.3
Investment Profile		*Low*	*High*	*Low*	*High*	*Low*	*High*	*Low*	*High*
% Firms for which We **Observe a Bank**		26.9	43.0	31.3	45.6	46.1	30.4	53.6	38.8
% Firms with at Least One **Foreign Bank**		13.0	15.2	17.2	13.6	34.9	18.6	41.4	24.9
% Firms with at Least One Foreign Bank that was **Greenfield**		0.8	8.8	0.9	9.7	2.0	7.6	2.6	9.9

Table IV. Bank-Firm Relationships

Panel A. Statics

All models are probit models estimated by maximum likelihood. The table reports the marginal effects (and the effect of a change from zero to one for dummy variables), multiplied by 100, taking all independent variables at their means and the standard errors below in parentheses. 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; 1st Foreign Bank, a dummy that equals one if the first bank the firm employs is foreign in Model 2; Large Domestic Bank, a dummy that equals one if the firm employs at least one large domestic bank in Model 5; and State-Owned Domestic Bank, a dummy that equals one if the firm employs at least one state-owned domestic bank in Model 6. The definition of the variables can be found in Table I. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	1	2	3	4	5	6
	Probit	Probit	Probit	Probit	Probit	Probit
					Large	**State-Owned**
Dependent Variable	**Foreign Bank**	**Foreign 1st Bank**	**Foreign Bank**	**Foreign Bank**	**Domestic Bank**	**Domestic Bank**
Sample	2000 & 2005	2000 & 2005	2000 & 2005	2000 & 2005	2000 & 2005	2000 & 2005
Number of Observations	5,112	5,112	5,112	5,101	2,563	2,814
ln(Firm Employees)	1.32 ***	1.16 ***	-0.21	1.36 ***	-1.02 **	0.24 *
	(0.45)	(0.41)	(0.46)	(0.45)	(0.50)	(0.14)
ln(Firm Age)	-0.38	-0.24	0.50	-0.31	4.10 ***	0.39
	(0.84)	(0.81)	(0.86)	(0.85)	(1.46)	(0.32)
Foreign Firm	7.42 ***	5.81 ***	6.30 ***	7.27 ***	-3.80 **	0.05
	(1.46)	(1.36)	(1.53)	(1.46)	(1.49)	(0.38)
Bank-Owned Firm	-6.76 ***	-5.88 **	-4.58 *	-6.83 ***	10.88 *	-1.29
	(1.86)	(1.77)	(2.10)	(1.85)	(6.84)	(0.43)
State-Owned Firm	1.12	-0.33	3.29	1.33	2.74	-0.42
	(2.95)	(2.75)	(2.93)	(2.98)	(6.16)	(0.51)
Δ Sales	0.04	0.37	-0.56	-0.36	-0.51	-0.19
	(0.66)	(0.60)	(0.76)	(0.74)	(0.93)	(0.23)
Efficiency	-1.96	-2.28	4.40		-2.90	1.25
	(2.29)	(1.71)	(3.64)		(4.78)	(1.00)
Number of Banks	8.40 ***	0.93	9.07 ***	8.34 ***	0.79	1.25 ***
	(1.16)	(0.87)	(1.23)	(1.16)	(1.97)	(0.26)
ln(Firm Employees) * Greenfield			8.53 ***			
			(0.67)			
Foreign Firm * Greenfield			-3.61			
			(3.89)			
Total Factor Productivity				0.73		
				(0.68)		
Year and Country Dummies	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)	747 (0.00)	738 (0.00)	910 (0.00)	760 (0.00)	480 (0.00)	480 (0.00)
Pseudo R-squared	0.23	0.22	0.42	0.23	0.17	0.18

