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Location Decisions of Foreign Banks and Competitive Advantage

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Location Decisions of Foreign Banks
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Abstract

The location decisions of foreign banks provide a good test how institutional differences affect cross-border investments. We collect detailed data of bilateral banking ownership for 137 countries over the period 1995-2006. We then specifically examine whether banks seek out those markets where institutional familiarity provides them with a advantage over other, competitor banks. Using a difference-in-differences model, we find that institutional competitive advantage importantly drives foreign banks' location decisions, more so than institutional differences. This suggests benefits from increased cross-border banking among developing countries, although this can also introduce risks since such countries can have low institutional quality.

JEL Classification Codes: F21, F23, G21

Keywords: foreign direct investment, international banking, institutions

## 1.	Introduction

The last decade has seen many foreign banks entering other markets, especially in developing countries, to provide a broad range of financial services locally. This has been driven by domestic deregulation including the removal of entry barriers, technological advances, increased financial integration and more generally heightened globalization. As for other foreign investors, individual banks have to weigh the costs and risks of entering foreign markets against the opportunities at home and against other modalities to provide services across borders, such as through cross-border lending. Furthermore, foreign banks have many markets to choose from when entering. This leads to the question what factors affect the decision of a bank to go abroad and how banks choose to enter a specific country.

In this paper, we investigate the role of competitive advantage in driving the decision of banks from specific countries to enter specific countries. Specifically, we examine whether banks seek out those countries where institutional familiarity provides them with a competitive advantage over other, competitor banks. We develop a measure of competitive advantage for each source-host country pair based on assessments of countries' institutional environments. Using a difference-in-difference model to explain bilateral banking FDI for a large sample of countries over the last two decades and controlling for other factors, we find that our institutional competitive advantage is an important factor in driving foreign banks' location decisions. This finding relates to several strands in the literature.

The first strand relates to the internationalization of banks, where several factors have been identified motivating FDI. Traditionally the internationalization of banks has been considered to be closely tied to the internationalization of non-financial firms; in other words, banks follow their customers to provide them with financial services abroad, especially trade and project finance, and thereby increase their businesses. Empirical studies have shown that FDI in banking is indeed correlated with the amount of trade and other forms of FDI between source and host countries (Grosse and Goldberg, 1991, Brealey and Kaplanis, 1996, Williams, 1998, and Yamori, 1998). However, the direct provision of trade- and project-related finance to non-financial firms that have expanded across borders has become a less important reason to establish a bank presence abroad.

With technological advances and better communications, banks are increasingly able to provide many types of financial services across borders to non-financial firms' foreign affiliates without needing to establish affiliates in foreign markets. Furthermore, firms can increasingly obtain trade- and project-finance services from local banks that have improved their services.

Another strand in the literature has investigated more generally the return and risk motives for entry. Banks engage in foreign entry presumably to increase profitability, within an acceptable risk profile, or to achieve risk diversification goals. Indeed, host and source country characteristics related to profitability and risks have been found to be important drivers of banks' decision to penetrate a foreign market. Focarelli and Pozzolo (2000), for example, find that banks prefer to have subsidiaries in countries where expected profits are larger because of higher expected economic growth and/or the prospect of benefiting from local banks' inefficiencies.[1]

Profit motives explaining a foreign investor's entry into a particular country require, however, some further explanation. For a firm from a particular source country to enter a certain market profitable, there must also be an advantage of that firm relative to local firms. In the general FDI literature, the internalization theory has been developed why this may be the case. The theory asserts that firms expand abroad to exploit the knowledge advantage created within the firm. This concept of internal knowledge is very broad and includes technical, marketing and managerial know-how (see Casson, 1987). To benefit most of this internal knowledge advantage, firms are best off to invest in countries that are similar to those they are already familiar with (Buckley and Casson, 1991).

For banks, the concept of internal knowledge has mostly been used with respect to informational issues. Banks can derive informational advantages from long-term bank-client relationships, for example, allowing them to offer their customers informational-intensive financial services at better terms than other financial services providers may (Petersen and Rajan, 1994 and Rajan, 1998). More generally, banks' advantages over other financial services providers derive in large part from their ability to process information efficiently because of better use of technology, specialized skills (e.g., risk

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[1] Other studies on foreign banks entry include Buch and DeLong, 2004, and Buch, 2005.

management), scale, etc. These advantages will depend in part on the information and business environment the bank is working in and can then be a source of competitive strength in terms of cross-border entry depending on the familiarity of the bank with a certain environment in the source country. For example, other things equal, a bank that is used to working in a very transparent country without corruption, would find it easier to operate in a not opaque and low corruption country. Vice-versa, a bank that is used to work in an opaque institutional environment, might well be able to exploit its knowledge advantage in a country which is also more opaque.[2] In terms of explaining why and how banks expand abroad, the internalization theory thus would suggest that banks enter countries with similar level of information quality and, more generally, with similar institutional environments. This hypothesis that (differences in) institutional environments can be an important determinant of foreign bank entry is supported by Galindo et al. (2003), who find that foreign bank penetration is greater between source and host countries that are legally and institutionally similar, presumably as the costs of operating and the risks are lower in such, more familiar countries.

We build on these literatures, but argue that neither the profit or internalization motives alone can explain a bank's entry into a particular country. These arguments implicitly assume that the location decision of an individual bank is made independent of the location decisions made by other, competing banks that are also expanding their business abroad and independent of a bank considering all possible countries to invest in. When a bank decides to expand its business abroad, however, its choice of location is not just dependent on the firm's own internal advantage, but also on the competitive advantage that the investing bank has over not only domestic banks but also other foreign banks. In other words, for a bank from a particular source country to enter a certain market, there must be a competitive advantage of that bank relative to local banks as well as relative to other foreign banks that can also enter. Furthermore, the specific country to invest in must be attractive given the bank's internal advantages relative to other host countries the bank can invest in. The internalization literature suggests that competitive

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[2] This argument is supported by evidence that large and small banks operate differently. There is evidence, for example, for the U.S. that small banks are better than large banks in lending to SMEs, which are informationally more opaque, as large banks rely more on hard information to do their lending. Since the consolidation of the US banking system in the last decadehas led to a greater distance, it has thereby led to less lending to the more soft-information intensive SMEs (Berger, Miller, Petersen, Rajan and Stein, 2005).

advantages of a bank can derive from its ability to work within a certain institutional environment. This implies that it may not (just) be the difference between the institutional quality of the host and source countries that matters for a location decision, but rather (or also) the difference between host and source country taking into account the institutional quality of competitors in other source countries and the institutional quality of the host country relative to other, "competing" host countries.

The impact of this type of competitiveness on location attractiveness of any type of foreign investment has, to our knowledge, not been studied before. In order to test the importance of this type of competitive advantage, we first construct a database covering most banks in all high-income and most developing countries, including their ownership and, if majority foreign-owned, the source country of the owner, at each point in time during 1995-2006. We next construct a bilateral measure of a bank's competitive advantage which relates to the source country and its source competitor countries' institutional environments as well as to the specific host and its host competitor countries' institutional environments. Together, this allows us to test whether better knowledge about a certain business environment compared to a bank's competitors is a determining factor in its decision to enter a certain market relative to other competitor markets. Using a difference-in-difference approach, we find that it is not the similarities in institutional quality between host and source country that have a determining impact on the location decision. Rather it is a combination of the quality in institutions in the source country relative to the bank's competitors' countries and the institutional quality of the host country relative to that of competitor host countries that determines banks' entry decisions. In other words, it is not the institutional environment that makes a firm enter a certain market, but rather a firm's ability to work within a certain institutional environment relatively better than its competitors can.

