

Location Decisions of Foreign Banks and Institutional Competitive Advantage

Stijn Claessens and Neeltje Van Horen*

This draft: February 2008

Abstract

Familiarity with working in a specific institutional environment compared to competitors can provide a firm with a competitive advantage, making it invest in specific host countries. We examine whether this institutional competitive advantage drives banks to seek out specific markets. Using detailed, bilateral data of bank ownership for a large number of countries over 1995-2006 and applying a first difference model, we find that institutional competitive advantage importantly drives location decisions, especially for M&As. Results are robust to different samples, various econometric techniques and alternative hypotheses regarding the role of institutional quality. This finding has some policy implications, including on the increased cross-border banking among developing countries.

JEL Classification Codes: F21, F23, G21

Keywords: foreign direct investment, international banking, institutions

* Claessens is with the International Monetary Fund, University of Amsterdam and CEPR, and Van Horen is with the Central Bank of the Netherlands and the University of Amsterdam. The paper was started while the authors were at the World Bank. We are grateful to Allaeddin Twebti, Matias Gutierrez and especially Tugba Gurcanlar and Joaquin Mercado for their help with collecting the data. We would like to thank our discussants, Gerald Dwyer, Johann Fedderke, and Jan Svenjar; and Valentina Bruno, Erik Feijen, Robert Hauswald, Jeroen van Hinloopen, Franc Klaassen, Luc Laeven, Steven Ongena, Costas Stephanou; and seminar participants at American University, Rabobank, University of Amsterdam, Utrecht University, the Latin American and Caribbean Economic Association 2006 Annual Meetings (Mexico-City), the Journal of Financial Stability and Bank of Finland conference (Helsinki), the 13th Dubrovnik Economic Conference, the 11th CEPR/ESI Annual Conference (Pretoria), and the 2007 Hong Kong University for Science and Technology Finance Symposium for their comments. Financial support for this project from the World Bank's Research Support Budget and the United Kingdom's Department for International Development (DECRG trade and services project) is gratefully acknowledged. The views expressed in this paper are those of the authors and do not necessarily represent those of the institutions with which they are or have been affiliated. E-mail addresses: sclaessens@imf.org and n.van.horen@dnb.nl.

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, e.g., 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 going abroad against the opportunities at home and against other modalities to provide services across borders without establishing a presence, such as through cross-border lending. Furthermore, foreign banks have many markets to choose from when establishing a presence abroad. This leads to the question what factors affect the decision of a bank from a specific country to go abroad and to establish presence in a specific country.

In this paper, we investigate the role of institutional competitive advantage in driving the decision of banks from specific countries to enter specific countries. Using a large sample of source and host countries over the last two decades, we examine whether banks seek out those countries where relative institutional familiarity provides them with an advantage over other, competitor banks. We develop a measure of institutional competitive advantage for each source-host country pair based on assessments of countries' institutional environments. Using a first difference model and controlling for time-varying factors, we find that institutional competitive advantage is an important factor in driving foreign banks' location decisions, especially for mergers and acquisitions.

Our finding relates to several strands in the literature. The first strand is that on the internationalization of banks, where several factors have been identified motivating FDI. Traditionally the decision of banks to go abroad 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 and profitability. Empirical studies have shown that FDI in banking is indeed correlated with the amount of bilateral trade and other forms of FDI between source and host countries (Grosse and Goldberg, 1991, Brealey and Kaplanis, 1996, Williams, 1998, and Yamori, 1998). It helps explain why,

for example, US as well as Spanish banks expand into Latin America as trade and FDI is relatively large between these groups of countries. However, the direct provision of trade- and project-related finance to firms that have expanded across borders has arguably 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 firms' foreign affiliates without needing to establish affiliates in foreign markets. Furthermore, firms can increasingly obtain trade- and project-finance related services from local banks that have improved their capacities. Rather it seems banks have been expanding abroad to seek new, local market opportunities.

A second 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 and 2005), 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 Related, Cerutti, Dell'Araccia and Martinez Peria (2007) study, controlling for the entry decision, the form of entry (branches versus subsidiaries) as it relates to source and host country characteristics, including outward and inward regulation and barriers.

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 be an advantage of that firm relative to local firms. In the general FDI literature, the internalization theory has been developed to explain 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

¹ Other studies on foreign bank entry include Buch and DeLong, 2004, and Buch, 2005.