Panel B. Dynamics

All models are probit models estimated by maximum likelihood. The table reports the marginal effects (and the effect of a change from zero to one for dummy variables), multiplied by 100, taking all independent variables at their means and the standard errors below in parentheses. The dependent variables are + Foreign Bank, a dummy that equals one if the firm establishing a new relation adds to its set of relationships a foreign as opposed to a domestic bank in Models 7; +1st Bank is a dummy that equals one if the first relationship of a firm is new in 2005 and the firm was unbanked in 2005 and is equal to zero if the firm already had at least one bank relationship in 2000 in Models 8 and 9; +Bank is a dummy that equals one if a given bank-firm relationship is newly established in 2005 in Model 10; and - Bank, a dummy that equals one if a relationship that we observe in 2000 has been interrupted in 2005 and equals zero if the relationship continues in 2005 in Models 12 to 14. The definition of variables can be found in Table I. Standard errors are corrected for heteroskedasticity and clustered at the firm level. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	7	8	9	10	11	12	13	14
	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit
Dependent Variable	**+ Foreign Bank**	**+ 1st Bank**	**+ 1st Bank**	**+ Bank**	**- Bank**	**- Bank**	**- Bank**	**- Bank**
Sample	2005	2005	2005	2005	2005 & in 2000	2005 & in 2000	2005 & in 2000	2005 & in 2000
Number of Observations	943	1,373	1,368	2,454	2,047	2,047	2,047	1,003
ln(Firm Employees)	0.43	1.95 *	1.63	1.81	-7.09 ***	-7.05 ***	-7.04 ***	-5.47 ***
	(0.77)	(1.12)	(1.11)	(1.47)	(0.91)	(0.91)	(0.91)	(1.16)
ln(Firm Age)	-1.56	-0.27	1.06	0.44	2.47 **	2.79 **	2.83 **	5.83 ***
	(1.91)	(1.73)	(1.27)	(1.19)	(1.22)	(1.21)	(1.21)	(1.50)
Foreign Firm	7.05 ***	-9.98 ***	-7.71 **	1.87	2.63	2.01	2.23	0.96
	(2.86)	(2.90)	(2.93)	(3.03)	(2.22)	(2.22)	(2.22)	(2.53)
Bank-Owned Firm	-3.67	-4.98	-9.41	-1.57	10.18 **	10.90 **	11.25 **	9.48 **
	(3.57)	(7.95)	(6.89)	(8.01)	(3.88)	(3.61)	(3.51)	(3.21)
State-Owned Firm	-0.27	-11.58 **	-10.50 **	-4.32	-4.61	-4.43	-4.55	-9.96 **
	(4.76)	(4.02)	(4.28)	(4.54)	(3.92)	(3.94)	(3.92)	(4.94)
Δ Sales	2.21 **	-1.77	-1.30	-2.45	-3.81 ***	-3.86 ***	-3.95 ***	-5.14 ***
	(1.04)	(2.46)	(2.57)	(2.36)	(0.88)	(0.88)	(0.88)	(1.26)
Efficiency	-5.54	0.93	2.29	1.24	-8.62	-8.60	-9.48	-2.15
	(7.30)	(8.03)	(6.87)	(8.23)	(7.24)	(7.23)	(7.32)	(8.26)
Number of Banks	1.95	7.82 ***	12.44 ***	31.01 ***	7.01 ***	5.55 **	5.58 **	3.87
	(1.31)	(1.94)	(2.02)	(2.68)	(2.51)	(2.49)	(2.51)	(2.66)
Foreign Bank		-17.54 ***	-21.58 ***	-37.38 ***	-7.81 ***	-8.15 ***	-8.74 ***	-20.93 ***
		(4.79)	(3.96)	(3.96)	(3.02)	(3.10)	(3.12)	(6.04)
Financial Development in 2000			-1.59	-0.37				
			(2.96)	(2.44)				
Δ Financial Development			-3.47 **	1.04				
			(1.61)	(1.02)				
Δ Foreign Loans			19.32 ***	-16.11 ***				
			(5.54)	(6.18)				
Investment Profile			2.24 **	2.31 **				
			(1.07)	(0.93)				
HHI			136.08 ***	20.68				
			(19.05)	(13.75)				
Foreign Bank Acquired the Bank						-14.07 ***	-13.12 ***	5.61
						(2.09)	(2.10)	(4.74)
Domestic Bank Acquired the Bank							5.67 **	2.98
							(2.45)	(4.44)
Foreign Bank Acquired the Bank * NPL								-34.42 *
								(20.46)
Domestic Bank Acquired the Bank * NPL								-10.76
								(23.96)
Country Dummies	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)	41 (0.00)	285 (0.00)	153 (0.00)	363 (0.00)	374 (0.00)	357 (0.00)	369 (0.06)	136 (0.03)
Pseudo R-squared	0.07	0.20	0.11	0.32	0.20	0.22	0.22	0.19