Our results have some more general lessons. The fact that competitive advantage related to institutional environment can be an important driving factor in entry decisions of foreign banks may also apply to other types of FDI. Since banking is an institutionally-intensive activity and the location decision of foreign banks thus provide some insight how institutional differences may be dealt with, the findings also relate to more general research on institutions. While institutional differences have been found to

affect country growth patterns, much remains unexplained, including how economic actors "overcome" institutional weaknesses and how internationalization may help or hinder development. Lastly, the findings that relative differences in institutional quality drive banking FDI means that there can be specific benefits from increased cross-border banking among developing countries. Since these source countries are not necessarily of the highest institutional quality themselves, these benefits will have to be weighed against risks arising from, among others, poor supervision in the home countries and possibly poor incentive structures.

The rest of the paper is structured as follows. In Section 2 we describe the database used for foreign bank entry and show some statistics that indicate the potential importance of competitive advantage. In Section 3 we describe the methodology used and Section 4 includes the results. The last Section concludes.

2. Data and importance of competitive advantage

Bank Entry Data

To test our hypothesis whether the location decisions of foreign banks are driven by competitive advantage, we need to construct a database that contains information on both the host country of FDI as well as the source country of ownership. We also want to do this for an extended period (1995-2006), covering all foreign bank entry and exit over this period, to explore the variation over time and to avoid some of the econometric issues related with cross-sectional regressions. Our primary source of information is Bankscope, an international dataset of balance-sheet items and ownership information of individual banks. Key information on banks' assets and liabilities and revenues is reported in Bankscope according to a common standard which is comparable across countries. We use the current and past versions of the Bankscope database. The coverage is comprehensive, with in the latter part of the period banks included roughly accounting for 90 percent of the assets of banks in each country.

Our sample includes almost all countries, thus covering both high-income as well as developing countries. For developing countries we include all banks in our sample that are available in Bankscope. In the case of high-income countries, however, we limit the

banks included to a subset of available banks, as in these countries often a large number of (small) banks are present. We aim to capture a large share in terms of assets (at least 75 percent) of the domestic bank sector of these countries. We start with the Top 3000 banks for 2005 as published by the Banker's Almanac. For each country, we include all banks from that country present in the Top 3000, except if the number of banks in the Top 3000 exceeds 25, in which case we only include the largest 25 banks. If the number of banks among the Top 3000 was less than 10, we add banks that are available in Bankscope starting with the largest bank in terms of assets in 2005 until we either reach 10 banks or until no more banks from that country are in Bankscope. If a bank on our list is the product of a merger between two banks located in the same country after 1994, we include the two merged banks up till the moment of the establishment of the new entity.

Countries with less than five active banks in Bankscope are excluded from our sample, leaving us with a total of 137 countries, from high income (both OECD and non-OECD) to developing countries, with the latter divided into low, lower-middle and upper-middle income countries, thus providing a wide variety of income levels and institutional quality.

Our sample includes all currently active and inactive commercial banks, saving banks, cooperative banks, bank holding companies and long term credit banks that are or have been reporting to Bankscope between 1995 and 2006. For each bank we determine the year of its establishment and, if applicable, the year it became inactive. Furthermore, we carefully treat mergers and acquisitions to avoid double counting. For example, if two banks (bank A and B) merged in 2000 and became a new entity (bank C), the two individual banks A and B are included in the database as active banks until 2000. From 2000 on, these two merged banks are considered inactive and the new bank (bank C) is included in the database. Similarly, if bank A was acquired by bank B in 2000, both banks are included in the sample up until 2000, with bank A considered inactive after 2000, while bank B remains in the sample as an active bank.

The determination of ownership is as follows. First, we determine if a bank can be considered foreign owned. We use the definition generally applied in the literature on foreign banking and consider a bank as foreign owned if 50 percent or more of the shares of a bank is owned by foreigners. Second, we sum the percentages of shares held by

foreigners by country of residence, with the country with the highest percentage of shares then considered the source country. Ownership is based on direct ownership, i.e., we do not consider indirect ownership. The rationale is that we are interested in the entry decision of foreign banks as it relates to the institutional environment of the source country in which the bank is operating. Using direct ownership is therefore more logical than considering any indirect ownership that may be far removed from the foreign bank's main place of operations.[3] We did, however, take into account the fact that in some cases the direct owner is an entity just established for tax purposes. In these cases, we did not use the direct, but rather the ultimate ownership structures.

The ownership information and source country of ownership were determined for each year the bank was active in our sample period (1995-2006). To track the ownership and the changes thereof we use as our primary source the information available in Bankscope. This information is complemented, however, with information from several other sources, including individual banks' websites and annual reports, parent companies websites, banking regulatory agency/Central Bank websites, reports on corporate governance, local stock exchanges, SEC's Form F-20, and country experts. Through extensive searches we are able to determine ownership information for almost 95 percent of the banks in our sample for the entire period in which they were active.

Basic statistics

In total, our database includes 4,148 banks of which 3,157 banks were active in 2006. For the whole sample, foreign ownership in number increased from 21 percent in 1995 to 35 percent in 2006 (Table 1). In terms of asset shares, foreign ownership increased from 5 percent in 1995 to 8 percent in 2005.[4] Important are the trends by income groups. We see that in asset shares, the increase of foreign bank presence has been the largest in the upper-middle income group. This group includes many of the countries where today foreign banks constitute the majority of the banking system, such as Botswana, Hungary, Mexico and Poland. In terms of numbers, the increase has been relatively the largest in the lower middle-income countries, where many, albeit smaller banks have entered.

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[3] For example, a bank from the UK may be in majority held by say US investors, yet we consider this bank to be a UK bank as it operates largely (and legally) in the UK institutional environment.
[4] For 2006 asset data are not yet available for many banks, which is why the asset share is as of 2005.

In terms of trends by region, we see increases in foreign bank presence for all regions. The regions with the largest increases in foreign bank presence in terms of numbers were Central and Eastern Europe and Non-OECD, followed by South Asia (albeit from a very low base) and Middle-East and North Africa. In assets shares, the regions with the largest increases in foreign bank presence in terms of numbers were South Asia and Non-OECD, followed by East Asia and Pacific. However, Eastern Europe and Central Asia and Latin America and Caribbean still remain the regions with the highest share of foreign assets. Albeit growing fast, South Asia still has the lowest share of foreign banks in numbers as well as asset shares.

In terms of the source countries, and in terms of numbers, currently 73 percent of all foreign banks in out sample come from high-income countries, 16 from upper middle-income, 7 from lower middle-income and 4 from lower-income. Figure 1 depicts the trends in foreign bank shares by source country income classifications. We see that over the period 1995-2006 the shares of source countries by income classification has not changed much. The strongest growth was realized by upper middle-income countries, who saw their share rise from 13 percent in 1995 to 16 percent in 2006. Lower middle-income countries experienced a drop of 2 percent in their share between 1995 and 2006.