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, for example, derive informational advantages from long-term bank-client relationships by allowing them to offer their customers financial services at better terms than other providers may (Petersen and Rajan, 1994, and Rajan, 1998). More generally, banks' advantages derive in large part from their ability to process information efficiently because of greater use of technology, specialized skills (e.g., risk management), scale, etc. These advantages will depend in part on the information and business environment the bank already is working in. Depending on the familiarity of the bank with a certain environment in the source country, it can be a source of strength in terms of engaging in cross-border entry in another country. For example, other things being 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 be able to operate well in a country which is also opaque.

A third, empirical strand in the literature has tried to apply this concept to the location decisions of banks. In terms of explaining why and how banks expand abroad, the internalization theory would suggest that banks enter countries with a similar level of information quality and, more generally, with a similar institutional environment. 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 that a bank does not consider 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 bank's own internal advantage (and on issues such as bilateral trade and FDI flows), but also on the institutional competitive advantage that the investing bank has over not only banks already present (local and foreign) but also over other foreign banks that are potential entrants. 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. At the same time, the internalization hypothesis, which suggests that a bank can derive advantages from its ability to work within a certain institutional environment, may still apply. In terms of empirical predictions, our competitive advantage hypothesis therefore means that the institutional difference between host and source country taking into account the institutional difference between host and competitor source countries matters for investment.

The impact of this concept of institutional competitive advantage on location attractiveness of any type of foreign investment has not been studied before. In order to test it, we first construct a database covering banks in almost all 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 institutional competitive advantage which relates to the source country and its source competitor countries' institutional environments as well as to the specific host institutional environment. Together, this allows us to test whether better knowledge about a certain business environment compared to competitors is a determining factor in decisions to enter a certain market relative to other markets.

Using a first difference approach, we find that when the quality of institutions in the source country is close to that of the host country relative to how close the bank's competitors' institutional qualities are to that of the same host country, banks are more likely to enter, especially through mergers and acquisitions. In other words, it is a bank's ability to work within a certain institutional environment relatively better than its competitors, which makes it enter a certain market. We also find that being close in institutional quality relative to how close competitor banks are to the specific host country matters more than just having close similarities in institutional quality between the host and source country. We confirm earlier findings that higher institutional quality

and lower entry barriers in the host country lead to more entry. Furthermore, more trade between host and source country leads to more entry. We also find some evidence of some supply effects in that GDP in the source country matters for outward investments.

Our results help explain foreign bank entry, but may also have some more general lessons. First, 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, such as in high-technology or other institutional-sensitive services. Second, our findings relate to the more general research on the role of institutions in development. While institutional quality has been found to affect country growth patterns and other aspects of development, much remains unexplained, including how economic actors “overcome” institutional weaknesses and how internationalization may help or hinder institutional development. Since banking is an institutionally-intensive activity, the location decision of foreign banks provides insights on how institutional differences may be dealt with more generally. Lastly, the finding that relative differences in institutional quality can drive cross-border entry in banking suggests that there is scope for increased cross-border entry among certain groups of countries, such as among developing countries, with potential associated benefits in the form of better and more efficient financial services provision. When source countries are developing countries, however, which are not of the highest institutional quality themselves, these benefits will have to be weighed against risks arising from, among others, poor home country supervision and 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 basic patterns. Section 3 describes the methodology used. Section 4 includes the main results and various robustness tests. The last Section concludes.

2. Data

Bank Entry Data

We construct a database that contains information on host country and source country bank ownership.² We do this for an extended period (1995-2006), covering all foreign bank entry and exit over this period, which allows us 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. The coverage is comprehensive, with in the latter part of the period banks included roughly accounting for 90 percent or more of banking system assets in each country.

The database includes almost all countries, thus covering both high-income as well as developing countries. Countries with less than five active banks in Bankscope were not included, leaving us with a total of 138 high income and developing countries, with the latter divided into low, lower-middle and upper-middle income countries (on the basis of 2005 GDP level and using the World Bank classification). Our database thus provides for a wide variety of income levels and institutional quality. For developing countries, we include all banks in our sample that are available in Bankscope. In the case of high-income countries, we aim to capture a large share in terms of assets (at any time, at least 75 percent) of the domestic banking sectors of these countries. This means that in terms of numbers, we only need to include a small subset of available banks, as in these countries concentration ratios tend to be high.