Table V. Robustness: All Kompass Firms

All models are probit models estimated by maximum likelihood. The table reports the marginal effects (and the effect of a change from zero to one for dummy variables), multiplied by 100, taking all independent variables at their means and the standard errors below in parentheses. The dependent variables are Foreign Bank, a dummy that equals one if the firm employs at least one foreign bank in Model 1; State-Owned Domestic Bank, a dummy that equals one if the firm employs at least one state-owned domestic bank in Model 2; Large Domestic Bank, a dummy that equals one if the firm employs at least one large domestic bank in Model 3; + Foreign Bank, a dummy that equals one if the firm establishing a new relation adds to its set of relationships a foreign as opposed to a domestic bank in Model 4; +1st Bank is a dummy that equals one if the first relationship of a firm is new in 2005 and the firm was unbanked in 2005 and is equal to zero if the firm already had at least one bank relationship in 2000 in Models 5 and 6; +Bank is a dummy that equals one if a given bank-firm relationship is newly established in 2005 in Model 7; and - Bank, a dummy that equals one if a relationship that we observe in 2000 has been interrupted in 2005 and equals zero if the relationship continues in 2005 in Models 8 and 9. The definition of the variables can be found in Table I. Standard errors are corrected for heteroskedasticity. In Models 13, 14, 17 and 18 (in which the unit of observation is the bank-firm pair, instead of the firm) standard errors are also clustered at the firm level. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	1	2	3	4	5	6	7	8	9
	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit	Probit
Dependent Variable	**Foreign Bank**	**State-Owned Domestic Bank**	**Large Domestic Bank**	**+ Foreign Bank**	**+ 1st Bank**	**+ 1st Bank**	**+ Bank**	**- Bank**	**- Bank**
Sample	Kompass	Kompass	Kompass	Kompass	Kompass	Kompass	Kompass	Kompass	Kompass
	2000 & 2005	2000 & 2005	2000 & 2005	2005	2005	2005	2005	2005 & in 2000	2005 & in 2000
Number of Observations	24,193	15,824	26,382	6,317	3,238	3,179	4,042	4,542	4,542
ln(Firm Employees)	0.21	0.00	-0.59 ***	-0.08	0.05	-0.81	-3.85 ***	-3.85 ***	-3.83 ***
	(0.13)	(0.08)	(0.11)	(0.21)	(0.81)	(0.82)	(0.74)	(0.54)	(0.53)
ln(Firm Age)	-0.02	0.14 *	0.11	0.27	-4.92 ***	-3.24 ***	1.81 **	1.46 ***	1.63 ***
	(0.13)	(0.08)	(0.10)	(0.23)	(0.90)	(0.87)	(0.78)	(0.57)	(0.57)
Visibility	0.81 ***	-0.20	6.14 ***	0.07	1.57	3.66 *	3.53 **	-0.87	-1.05
	(0.30)	(0.19)	(0.55)	(0.43)	(2.21)	(2.11)	(1.78)	(1.65)	(1.66)
Number of Banks	3.80 ***	0.59 ***	4.09 ***	1.94 ***	-0.32	1.44	9.88 ***	3.76 ***	3.54 **
	(0.37)	(0.09)	(0.30)	(0.37)	(1.01)	(0.95)	(0.91)	(1.41)	(1.40)
Foreign Bank					-4.65 **	-3.58 **	4.91 ***	-2.91 *	-4.05 **
					(1.95)	(1.75)	(1.43)	(1.68)	(1.80)
Financial Development in 2000						7.88 **	-4.78		
						(3.19)	(2.92)		
Financial Development						11.33 ***	-15.47 ***		
						(3.51)	(3.23)		
Foreign Loans						-29.56	-260.92 ***		
						(22.07)	(19.42)		
Investment Profile						0.78	-4.92 ***		
						(0.58)	(0.48)		
HHI						92.65 ***	66.12 ***		
						(9.01)	(9.33)		
Foreign Bank Acquired the Bank									-7.52 ***
									(2.54)
Domestic Bank Acquired the Bank									7.45 ***
									(0.01)
Year Dummies	Yes	Yes	Yes	No	No	No	No	No	No
Country Dummies	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Wald Chi2 Test Statistic (p-value)	3,681 (0.00)			514 (0.00)	367 (0.00)	247 (0.00)	646 (0.00)	434 (0.00)	457 (0.00)
Pseudo R-squared	0.54	0.14	0.16	0.28	0.12	0.08	0.17	0.13	0.14