There are also changes in the number of countries exporting banking services. Even though the share of banks from developing countries (all countries other than high-income countries) as source countries has remained more or less stable over the time period (around 30 percent), the number of developing countries that saw their banks enter other countries has increased from 43 in 1995 to 58 in 2006. Also the number of countries in which these banks invest has increased. While in 1995 developing countries' foreign banks were active in only 58 countries, in 2006 this number has risen to 83. Furthermore, there has been a substantial increase in the importance of foreign banks owned by banks from developing countries in the host country's banking sector. While in 1995 these foreign banks accounted in terms of number of banks for more than 10 percent of the banking sector in only 54 percent of the countries, by 2006 this percentage increased to 69 percent. In other words, not only has foreign banking from developing countries become much more important but also the number of countries in which they invested it has expanded over the last decade. The idea that foreign banking is a pre-

requisite of banks headquartered in high-income countries investing in emerging markets is thus no longer correct.

This broadening of foreign bank presence is also reflected in the mix of source and host countries. As expected the vast majority of investments in host countries in each income classification come from banks headquartered in high-income countries, with the importance of high income investors being the highest in other high-income host countries (87 percent) followed by upper middle-income host countries (see Table 2 upper panel). In low-income host countries 18 percent of foreign banks are owned by banks from other low-income countries, while the importance of these banks is very small in the other income classifications. Indeed, the bottom panel of Table 2 shows that 72 percent of banks from low-income countries invest in other low-income countries. In addition, banks from upper middle-income countries invest mostly in lower middle-income countries, while banks from high-income countries are most active in upper and lower middle-income countries. In general, these results show that banks tend to invest in countries with similar or lower income levels. The only exception seems to be banks from lower middle-income countries, which tend to invest mostly in upper middle-income countries.

Preliminary evidence

If our competitive advantage hypothesis is correct we should find, taking the behavior of competitors into account, that banks from countries with high levels of institutional quality tend to go to countries with relative high or average levels of institutional quality. On the other hand, banks headquartered in countries with weak institutions will tend to go to countries on the lower end of the institutional quality scale. So, when looking at the relationship between institutional quality in host and source country, a positive correlation should exist. Through scatter plots we can show that this is indeed the case.

Figure 2 displays six scatter plots. In each one, a measure of institutional quality in the host country is plot against the same indicator of the source country at the moment a bank from the source country entered the host country. As measures of institutional quality we use the governance indicators constructed by Kaufmann, Kraay and Mastruzzi (KKM, 2005). These indicators measure six dimensions of governance: (1) voice and

accountability, (2) political instability and violence, (3) government effectiveness, (4) regulatory quality, (5) rule of law and (6) control of corruption. For each dimension they create an index that ranges from -2.5 to 2.5 with higher values indicating a better institutional environment. These measures have often been used in the literature, including in studies on the impact of institutional quality on the location of FDI in general and FDI in banking in particular (see, for example, Stein and Daude, 2004 and Galindo et al., 2003).

All relationships displayed in Figure 2 are positive and highly significant, except for the relationship between the host and source country level of political stability and violence. If absolute differences were driving entry decisions, we would expect a scatter around the 45 degree line, but this is not what we find in the charts. In other words, the (general) positive correlation between institutional quality in host and source country at the time of investment does not seem to be a function of the investing banks choosing countries that are institutional similar. The charts thus provide some preliminary evidence that competitive advantage might play a role in the location decisions of banks.

Van Horen (2007) also provides some indication of the importance of competitive advantage in location decisions. Looking at the presence of foreign banks in developing countries in 2005, she finds that foreign bank ownership by banks from developing countries is more significant in low-income than in middle-income countries, while banks headquartered in high-income countries are more strongly represented in middle-income developing countries. By being more familiar with the more challenging investment climate in developing countries compared to banks from high income, institutionally well-developed countries, banks from middle-income countries may have a competitive advantage over foreign competitors in low-income countries. Vice-versa, for banks from high-income countries, it may be easier to operate in middle-income countries. If similarity in institutional quality mattered most for banks' entry, instead of competitive advantage, banks from middle-income countries would largely invest in other middle-income countries and not in low-income countries.

3.   Empirical methodology

In this section, we develop our formal test whether competitive advantage over foreign competitors affects the location decisions of multinational banks. Our competitive advantage hypothesis can be phrased as:

Hypothesis: Banks from countries with relatively weak institutions compared to their competitors will enter countries with relatively weak institutions, while conversely banks from countries with stronger institutions compared to their competitors will enter countries with relatively good institutions.

The scatter plots presented in the previous section are obviously only a very rough indication of the possible impact of competitive advantage on location decisions. To determine whether indeed competitive advantage due to familiarity with the environment can explain location decisions, we need to construct a variable that takes the quality of institutions of the host and source country, but also that of competitors into account. Furthermore, there are many other variables that may affect location decisions, which need to be controlled for. In this section, we therefore develop a formal measure of competitive advantage and explain the difference-in-differences model we use to determine whether competitive advantage explains the location decision of foreign banks.

Measure of foreign bank entry

As described above, our data cover 137 host countries and for all foreign banks in those countries we know the source country of the foreign bank. We construct country-pairs using all possible host-source countries combinations in the sample. We restrict the source countries, however, to those countries that are present in the banking sector of at least one developing country over the period 1995-2006. This is to avoid a bias in the estimation due to the fact that some potential source countries might have capital account restrictions or other economic or institutional factors that make it impossible for their banks to expand to other countries and for which we cannot easily control. Furthermore, host countries that did not see any entry in the sample period were excluded to avoid a

bias in the estimation arising from the fact that some host countries might have capital account restrictions or other factors that make entry impossible. We excluded all offshore centers from our sample since decisions to enter those markets are often driven by tax incentives. For this reason we also exclude Luxembourg. This leaves us with a total number of country pairs of 9,957 for each year in the sample period.

Our dependent variable is the change between 1996 and 2005 in the number of foreign banks from source country j present in host country i.[5] Since we consider the change in the stock of foreign banks from source country j in host country i, we do not take exits into consideration and we effectively consider gross foreign bank entry. In other words, the dependent variable captures all new investments by source j in host country i between 1996 and 2005. Modeling both entry and exits of banks would make the model to be estimated much more complicated.

Measure of competitive advantage

Our hypothesis implies that banks that are more familiar with working in a country where institutions are weak compared to their competitors will tend to invest in host countries with weak institutions. At the same time, banks whose home country has strong institutions are more likely to go to countries with good institutions as they have an easier time competing in these countries. To capture this notion of competitive advantage we multiply the difference between the institutional quality in the source country and that of the bank's competitor source countries with the difference between the institutional quality in the target host country and that of competing host countries. In other words, competitive advantage for a bank from source country j with regard to host country i at time t is defined as:

$$CompAdv_{ijt} = (Instsource_{jt} - Instcomp_{St}) \cdot (Insthost_{it} - Instcomp_{Ht})$$

The institutional quality of the competing source countries, $Instcomp_{St}$, is calculated by taking the weighted average of the institutional quality in each of the

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[5] Although we have ownership information for 2006, some of our explanatory variables are not available for that year. As such we are limited to look at the change between 1996 and 2005.

possible source countries. And the institutional quality of the competing host countries, $Instcomp_{Ht}$, is defined as the weighted average of the institutional quality in each of the possible host countries. In both measures the weight of each country is time-varying and is determined by its size, proxied by its dollar GDP in the year for which competitive advantage is calculated, thus capturing both that larger countries have more banks that may want to invest abroad and have more opportunities to invest in.