Our database includes all currently and past active 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.

The determination of ownership is as follows. First, we determine if a bank, where we include both foreign branches and subsidiaries, can be considered foreign owned. We use the definition generally applied in the literature on foreign banking (e.g.,

² For a full description of the database see Claessens, Van Horen, Gurcanlar and Mercado (2007).

Clarke, Cull, Martinez Peria and Sanchez 2003; Claessens, Demirguc-Kunt and Huizinga 2001) and consider a bank as foreign owned if 50 percent or more of its shares is owned by foreigners.³ Second, we sum the percentages of shares held by foreigners by the 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 a foreign bank as it relates to the institutional environment of the source country in which the bank is mainly operating and which can be expected to have the greatest influence on its operations. Using direct ownership is therefore more logical than considering any indirect ownership that may be far removed from the bank's main place of operations.⁴ 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 relevant next level of ownership structures.

The ownership information and source country of ownership are 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 obtain ownership information for almost 95 percent of the banks in our sample for the entire period in which they were active.⁵

³ We do not consider the degree of ownership concentration. Investors may be a dispersed group, one large shareholder or multiple blockholders, which may matter for the impact of ownership on entry decisions. Because the available data make it difficult to further differentiate ownership structures, especially for the large sample of banks we have, we did not consider these factors.

⁴ Looking at direct ownership instead of indirect ownership also implies that we view a situation where a bank already present in a foreign, second country sets up a bank in another, third country not different from a situation where a local bank from the second country establishes in the same third country. For example, if Hansabank Estonia sets up a bank in Lithuania, but Hansabank Estonia is ultimately owned by a Swedish bank, then we consider this a decision made in Estonia, and not an investment from Sweden in Lithuania. Data do not allow us to consider both cases separately, especially not for the large sample of banks we have.

⁵ While our coverage is good, there are data limitations. For example, some foreign shareholders are trusts that hold shares on behalf of investors, which may or may not be foreigners, but available data do not provide this information.

Basic patterns

In total, our database includes 4,074 banks, of which 3,097 banks were active in 2006 in 138 countries. Of these, 1,045 were foreign banks in 2006, compared to 672 in 1995. For the whole sample, foreign ownership in terms of asset shares, increased from 5 percent in 1995 to 8 percent in 2005 (Table 1).⁶ In terms of numbers, relative foreign ownership increased from 21 percent in 1995 to 35 percent in 2006. There are some important trends by income groups. In terms of numbers, the increase has been relatively the largest in the lower middle-income countries, where many, albeit smaller banks have entered. In terms of asset shares, the increase in 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 Hungary, Mexico and Poland.

There have been increases in foreign bank presence for all regions. In asset shares, the regions with the largest increases in relative foreign bank presence were Non-OECD, Latin America and Caribbean, and Europe and Central Asia. Latin America and Caribbean, and Europe and Central Asia still remain the regions with the highest share of foreign assets, 39 and 37 percent respectively. In terms of numbers, the regions with the largest increases in relative foreign bank presence were Europe and Central Asia, followed by Non-OECD, Middle-East and Northern Africa, Latin America and Caribbean, and Sub-Saharan Africa. Albeit increasing, South Asia still has the lowest share of foreign banks in numbers as well as asset shares. Numbers for OECD-countries do not reflect all foreign bank presence, since we did not cover all small banks in these countries (we do cover at least 75% of banking system assets).

There are some trends in the number and type of countries exporting banking services and in the countries in which these banks invest. The number of developing countries that had their banks enter other countries increased from 43 in 1995 to 58 in 2006. And, while in 1995 developing countries' foreign banks were active in 58 countries, in 2006 this rose to 83. Consequently, there has been a substantial increase in the importance of foreign banks from developing countries in host countries' banking sectors. While in 1995 these foreign banks accounted (in terms of number of banks) for more than 10

⁶ For 2006 asset data were not yet available for many banks, which is why the asset share is as of 2005.

percent of the banking sector in 54 percent of the countries, by 2006 this percentage increased to 69 percent. This broadening of foreign bank presence is reflected in the mix of source and host countries. In general, banks tend to invest in countries with similar or lower income levels. This is especially so for low-income countries: in 2006, some 72 percent of banks from low-income countries invested in other low-income countries, the highest intra-group investment share. The fact that we observe a broadening pattern of foreign bank investments and more investment among low-income countries hints at the importance of relative institutional similarities driving investment decisions.