Table VI. Performance: Firms with Foreign versus Domestic Bank Relationships

Panel A. Estimates of the treatment effect in levels

This table shows differences in leverage, investment, sales per employee 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 consider as treated firms those that maintain at least one relationship with a foreign bank and present four different estimators of the average treatment effects of the treated. Treated firms are matched with firms with only domestic banks using the propensity score. We exclude all firms whose characteristics used in the computation of the propensity score are outside of the common support. We compute the propensity score using the following probit model:

$$P(Foreign\ Bank_{it+1}=1)=\Phi\left(\begin{array}{l} \beta_0+\beta_1*d(country)+\beta_2*d(year)+\beta_2*(two\ digit\ SIC\ code)+\beta_3*ROA_{it}+ \\ \beta_4*\ln(Firm\ Employees)_{it}+\beta_5*\ln(Firm\ Age)_{it}+\beta_6*\ln(Firm\ Total\ Assets)_{it}+ \\ \beta_7*d(Foreign\ Firm)+\beta_8*d(Bank\text{-}Owned\ Firm) \end{array}\right).$$

The nearest neighbor estimator chooses for each treated firm, the *n* firms without relationships with foreign banks with the closest propensity score. Gaussian and Epanechnikov estimators match each treated firm with a weighted average of firms without relationships with foreign banks giving more weight to untreated firms with propensity score similar to the one of the treated firm. The definition of the variables can be found in Table I. We report standard errors in parentheses, which are computed by bootstrapping with 50 replications. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

	Leverage	Investment	Sales per Employee	ΔSales
Number of Observations				
Firms with (a) Foreign Bank(s)	4,510	4,510	4,510	4,510
Firms without Foreign Bank(s)	22,892	22,892	22,892	22,892
Gaussian	0.008	0.003	25.179 *	0.016
	(0.006)	(0.004)	(13.237)	(0.011)
Epanechnikov	0.003	0.002	19.853	0.014
	(0.005)	(0.004)	(11.866)	(0.012)
Nearest Neighbor	0.007	-0.001	15.654	0.012
(n=50)	(0.005)	(0.004)	(12.191)	(0.010)
Nearest Neighbor	0.009	-0.000	14.028	0.012
(n=10)	(0.006)	(0.005)	(13.482)	(0.010)

Panel B. Difference-in-differences estimates of the treatment effect

Panel B replicates Panel A, but we consider as treated only firms that start a relationship with a foreign bank during the sample period. The control group includes only firms that have relationships with domestic banks during the sample period. For each outcome (y), the treatment effect of firm i is defined as the difference between the median of y during the period 2002-2005 minus the median of y during the period 1999-2001 for treated observations and the median of y during the period 2002-2005 minus the median of y during the period 1999-2001 for the matched control. Thus, each treated firm enters only once in the computation of the average treatment effect. In the propensity score, estimation we use the median of time-varying firm characteristics during 1999-2001. Given the reduced size of the sample, when using the nearest neighbor estimator, we match treated observations with a smaller number of controls.