The competitive advantage variable $CompAdv_{ijt}$ can be positive or negative, with a positive value indicating a competitive advantage of a bank in source country j with regards to entry in host country i and a negative value indicating a competitive disadvantage for a bank from source country j with regards to entry in host country i. The size of the competitive advantage variable depends in turn on the sign of the two parts of its definition, making for four possible combinations, which are each as follows:

Quality inst. host – Quality inst. host competitors	Quality inst. source – Quality inst source competitors	Result
Host inst.>Comp inst	Source inst.>Comp inst.	+
Host inst.<Comp inst.	Source inst.>Comp inst.	-
Host inst.>Comp inst	Source inst.<Comp inst.	-
Host inst.<Comp inst.	Source inst.<Comp inst.	+

If the institutional quality of the source country is above that of its competitor countries, then the higher the institutional quality of the host country relative to competitor host countries, the more likely there will be entry from that specific source country to that specific host country on the basis of competitive advantage. But if the institutional quality of the host country is relatively low compared to other host countries, then is less likely that there will be entry from that source country to that host country. Similarly, if the institutional quality of the source country is below that of its competitor countries, then entry is less likely in host countries with relatively high institutions and more likely in host countries with relatively low institutions. And when the institutional quality of the source country only differs marginally from that of its competitor source countries, then a bank from this country will have neither a strong competitive advantage

or a strong competitive disadvantage with respect to the institutional environment in any of the potential host countries.

Our measure of competitive advantage also implies that the marginal effect of the quality of host country institutions on the entry decision depends on the relative quality of the source country institutions as $\frac{\partial Entry_{ij}}{\partial Insthost_i} = \alpha(Instsource_j - Instcomp_S)_i$. A positive value of α implies that if the institutions of the source country are better than those of the competitor source countries, then good institutions in the host country will have a positive impact on foreign bank entry from that source country. If, on the other hand, the institutions in the source country are poor relative to those of the competitors, then the relationship between foreign bank entry and the institutional quality of the host country will be negative, i.e., banks from this source country will be more inclined to locate in countries with weak institutions.

Our standard measure of institutional quality in the host country is the simple average of the six governance indicators of KKM (2005) discussed in the previous section.[6] The original KKM indicators vary between -2.5 and 2.5, which makes it harder to interpret the results. Before constructing the competitive advantage variable, we therefore linearly transform the original KKM indicators so their value is always positive.

Since our competitive advantage measure is a relative one and varies by source-host combination, it is useful to show some actual differences. Starting with high institutional source countries, in 2005 the difference between the institutional quality in Finland and that in its competitor source countries amounted to 0.9. Considering then the possibly entry of a Finish bank in Denmark, we need to calculate the difference between the institutional quality in Denmark and that in Denmark's competitor host countries, which is equal to 1.0. As a result, by our definition, the competitive advantage of a bank from Finland to enter Denmark is equal to 0.9, 0.9 times 1.0. At the same time the competitive advantage of this same Finish bank to enter in the Democratic Republic of Congo (DRC) equals -2.3 (the difference between the institutional quality in DRC and that in DRC's competitor host countries is equal to -2.6). For low institutional source

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[6] Although taking simple average can hide certain indicator-specific effects on foreign bank entry, we believe this possibility to be limited as correlations between the six indicators are very high, ranging from 0.60 to 0.96. However, we also estimate our model using the individual indicators.

countries, the story is reversed. The competitive advantage of a bank from Kenya to enter into Denmark equals -1.7, while for a bank from Kenya to enter into the DRC its competitive advantage is high, amounting to 4.4.

Empirical framework

In order to explain the bilateral FDI in banking, we use a difference-in-differences model. We believe a difference-in-differences model to be the preferred model since it controls directly for all country-pair fixed effects, host-country fixed effects and source-country fixed effects. We estimate how the change in the number of foreign banks from country j located in country i is related to changes in our measure of competitive advantage and using (changes in) several control variables. As we estimate a difference-in-differences model, we already control for those time-invariant variables that have proven to have explanatory power for foreign bank entry, like distance, a common border, a common language or past colonial links between host and source countries (see Galindo et al., 2003 and Van Horen, 2007). Host- and source-country specific effects are also controlled for. Other potential explanatory variables which have been considered in earlier analyses (mostly cross-sectional regressions), like the (change in) GDP of host country, financial depth of the host country and trade between host and source country, may be endogenous to foreign bank entry and we therefore do not include these in the regression model.[7]

Compared to other analyses, this leaves us with a relatively limited number of possible control variables. The ones we include are the change in entry restrictions, a variable that captures the limits imposed on foreign bank entry, with a dummy equal to one if foreign bank entry is restricted, and zero otherwise, i.e., a more liberal regime. We also include the change in institutional quality in the host country, the change in source country dollar GDP, and the change in source country dollar GDP per capita. Although the change in the institutional quality in the host country is potentially endogenous too, we do include it in our baseline model as it is a potentially important explanatory variable and has been used in other research. However, in several of our robustness tests we

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[7] Including these variables does not change our results.

estimate the model without this variable.[8] For a complete description of all variables in the model, see the Appendix.

Since the decision to enter is likely made before the year of entry and, as such, is based on the information available at that moment, we lag our independent variables by one year. This means that when our dependent variable is the change between 1996 and 2005, we use for the explanatory variables their change between 1995 and 2004. This way we also further reduce the risks of entry affecting the independent variables. Our benchmark model becomes thus as follows:

$$
\begin{aligned}
dForpresence_{ij} = \alpha_0 + \alpha_1 dCompadv_{ij} + \alpha_2 dInsthost_i + \alpha_3 dEntryrest_i + \\
\alpha_4 dGDPsource_j + \alpha_5 dGDPcapsource_j + \varepsilon_{ij}
\end{aligned}
\tag{1}
$$

where i refers to the host country and j to the source country. If our competitive advantage hypothesis is correct, we should find that an improvement in competitive advantage for banks from source country j in host country i has a positive impact on the change in foreign bank presence from source country j to host country i. In other words, a positive and significant sign for our competitive advantage variable confirms our hypothesis.

We estimate our difference-in-differences model using Tobit to account for the fact that for many source-host combinations there is no change in presence, i.e., there are many zeros in the dependent variable. The standard errors are corrected for heteroskedasticity. To take into account that in general more banks exist that can potentially engage in cross-border investment in larger source countries, we use a weighted estimation (with weights equal to the inverse of average dollar GDP, measured over 1995-2005 of the source country).

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[8] When we also include institutional quality of the host country, the marginal effects of our competitive advantage variable would be harder to interpret, since it depends on the institutional quality of the host country. In practice, however, this is not a problem since the correlation between the change in competitive advantage and the change in institutional quality of the host country is low (-0.26). Furthermore, this correlation is insignificant for those country pairs for which entry took place over the sample period.

4. Results

Does competitive advantage matter?