3. Empirical Methodology

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

Hypothesis: Banks will enter countries with an institutional development that, compared to their competitors, gives them an advantage to operate in.

To determine whether indeed competitive advantage due to familiarity with the institutional 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 competitor banks into account. We therefore develop such a formal measure of institutional competitive advantage. Furthermore, there are a number of other variables that may affect locations decisions of foreign banks that need to be controlled for. We will do this applying a first-difference model which we will elaborate on in this section. We start, however, with our dependent variable, the measure of foreign bank entry.

Measure of foreign bank entry

Using the database described above, we construct entry data for 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 hard for their banks to expand to other countries, factors for which we cannot easily control. Furthermore, host countries that did not see any entry in the sample period are 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 or unattractive, and for which we again cannot easily control. We exclude all offshore centers from our sample since decisions to source from or enter those markets are often driven by tax incentives. For this reason we also exclude Luxembourg. This leaves us with a maximum total country pairs of 9,957 for each year in the sample period. In robustness tests, we examine whether this sample choice affects the results.

Our dependent variable equals the change between 1996 and 2006 in the number of foreign banks from source country j present in host country i . We calculate this change not as a difference in stocks, but rather as the cumulative number of newly registered foreign banks from source country j in host country i over this period. In other words, the variable captures all new investments by source country j in host country i between 1996 and 2006. This means that we effectively consider gross foreign bank entry and that we do not take exits into consideration. We do so largely as exits are due to many factors (mergers, acquisitions, liquidation, voluntary closures, etc.) and difficult to capture perfectly. Furthermore, modeling both entry and exit of banks would make the model to be estimated more complicated. We use the change in the number of foreign banks rather than the change in foreign banks' assets since asset data are not available for all banks at all points in time. We do, however, conduct robustness tests using the available bank asset data.⁷

Measure of institutional competitive advantage

We want to test whether banks that are more familiar, compared to their competitors, with working in a country due to similarities in institutions will tend to invest more. To

⁷ We also use the number of foreign banks from source country j present in host country i relative to the total number of foreign banks in host country i and did find similar results.

capture this notion of institutional competitive advantage, we divide the absolute difference between the institutional quality of the source country and that of the target host country by the average absolute difference between the institutional quality of each competitor source country and that of the host country. In other words, we define institutional competitive advantage for a bank from source country j with regard to host country i at time t as:

$$InstCompAdv_{ijt} = (\| InstSource_{jt} - InstHost_{it} \|) / \left(\sum_{j=1}^k \| InstSource_{jt} - InstHost_{it} \| / N \right)$$

If the absolute distance between source j and host i is large and the average (absolute) institutional distance of potential other source countries is small, i.e., source j has a competitive disadvantage in i , then the value of the institutional competitive advantage variable will be high. If the specific source country is close to the host country, but the competitor countries are institutionally far, i.e., the reversed situation occurs, then the value of the competitive advantage variable will be low. In other words, a smaller (larger) value indicates an institutional competitive (dis-)advantage of a bank in source country j with regards to entry in host country i . For our sample, the institutional competitive advantage variable $InstCompAdv_{ijt}$ has a value between 0.01 and 2.72. We use the simple average of institutional distances for the competitor countries, but results are similar when we use a source GDP-weighted average to account for the fact that some source countries are larger and have more banks than can invest abroad, and thus are more important competitors, than other countries are.

To construct our institutional competitive advantage variable we use the governance indicators of Kaufmann, Kraay and Mastruzzi (KKM, 2005). 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). The KKM-indicators measure six dimensions: (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, indexes range from -2.5 to 2.5 with higher values indicating a better institutional environment. The measures are currently collected on an annual basis, but for earlier period only on a bi-annual basis. Countries' KKM scores

vary significant over time, with changes over the sample period varying between and -2.6 and 1.6. Our standard institutional competitive advantage measure uses the simple average of these six governance indicators.⁸

Empirical framework

In order to explain bilateral FDI in banking, we use a first-difference model relating the change in the number of foreign banks from country j located in country i (over a period) to changes in our institutional competitive advantage measure and other variables. A first difference model is preferred for two reasons, econometrically and given the behavior underlying the entry decisions. Econometrically, first-difference is a preferred model since it controls directly for all country-pair, host-country and source-country fixed effects. It thus already controls for those bilateral, time-invariant factors that have proven to have explanatory power for foreign investment, including foreign bank entry, like distance, a common border, a common language or past colonial links between host and source countries. Besides any other bilateral, time-invariant effects (e.g., the existence of free trade arrangement), host- and source-country specific effects, such as the general risk of investing in a country, are also controlled for.