	Leverage	Investment	Sales per Employee	ΔSales
Number of Observations				
Firms with (a) Foreign Bank(s)	839	839	839	839
Firms without Foreign Bank(s)	4916	4916	4916	4916
Gaussian	-0.007	-0.023	-6.008	0.032
	(0. 013)	(0.017)	(19.177)	(0.047)
Epanechnikov	-0.002	-0.018	-8.262	0.042
	(0.015)	(0.016)	(22.256)	(0.040)
Nearest Neighbor	-0.005	-0.025	-12.325	0.049
(n=10)	(0.021)	(0.023)	(19.984)	(0.074)
Nearest Neighbor	0.007	-0.028	-10.787	0.040
(n=5)	(0.019)	(0.018)	(2.586)	(0.047)

Table VII. Foreign banks, Firm Performance and Firm Unobservable Heterogeneity

The table reports the estimated coefficients and standard errors below in parentheses of a treatment-effect model fitted using a two-step consistent estimator. The treatment-effects model includes two equations. The first equation presented in Model 1 has as dependent variable the foreign bank dummy. In the second equation, the dependent variable is alternatively firm leverage (Model 2), firm investment (Model 3), sales per employee (Model 4) and the growth of sales (Model 5). The definition of the variables can be found in Table I. Standard errors are corrected for heteroskedasticity and clustering at the firm level. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

Model	1	2	3	4	5
Dependent Variable	**Foreign Bank**	**Leverage**	**Investment**	**Sales/Employee**	**Δ Sales**
Sample	All	All	All	All	All
Number of Observations	29,035	29,035	22,563	26,304	20,604
log(Firm Employees)	0.0502 ***	-0.0034 **	0.0046 ***	-61.26 ***	0.0110 ***
	(0.0096)	(0.0014)	(0.0011)	(2.80)	(0.0039)
ln(Firm Age)	-0.0661 ***	-0.0144 ***	-0.0159 ***	9.65 ***	-0.0460 ***
	(0.0120)	(0.0016)	(0.0013)	(3.41)	(0.0045)
ROA	0.0092	0.0000	0.0000	9.08 *	0.0599 **
	(0.0137)	(0.0001)	(0.0001)	(4.73)	(0.0271)
Tangible / Total Assets	0.0000	-0.0168 **	-0.0681 ***	-75.34 ***	0.0244
	(0.0000)	(0.0069)	(0.0057)	(14.08)	(0.0192)
Foreign Firm	0.2551 ***	0.0308 ***	0.0018	81.64 ***	0.0175 *
	(0.0238)	(0.0038)	(0.0030)	(7.48)	(0.0099)
Bank-Owned Firm	-0.0093	0.0184 **	-0.0005	111.20 ***	-0.0363
	(0.0638)	(0.0093)	(0.0074)	(19.03)	(0.0249)
State-Owned Firm	-0.0504	0.0196 ***	-0.0155 ***	11.24	-0.0224 *
	(0.0343)	(0.0051)	(0.0041)	(10.04)	(0.0133)
Number of Banks	0.4685 ***				
	(0.0183)				
Foreign Loans	0.6387 ***				
	(0.0929)				
Foreign Bank		0.0183	0.0129	59.55	0.0351
		(0.0195)	(0.0172)	(38.36)	(0.0564)
Mill's Ratio		-0.0107	-0.0088	-0.19	-0.0112
		(0.0110)	(0.0097)	(0.22)	(0.0318)
Country Dummies	Yes	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes	Yes
Country * Year Dummies	No	Yes	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes	Yes
Constant	No	Yes	Yes	Yes	Yes
Wald Chi2 Test Statistic (p-value)		43,684 (0.00)	6,252 (0.00)	4,450 (0.00)	3,615 (0.00)