Using regression model (1) we test whether competitive advantage matters for bank entry. Table 3 presents the results. To help with the economic interpretation we show instead of the raw parameter estimates, the marginal effects of the unconditional expected value of the dependent variable, E(y), where y=max(a, min(y*,b)) where a is the lower limit for left censoring (0) and b is the upper limit for right censoring (100). The marginal effects are calculated at the mean of the independent variable. The marginal effects capture the combined effect of the impact of the explanatory variable on the probability of entry from the source country to the host country as well as on the amount of FDI (i.e., the number of gross entries of foreign banks over the period 1996-2005). The mean of the dependent variable is equal to 0.018, i.e., on average the presence of banks from source country j in host country i has increased with 0.018 bank between 1996 and 2005.[9]

The first column of the table shows the basic result for model (1) which provides strong evidence in favor of our competitive advantage hypothesis. The parameter on the change in competitive advantage is positive and highly significant, indicating that an improvement in competitive advantage increases foreign bank entry between the specific source and specific host country. The impact of competitive advantage on foreign bank entry is economically very relevant. An improvement in competitive advantage of 3 (the maximum improvement in our sample) would lead to an increase in presence of banks from country j in country i of 0.13. This is a substantial increase considering that the mean change in foreign presence is only 0.018. So the results in column 1 suggest that for banks which, compared to their competitors, come from countries with good institutions, a relative high institutional quality in the host country will make it more likely that they engage in cross-border banking. On the other hand, for banks that are familiar working in a country where institutions are weak, a relative good institutional quality in the host country will be a deterrent for cross-border banking.

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[9] This small value for the mean reflects the fact that for the vast majority of country pairs no investment took place over the sample period. Still, our differences-in-differences approach almost doubles the percentage of non-zeros as compared to using a panel probit approach which tries to explain entry in every year during the period, this increasing the number of zero events.

The first regression results also shows that, besides competitive advantage, the change in institutional quality in the host country plays a role in foreign bank entry, with the parameter positive and highly significant. This shows that as countries improve their institutional environment, they are able to attract more foreign banks. The economic impact of a change in institutional quality is lower though than that of a change in competitive advantage. For an one standard deviation increase in institutional quality, the presence of foreign banks would only change by 0.014, while an one standard deviation increase in competitive advantage leads to an increase in presence of 0.037. We also find that reductions in entry restrictions make an increase in foreign bank presence more likely as the coefficient on the entry restrictiveness (higher values mean a less liberal regime) is statistically significant negative.

In earlier work, Galindo et al. (2003) identified the absolute difference in institutional quality between host and source country to be a driver of foreign bank presence. In the second column, we therefore test whether competitive advantage with respect to institutional quality or the absolute difference in institutional quality between host and source country is the more important driver of foreign bank entry. When we add the change in absolute differences in institutional quality to our model, Regression (2), we see that its coefficient is insignificant. If we include only this variable in the model without the change in competitive advantage or the change in institutional quality in the host country, we find (not reported), similar to Galindo et al. (2003), a negative and significant parameter. The fact that the Galindo et al. (2003) variable loses its significance indicates that it is not the difference in institutional quality between host and source country that matters for foreign bank entry, but rather how well a bank from a specific source country is positioned compared to his competitors to work in a certain institutional environment.

As pointed out earlier, the variable capturing the impact of improvements in institutional quality in the host country might be endogenous as entry of foreign banks between 1996 and 2003 could have had a positive impact on the institutional quality in the host country in 2004. Levine (1996), for example, argues that one of the benefits of foreign bank entry is the fact that they help upgrade the host country's regulatory and supervisory framework. However, since our dependent variable is the bilateral FDI of

banks from one specific source country into the host country, it is not clear how important endogeneity might be. Also, since not all foreign banks (especially not those from developing countries) come from better institutional environments, their influence, if any, on the quality of the institutions of the host country can be positive or negative. Furthermore, our institutional quality variable is quite general and does not just refer to the quality of banking system regulation and supervision, which is the most likely aspect of the institutional environment to be affected by entry. As such, endogeneity is unlikely to be affecting the results. However, to still eliminate the possibility that our results are biased, we exclude the variable capturing the change in the quality of the host country's institutions. The result, Regression 3, shows that the sign and significance of our competitive advantage variable are not affected. The entry variable also remains statistically significant negative.

Since the institutional quality of the host country is also part of our competitive advantage variable, excluding this variable might, however, not be enough to control for potential endogeneity. Even though we believe that the risk of reverse causality in the case of competitive advantage to be even more limited, since most components of the competitive advantage variable are orthogonal to foreign bank entry, we take the prudent step and investigate this more thoroughly using a shorter time period and using an instrumental variables approach. We first run the same specification, but now using the shorter period 2000-2005 for the dependent variable and the period 1999-2004 for the independent variables, Regression 4. This robustness test shows that all results are maintained with the coefficient for the competitive advantage variable very similar to that of Regressions 1-3. In this period, the change in the GDP of the source country and the change in GDP per capita in the source country are also statistically significant, with respectively a positive and negative sign, suggesting some supply effects as source countries that grow larger in GDP see more outward FDI, while source countries that grow richer see less outward FDI.

We next use an instrument variable technique. We limit the sample again to the period 2000-2005, but use as an instrument for the change in competitive advantage between 1999 and 2004 the change in competitive advantage between 1995 and 1999. Although the correlation between these two variables is not very high (only 0.42), we

believe it is the best instrument available. The results, Regression (5), the last column of Table 3, indicate that our results are also robust to this. While the significance of the coefficient for competitive advantage declines, the marginal effect remains positive and statistically significant at the 5 percent level.[10] The entry variable loses its significance, though, and only the change in GDP in the source county is now significant.

Summarizing, the results show that FDI decisions are importantly influenced by a bank's ability to cope with differences in institutional environment between source and host countries better than other, competitor banks and that absolute differences in institutional environment matter less. In other words, banks that are willing to expand their business abroad seek out those markets in which their past experience in working in a certain business climate gives them a competitive advantage.

Does competitive advantage matter differently for M&A and greenfields?

We may expect that the importance of competitive advantage depends on the mode of entry, i.e., a greenfield investment or a merger/acquisition. We test whether this is indeed the case by estimating our model separately for these two different forms. In the first column in Table 4 the dependent variable captures only entry between 1996 and 2005 in the form of a greenfield investment from a bank from source country j in host country i, while in the second column entry captures only mergers/acquisitions.

The results in Table 4 suggest that competitive advantage is more important for FDI through a merger/acquisition than for a greenfield as the coefficient is larger. Also, the difference in the institutional quality of the host country appears more important for mergers/acquisitions than for greenfields. An explanation could be that many of the greenfields are small investments, more akin to representative offices where the foreign bank provides some selected services to, say, the local affiliates of multinational corporations and the like, but does little local financial intermediation. In contrast, mergers and acquisitions are more likely larger, involve local deposit-taking and lending to local firms, and use more local employees. In addition, and more importantly, with

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[10] In addition to the robustness tests discussed above, we also estimated the same models as presented in Table 3 using ordered probit instead of tobit. The results are very similar and are available upon request from the authors.

greenfields the foreign banks has more freedom and ability to use the same banking technology as it does at home, whereas with mergers and acquisitions it has to work, at least initially, with the acquired bank's existing technology, processes and procedures. As a consequence, competitive advantage is likely more important for FDI through a merger or acquisition than for greenfields.

Does the specific measure of competitive advantage matter?

In our benchmark model we took as a measure of institutional quality the simple average of the six different institutional KKM indicators. While it showed the importance of institutional competitive advantage in a general sense, this average measure provides limited insights into the source of competitive advantage. The average measure of institutional quality does not allow one to distinguish between the various types of institutional weaknesses and whether competitive advantage arises with respect to a certain kind of institutional indicator but not with respect to others. Being familiar with working in a country where corruption is rampant, for example, does not necessarily make a bank better equipped to work in a country where the rule of law is not being upheld, all compared to a competitor who is used to working in such a business climate.