Behaviorally, first difference is also a preferred model because of the way banks can be expected to make their investment decisions. Banks will enter a particular country taking into account, among others, the institutional competitive advantage at the time. Entry, however, comes with many fixed costs and is a discreet choice, which is made at one point in time and is (in general) not repeated. Banks are therefore not likely to review their decisions as circumstances, including institutional competitive advantage, vary from one year to the next, but rather consider their overall presence from time to time in light of the changing circumstances. Consequently, it is more logical to explain the (change in) overall presence of foreign banks as a function of the (change in the) institutional competitive advantage over a period, rather than to explain entry (the flow of new foreign banks) as a function of year by year changing circumstances.

⁸ Although taking averages 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.

Compared to other analyses, most of which are cross-sectional regressions, using first-differences allows us to limit the number of possible control variables. One variable we do include is 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.⁹ We also include the changes in the institutional quality in the host country, bilateral trade, source country dollar GDP, and source country dollar GDP per capita.¹⁰ While the changes in source country GDP and GDP per capita are unlikely affected by entry (in this case outward investment) decisions, the changes in institutional quality in the host country and bilateral trade are potentially endogenous.¹¹ The Appendix provides a complete description of all variables used.

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, since our main dependent variable is the change between 1996 and 2006, we use for the explanatory variables their changes between 1995 and 2005.¹² This way we also further reduce the risks of entry affecting the independent variables. Our benchmark model becomes thus as follows:

$$dForpresence_{ij} = \alpha_0 + \alpha_1 dInstCompAdv_{ij} + \alpha_2 dInstHost_i + \alpha_3 dEntryrest_i + \alpha_4 dTrade + \alpha_5 dGDPsource_j + \alpha_6 dGDPcapsource_j + \varepsilon_{ij}$$

⁹ There might also be (lack) of entry restrictions that are not host country-specific but rather specific to the source country-host country combination. For example, while entry may be unrestricted in principle, for some reasons banks from one country may not be allowed to enter another country. Or the opposite may be the case, for example because of a Free Trade Agreements banks from a specific source country are allowed to enter a specific host country, but other foreign banks are not allowed to do so. Furthermore, it could be that, using the argument of prudential oversight, regulators in host countries only allow entry of banks from certain source countries (e.g., countries with strong institutions) to enter. The first difference regression controls for these and other bilateral, fixed effects as long as they are time-invariant.

¹⁰ Another useful indicator would be bilateral FDI flows, but data are not available. FDI flows are, however, highly correlated with trade flows, which are included in the model.

¹¹ Other potential explanatory variables considered in earlier analyses (mostly cross-sectional regressions), like the GDP of host country, financial depth of the host country, banking market structures, either have little time variation or may be endogenous to foreign bank entry. We therefore do not include these variables in the regression model (although doing so does not change our results.)

¹² Except for the institutional competitive advantage variable based on KKM for which we, due to data limitations, use the change between 1996 and 2004.

where d stands for the difference operator. A negative and significant sign for our institutional competitive advantage variable would confirm our main hypothesis.

We use Tobit to account for the fact that for many source-host combinations there is no change in presence, i.e., there are many zeros among the dependent variable. We estimate all standard errors robustly. Furthermore, to take into account that in general more banks exist that can potentially engage in cross-border investment in larger source countries and that more opportunity exist to invest in larger host countries, we use a weighted estimation, with the weights equal to the inverse of the product of the average dollar GDP of source j and host i countries, both measured over 1996-2005.