Table VIII. Performance: Firms with and without Bank Relationships

Panel A. Estimates of the treatment effect in levels

This table shows the differences in leverage, investment, sales per employee and sales growth for firms without bank relationships and their matching firms that have bank relationships. We consider as treated firms those that maintain no relationships and present four different estimators of the average treatment effects of the treated. Treated firms are matched with firms reporting bank relationships using the propensity score. We exclude all firms whose characteristics used in the computation of the propensity score are outside of the common support. We compute the propensity score using the following probit model:

$$P(Unbanked_{it+1} = 1) = \Phi \begin{pmatrix} \beta_0 + \beta_1 * d(country) + \beta_2 * d(year) + \beta_2 * (two\ digit\ SIC\ code) + \beta_3 * ROA_{it} + \\ \beta_4 * \ln(Firm\ Employees)_{it} + \beta_5 * \ln(Firm\ Age)_{it} + \beta_6 * \ln(Firm\ Total\ Assets)_{it} + \\ \beta_7 * d(Foreign\ Firm) + \beta_8 * d(Bank\ \text{-}\ Owned\ Firm) \end{pmatrix}.$$

The nearest neighbor estimator chooses for each treated firm, the *n* firms reporting bank relationships with the closest propensity score. Gaussian and Epanechnikov estimators match each treated firm with weighted average of firms with bank relationships giving more weight to untreated firms with propensity score similar to the one of the treated firm. The definition of the variables can be found in Table I. We report standard errors in parentheses, which are computed by bootstrapping with 50 replications. *, **, and *** indicate significant at 10 percent, 5 percent and 1 percent level, two-tailed.

	Leverage		Investment		Sales per Employee		ΔSales
Number of Observations							
Firms without Bank	369		369		369		369
Firms with (a) Bank(s)	28,733		28,733		28,733		28,733
Gaussian	-0.036	***	-0.065	***	-14.401	***	-0.008
	(0.014)		(0.007)		(6.561)		(0.033)
Epanechnikov	-0.048	***	-0.066	***	-13.952	***	-0.011
	(0.016)		(0.006)		(6.188)		(0.031)
Nearest Neighbor	-0.045	***	-0.058	***	-24.595	***	0.001
(n=50)	(0.017)		(0.007)		(14.162)		(0.034)
Nearest Neighbor	-0.052	***	-0.062	***	-21.184	**	-0.001
(n=10)	(0.012)		(0.010)		(14.743)		(0.031)

Panel B. Difference-in-differences estimates of the treatment effect

Panel B replicates Panel A, but we consider as treated only firms that start a relationship with a bank during the sample period. The control group includes only firms that have relationships with banks during the sample period. For each outcome (*y*), the treatment effect of firm *i* is defined as the difference between the median of *y* during the period 2002-2005 minus the median of *y* during the period 1999-2001 for treated observations and the median of *y* during the period 2002-2005 minus the median of *y* during the period 1999-2001 for the matched control. Thus, each treated firm enters only once in the computation of the average treatment effect. In the propensity score estimation, we use the median of time-varying firm characteristics during 1999-2001. Given the reduced size of the sample, when using the nearest neighbor estimator, we match treated observations with a smaller number of controls.

	Leverage	Investment	Sales per Employee	ΔSales
Number of Observations				
Firms without Bank	463	463	463	463
Firms with (a) Bank(s)	5,705	5,705	5,705	5,705
Gaussian	0.012	0.077 ***	13.992	0.100 *
	(0.009)	(0.017)	(10.586)	(0.051)
Epanechnikov	0.022 *	0.065 ***	17.160 *	0.075
	(0.012)	(0.019)	(9.238)	(0.057)
Nearest Neighbor	-0.023	0.062 ***	18.109	0.044
(n=10)	(0.013)	(0.021)	(15.472)	(0.056)
Nearest Neighbor	0.015	0.058 ***	12.844	0.043
(n=5)	(0.014)	(0.022)	(16.681)	(0.057)