Table 5 provides the regression results for each of the six competitive indicators separately (Regressions 1-6) and all the measures together (Regression 7). The results show that for almost all individual indicators it continues to hold that competitive advantage is an important determinant of the location decision of foreign banks with a positive sign. The only exception is the voice and accountability based competitive index which has a negative sign. Interpreting the marginal effect of the competitive advantage variable of the respective indicators in Regressions 2-6 with a positive sign suggests the following. The source country with one standard deviation higher competitive advantage rating regarding political instability and violence sees a 0.035 change in the total number of banks in the specific host country. In the case of government effectiveness the effect amounts to 0.024 percent, while in the case of regulatory quality, rule of law and control of corruption the effects are respectively 0.016, 0.033 and 0.032. These effects are very much in line with the results we found when using the average institutional quality variable. The only exception is the voice and accountability, where there is a decrease of

0.014 if the competitive advantage rating regarding voice and accountability increases with one standard deviation. This result might be explained by the fact that it is not obvious what relative (changes in) voice and accountability index directly means for banking business, as the index refers more to how people's views are represented in government policies, which may explain the negative coefficient.

Looking at the results of Regression 7, we see that competitive advantage with respect to government effectiveness loses its significance. Comparing the marginal effects of the other variables, we see that a one standard deviation increase leads to a 0.006 decrease in foreign presence in the case of voice and accountability, a 0.008 increase when competitive advantage is measured with respect to political stability and violence (albeit the significance drops substantially). Competitive advantage in regulatory quality, rule of law and corruption lead to an increase in foreign presence of 0.012, 0.016 and 0.012 respectively. Comparing the economic effects and significance of the different indicators of institutional quality suggests that, as expected, especially competitive advantage with respect to regulations, rule of law and corruption seems to matter most when explaining location decisions of foreign banks.

5.   Conclusion

The literature on foreign banking has identified several factors that can influence the location decision of multinational banks. In this paper we add to this literature by examining whether the competitive advantage of one foreign bank over its competitors in a specific host country due to its better ability to deal with the host country's institutional environment is a determining factor in a bank's decision to enter a certain market. Our results suggest that how institutions of host and source country *compare to* the bank's competitors rather than similarities in institutional quality between host and source country has a determining impact on the location decision. This implies that for those banks that compared to their competitors are used to work in countries with good institutions, a relative high institutional quality in the host country will have a positive impact on cross-border banking, while for banks that are more familiar with working in a

country where institutions are weak, a relatively low institutional quality can be a competitive advantage reason to enter such a market.

This result is important from a policy perspective as it shows that high institutional quality is not necessarily a prerequisite to be able to attract FDI in banking. As the development of the financial sector is an engine for growth in developing countries and foreign banks tend to have a beneficial impact on the domestic financial system, this is potentially good news for low-income developing countries. However, some caution is warranted. The fact that banks with competitive advantage entering institutionally less developed countries are more likely to come from other institutionally less developed countries could potentially create risks. One risk is that these foreign banks become a source of instability in the host countries, for example, because they lack supervision in their source country. In addition, these foreign banks may take advantage of the weak institutional environment in the host countries and, for example, exploit the safety nets provided to banks by taking on excessive risks. As such, foreign banks could be immiserizing.

Therefore, our results suggest a further research agenda. One area of future research is to investigate in more detail the source of competitive advantage. Is it that foreign banks from a weak institutional environment are better able to deal with a weak contracting environment, and can therefore make loans easier and better? Or is it that banks from a weak institutional environment are more willing to take advantage of a weak supervisory structure in host countries? One way to differentiate these hypotheses is to use additional and more specific measures of institutional differences to trace the source of competitive advantage. Another, complementary way is to investigate the impact of foreign banks entry from different countries on the financial system, especially of low-income countries. Neither area has yet been studied, however.

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Table 1 - Changes in foreign banking; aggregates by income level and region

	Foreign bank assets in total bank assets		No of foreign banks in total number of banks		Total number of foreign banks		Total number of countries
	1995	2005	1995	2006	1995	2006	
Income level							
Low income	0.03	0.18	0.19	0.31	103	165	37
Lower middle income	0.07	0.06	0.19	0.39	145	367	37
Upper middle income	0.13	0.38	0.26	0.40	316	382	28
High-income	0.04	0.08	0.18	0.25	104	148	35
Region							
East Asia and Pacific	0.07	0.26	0.18	0.22	51	61	8
Europe and Central Asia	0.24	0.39	0.16	0.44	120	331	25
Latin America and Caribbean	0.11	0.37	0.29	0.41	253	284	23
Middle East and Northern Africa	0.07	0.15	0.21	0.35	36	57	10
South Asia	0.00	0.06	0.06	0.10	8	16	5
Sub-Saharan Africa	0.14	0.14	0.30	0.42	99	163	31
OECD	0.04	0.06	0.19	0.24	87	109	22
Non-OECD	0.03	0.32	0.12	0.27	17	40	13
All countries	0.05	0.08	0.21	0.35	671	1061	137

Notes:

a. A foreign bank is defined to have at least 50 percent foreign ownership.

b. Figures reported are ratios of number of foreign banks to total number of banks (in 1995 and 2006) and foreign bank assets to total bank assets (in 1995 and 2005) in each group (asset shares are based on the consolidated balance sheets). Income and region classifications follow World Bank definitions as published in Global Development Finance (2006). Group-based figures are obtained from $\Sigma_i \text{FB}_i /(\Sigma_i \text{DB}_i + \Sigma_i \text{FB}_i)$ for country i within a group.

Table 2 - Source and destination of foreign bank assets in 2006, by income level

Investors in host country

By host country income level percentage of foreign banks owned by banks from source country by income level

Source income level	Host income level			
	Low-income	Lower middle-income	Upper middle-income	High-income
Low-income	18	0	2	1
Lower middle-income	4	4	11	6
Upper middle-income	18	22	12	6
High-income	60	74	75	87
Total	100	100	100	100

Investors by source country

By source country income level percentage of foreign banks in host country by income level

Host income level	Source income level			
	Low-income	Lower middle-income	Upper middle-income	High-income
Low-income	72	8	18	12
Lower middle-income	5	17	48	35
Upper middle-income	18	62	29	37
High-income	5	13	5	16
Total	100	100	100	100

Notes:

a. A foreign bank is defined to have at least 50 percent foreign ownership.

b. Income classifications follow World Bank definintions as published in Global Development Finance (2006).

Table 3 - Difference-in-Differences test of competitive advantage in foreign banking

The dependent variable is the change in the number of banks from source country j in host country i between 1996 and 2005 in the first 3 regressions and 2000 and 2005 in the last two regressions. *dCompadv* is the change of the competitive advantage variable, which is defined as (Instsource-Instcomp_source)(Insthost-Instcomp_host), see main text for explanation. *dInsthost* is the change between 1995 and 2004 (1999 and 2004) of the value of the simple average of six indicators of quality of institutions in the host country as measured by Kaufmann, Kraay and Mastruzzi (2005) (the indicator is linearly transformed to be >0 in all cases). *dDiffInst* is change of the absolute difference between quality of institutions of source and host countries. *dEntryres* is the change in entry restrictions, with entry restrictions measured by a dummy which is 1 if foreign bank entry is restricted. *dGDPsource* and *dGDPcapsource* are the changes of the log of respectively GDP and GDP per capita in the source country. For the first 4 regressions a standard tobit model is used In the last regression we used a maximum likelihood instrumental variable tobit model. All regressions include a constant. Coefficients are marginal effects. The robust p-values appear in brackets and ***, ** and * correspond to one, five and ten percent level of significance respectively.