4. Empirical Results

Univariate evidence

We start with some simple basic statistics that highlight the entry patterns and how institutional competitive advantage may matter. Table 2 provides two sets of statistics, those for all observations in the sample and those for the observations where there was bilateral foreign bank investment at the time.¹³ Statistics are reported for both 1995 and 2006, allowing a comparison over time. The Table shows that foreign presence, the average number of foreign banks of a specific country j in host country i , almost doubled from 0.05 to 0.09 for all observations.¹⁴ For those observations with bilateral investment, there is no change in average presence over time, but the number of host countries' observations with presence increases from 314 to almost 500. This confirms the increase and broadening of foreign banks investments.

Important evidence for our institutional competitive advantage hypothesis is that for the sample with investment, the average institutional competitive advantage score goes down, from 1.29 in 1995 to 1.19 in 2006, which means an increase in relative familiarity. For the all observations sample, there is no such trend. Together, this suggests that the increased entry is driven in part by changes in institutional competitive

¹³ Note that to avoid any biases due to capital account, other restrictions or factors limiting in- or out-ward investments, we excluded those host countries receiving no investment and those source countries not investing at all abroad.

¹⁴ The low number reflects the fact that for many country-pairs no investment has taken place.

advantage. The institutional competitive advantage variable itself, however, is higher for the entry sample than for the all observations sample, implying that often source countries are relatively further away from host countries than countries in general are. This univariate comparison is, however, misleading since the reasons why many countries with low scores on institutional competitive advantage have no entry lie with other constraints, including low level of host institutional quality. Indeed, in 1995, the average quality of institutions was higher in host countries than for all observations, indicating that investment was concentrated in countries with relative good functioning institutions. In 2006, this difference was lower, however, suggesting that host institutions have become less of a constraining factor, as investment was more in countries with relative lower quality of institutions.

As expected, entry restrictions fall over time for both groups. Control variables often used to explain cross-border activities, such as common border and language, colonial links, legal system and distance, of course, do not vary over time for the all observations sample, but for the investment sample, which coverage of countries varies over time, there is some evidence of a reduction in “distance” measured in the various ways. As expected, there are some differences between the two groups in these variables, mostly along the line of host and source country being more similar and closer in “distance” than the sample of all countries.

Over time, trade between countries with investment has increased but much less so for the entry sample than for all observations, suggesting that the importance of trade has declined as a factor in entry decisions. GDP and GDP per capita show that source countries tend to be much larger and richer, whereas host countries are not larger or poorer than all countries. The variation in source country GDP does increase over time, consistent with the fact that more lower-income countries have become source country. Average distance declines among entry countries, suggesting that (developing) countries become more active investors in their own region.

Regression results

The univariate comparisons do suggest that a number of factors, including importantly institutional competitive advantage, drive entry. Of course, these are just univariate

comparisons and not all these factors vary over time (time-invariant factors are not relevant given our first-difference model). We now turn to the multivariate regression results to more rigorously investigate these issues. 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 and 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 1996-2006). The mean of the dependent variable (which is in logs) is equal to 0.029, which means that the average presence of banks from source country j in host country i has increased with 0.065 bank between 1996 and 2006.¹⁵

The first column of the table shows the basic result which provides strong evidence in favor of our institutional competitive advantage hypothesis. The parameter on the change in institutional competitive advantage is negative and highly significant, indicating that an improvement increases relative foreign bank entry. The first regression result also shows that an improvement in institutional quality in the host country increases foreign bank entry, with the parameter significant (although only at the 10% level). The fact that both the institutional competitive advantage and the institutional quality of host country are significant means one has to consider their combination when evaluating the effect of changes in the host country institutional environment. It means, for example, that, although a low quality institutional environment deters foreign bank entry in general, it does not need to do so for foreign banks coming from source countries with low quality institutions themselves since these would have an institutional competitive advantage seeking out such investment opportunities.

The regression result also shows that reductions in entry restrictions make an increase in foreign bank presence more likely as the coefficient on the entry restrictiveness variable (a positive value implies a move to a more closed regime) is

¹⁵ This differs from Table 2 as the regressions use a smaller set of observations as not all control variables are available for all observations.

statistically significant negative. As expected, increases in bilateral trade are associated with more foreign bank entry. The change in GDP in the source country is statistically significant, with a negative sign, suggesting some supply effects as source countries whose GDP grows faster see less outward FDI, maybe as domestic opportunities for investments are greater. The change in GDP per capita in the source country does not seem to have an impact on foreign entry.