	Tobit 1996-2005 (1)	Tobit 1996-2005 (2)	Tobit 1996-2005 (3)	Tobit 2000-2005 (4)	IV - Tobit 2000-2005 (5)
dCompadv	0.043 ***	0.042 ***	0.042 ***	0.039 ***	0.252 **
	[0.000]	[0.000]	[0.000]	[0.000]	[0.027]
dInsthost	0.047 ***	0.043 ***			
	[0.000]	[0.000]			
dDiffInst		-0.008			
		[0.307]			
dEntryres	-0.012 **	-0.012 **	-0.016 ***	-0.009 *	-0.022
	[0.018]	[0.019]	[0.003]	[0.062]	[0.053]
dGDPsource	-0.003	-0.004	-0.007	0.043 ***	0.182 ***
	[0.752]	[0.649]	[0.486]	[0.000]	[0.060]
dGDPcapsource	-0.010	-0.009	-0.004	-0.075 ***	-0.173
	[0.584]	[0.618]	[0.814]	[0.000]	[0.249]
No. Obs.	9,306	9,306	9,306	9,389	9,389

Table 4 - Difference-in-Differences test of competitive advantage - greenfield versus M&As

The dependent variable is the change in the number of banks from source country j in host country i between 1996 and 2005 if that change is the result of a greenfield investment (column 1) or the result of a merger or acquisition (column 2). *dCompadv* is the change of the competitive advantage variable, which is defined as (Instsource-Instcomp_source)(Insthost-Instcomp_host), see main text for explanation. d*Insthost* is the change between 1995 and 2004 (1999 and 2004) of the value of the simple average of six indicators of quality of institutions in the host country as measured by Kaufmann, Kraay and Mastruzzi (2005) (the indicator is linearly transformed to be >0 in all cases). *dEntryres* is the change in entry restrictions, with entry restrictions measured by a dummy which is 1 if foreign bank entry is restricted. *dGDPsource* and *dGDPcapsource* are the changes of the log of respectively GDP and GDP per capita in the source country. A standard tobit model is applied. All regressions include a constant. Coefficients are marginal effects. The robust p-values appear in brackets and ***, ** and * correspond to one, five and ten percent level of significance respectively.

|	Tobit Greenfield (1)	Tobit M&As (2)
dCompadv	0.013 ***	0.024 ***
	[0.000]	[0.000]
dInsthost	0.010 **	0.033 ***
	[0.030]	[0.000]
dEntryres	-0.005 *	-0.006 *
	[0.054]	[0.048]
dGDPsource	-0.004	0.000
	[0.437]	[0.991]
dGDPcapsource	-0.020 ***	0.007
	[0.030]	[0.574]
No. Obs.	9,306	9,306

Table 5 - Difference-in-Differences test of competitive advantage in foreign banking - which institutions matter?

The dependent variable is the change in the number of banks from source country j in host country i between 1996 and 2005. *dCompadv* is the change of the competitive advantage variable in each of the six indicators of quality of institutions as measured by Kaufmann, Kraay and Mastruzzi (2005), which is defined as (Instsource-Instcomp_source)(Insthost-Instcomp_host), see main text for explanation. These are: in regression (1) voice and accountability, in regression (2) political stability and violence, in regression (3) government effectiveness, in regression (4) regulatory quality, in regression (5) rule of law and in the last regression control of corruption. *dInsthost* is the change between 1995 and 2004 of each of the respective indicators of quality of institutions in the host country (the indicator is linearly transformed to be >0 in all cases). *dEntryres* is the change in entry restrictions, with entry restrictions measured by a dummy which is 1 if foreign bank entry is restricted. *dGDPsource* and *dGDPcapsource* are the changes of the log of respectively GDP and GDP per capita in the source country. A standard tobit model is applied. All regressions include a constant. Coefficients are marginal effects. The robust p-values appear in brackets and ***, ** and * correspond to one, five and ten percent level of significance respectively.

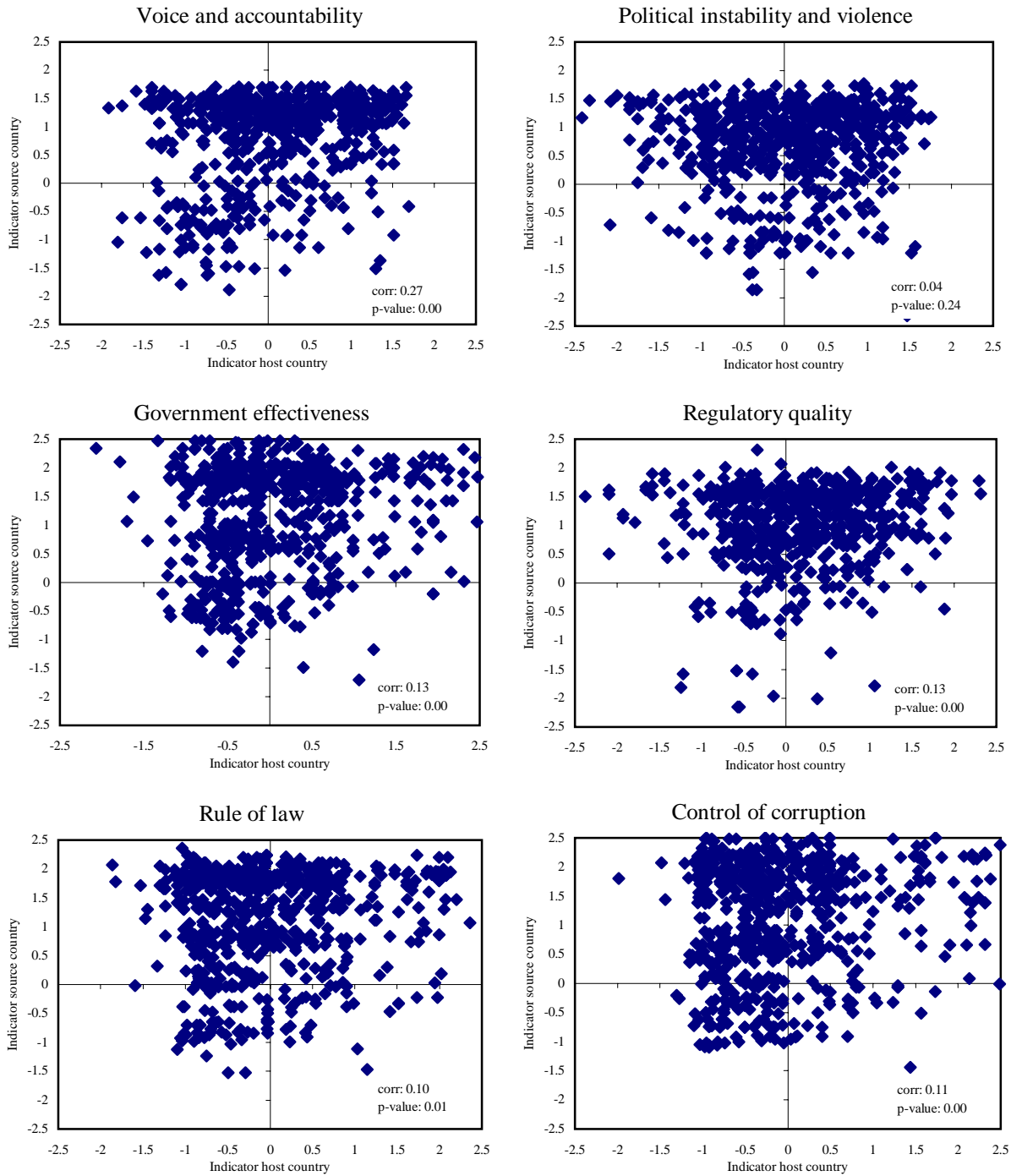|	(1)	(2)	(3)	(4)	(5)	(6)	(7)
dCompadv_vca	-0.015 ***						-0.006 *
	[0.000]						[0.092]
dInsthost_vca	0.032 ***						0.031 ***
	[0.000]						[0.000]
dCompadv_stab		0.016 ***					0.004 *
		[0.000]					[0.065]
dInsthost_stab		0.005					-0.010 **
		[0.199]					[0.016]
dCompadv_gov			0.033 ***				-0.007
			[0.000]				[0.183]
dInsthost_gov			0.056 ***				0.010
			[0.000]				[0.267]
dCompadv_reg				0.012 ***			0.009 ***
				[0.000]			[0.000]
dInsthost_reg				0.019 ***			-0.003
				[0.007]			[0.552]
dCompadv_rule					0.031 ***		0.015 **
					[0.000]		[0.012]
dInsthost_rule					0.044 ***		0.026 ***
					[0.000]		[0.004]
dCompadv_corr						0.019 ***	0.007 **
						[0.000]	[0.019]
dInsthost_corr						0.019 ***	-0.005
						[0.007]	[0.484]
dEntryres	-0.004	-0.013 **	-0.016 ***	-0.013 **	-0.013 ***	-0.013 ***	-0.004
	[0.461]	[0.013]	[0.006]	[0.031]	[0.009]	[0.009]	[0.389]
dGDPsource	-0.040 ***	-0.016 *	-0.025 **	-0.025 **	-0.008	-0.010	0.007
	[0.000]	[0.068]	[0.012]	[0.019]	[0.344]	[0.308]	[0.420]
dGDPcapsource	-0.001	-0.022	0.024	0.031 *	-0.017	-0.022	-0.021
	[0.978]	[0.180]	[0.200]	[0.063]	[0.358]	[0.268]	[0.229]
No. Obs.	9,306	9,140	9,223	9,223	9,223	9,223	9,140

Figure 1 - Share of source countries by income level in total number of foreign banks
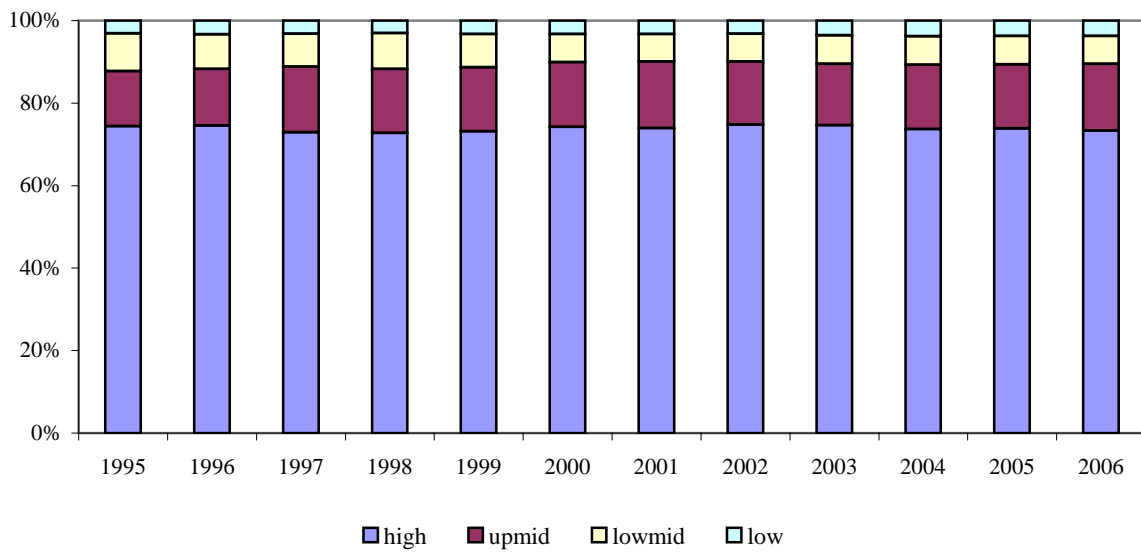
Figure 2 - Simple correlations of institutional quality

The figure shows the correlations at the time of entry between institutional quality in the host country of the foreign bank and the institutional quality in the country in which the foreign owner is headquartered (the source country) for each of the six governance indicators constructed by Kaufmann, Kraay and Mastruzzi (2005).

Voice and accountability

corr: 0.27
p-value: 0.00

Political instability and violence

corr: 0.04
p-value: 0.24

Government effectiveness

corr: 0.13
p-value: 0.00

Regulatory quality

corr: 0.13
p-value: 0.00

Rule of law

corr: 0.10
p-value: 0.01

Control of corruption

corr: 0.11
p-value: 0.00

Appendix - Variable Definitions and Sources

Variable	Definition	Source
ForPresence	The number of banks owned by banks headquartered in source country *j* in host country *i* between 1996 and 2005	Bankscope, individual bank websites and annual reports, parent company websites, banking regulatory agency/Central Bank websites, reports on corporate governance, local stock exchanges, SEC's From F-20, and country experts
CompAdv	The difference between the institutional quality of the source country and that of the competing source countries times the difference between the institutional quality of the host country and that of competing host countries. Institutional quality of source and host competitors is measured by taking the weighted average (based on dollar GDP) of the institutional quality of each of the possible source and host countries respectively.	Kaufmann, Kraay and Mastruzzi (2005) and IMF International Financial Statistics
Insthost	The simple average of six indicators of quality of institutions in the host country (voice and accountability, politial instability and violence, government effectiveness, regulatory quality, rule of law and control of corruption). For years in which no information on institutional quality is available the value of the previous year is used. Except for 1994 and 1995 where 1996 values are used. The variable is linearly transformed so the value is never below zero.	Kaufmann, Kraay and Mastruzzi (2005)
DiffInst	The absolute difference between quality of institutions of source and host countries, based on the simple average of the absolute difference of each of the six indicators of quality of institutions.	Kaufmann, Kraay and Mastruzzi (2005)
Entryres	Dummy which is 1 if foreign bank entry is restricted, zero otherwise. Foreign bank entry is considered restricted when foreign ownership is limited to be less than 50 percent, or when no branches or subsidiaries can be openened, or when only banks from countries that are considered well-supervised can enter the market. Entry restrictions are based on 2005.	Barth, Caprio and Levine (2006) updated with information from several sources
GDPsource	Log of GDP in US dollars in source country.	International Financial Statistics
GDPcapsource	Log of GDP per capita in current international $ in source country	World Development Indicators