The result in column 1 shows that banks that have an institutional competitive advantage in a specific host country tend to invest more in that country. Our institutional competitive advantage variable considers the absolute difference in institutional quality between host and source country relative to the absolute difference in institutional quality between host and other competitor source country. Others, however, have identified the absolute difference in institutional quality between host and source country to be a driver of foreign bank presence. To test whether institutional 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, we include first the absolute difference in institutional quality (column 2) and then both the absolute difference in institutional quality between host and source country and the absolute difference in institutional quality between the host and other competitor source country (column 3). That way we consider separately the effects of the nominator and the denominator of our institutional competitive advantage variable. We continue to control for the quality of institutions in the host country and other variables.

We find that a greater absolute difference in institutional quality between host and source country reduces foreign bank entry, consistent with earlier literature (column 2). But when controlling for the absolute difference in institutional quality between host and source country, we find that there is an even stronger, but positive effect of a higher absolute difference in institutional quality between host and other competitor source country (column 3). The net economic effect, in case of regression result 3, is similar to our institutional competitive advantage in that it matters most that the source country is relative to its competitors closer to the host country.

We next ask whether competitive advantage matters differently for M&A than for greenfields. For this, we estimate our model separately by form of entry, using the same

specification as used in column 1. In the fourth column in Table 3, the dependent variable captures only entry between 1996 and 2006 in the form of a greenfield investment, while in the fifth column it captures only entry through mergers/acquisitions. The results thus imply a greater importance of institutional competitive advantage for merger/acquisitions than for greenfield investments. Also, the variables difference in institutional quality and the entry restriction variable are only statistically significant in case of mergers/acquisitions. Trade between source and host country appears of equal importance for mergers/acquisitions and for greenfields, while GDP of the source country has a larger negative impact on mergers/acquisitions than on greenfield investments.

The greater importance of the institutional competitive advantage for mergers/acquisitions could be because 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, international financial services for large local corporations and the like, but does little local financial intermediation. In contrast, mergers and acquisitions are likely to be larger, involve more local deposit-taking and lending to local firms, and use more local employees and skills. In addition, and more importantly, with greenfields, a foreign bank 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, institutional competitive advantage is likely to be more important for entry through a merger or acquisition than for a greenfield, which is what the results confirm.¹⁶

Robustness tests on the specific estimation technique, time period and sample matter

We next conduct a number of econometric robustness tests. We have so far conducted the main regressions using Tobit, since the (relative) number of banks entering is always positive. Ordered probit can, however, have some advantages since our

¹⁶ Results are consistent with some other studies that examine how international and domestic banks operate. Berger, Dai, Ongena, and Smith (2003), for example, argue that some banking services – such as relationship lending to informationally opaque small businesses – are more likely be provided primarily by local institutions headquartered in the nation in which the services are demanded. Other services, such as syndicated loans to large borrowers, are more likely provided by large, global institutions for which the home nations are of much less consequence to the demanders of the services. They report supportive empirical evidence.

dependent variable, the number of banks entering, is a (positive) integer. The regression result using ordered probit is reported in Table 4, second column (first column repeats the base regression of Table 3). The results are very similar to those using Tobit (the base model), with the signs and statistical significance of all variables the same (coefficients are of different size as they reflect parameter estimates and not marginal effects).¹⁷

Instead of either using Tobit or probit techniques, we also estimate the model with simple OLS using all observations (Table 4, column 3). This is admittedly not the right econometric model, since only a limited number of countries experience a change in the relative number of foreign banks present. Nevertheless, the regression results do show the same sign for the institutional competitive advantage variable, and all other variables retain their same statistical significance.

We next re-estimate the base regression but using different sample periods over which we calculate the change in foreign bank presence. Specifically, we consider changes over the periods 1996-2000 (column 4) and 2001-2006 (column 5). We adjust all the explanatory variables to match these periods. In both periods we find the expected negative sign for institutional competitive advantage, however in the second period the parameter is insignificant.

Since the entry decision of a bank may also depend on the size of the bank's investment, we also investigate which variables best help to explain the change in foreign bank presence in market share. We therefore next use the change in asset shares between 1996 and 2005, rather than the change in the number of banks, as dependent variable (column 6). This robustness test gives us very similar regression results as the base regression, with almost all variables of identical sign and significance level, and only the magnitudes sometimes different (to be expected since the (changes in) asset shares are of a different magnitude). The only variable which is not longer statistically significant is the (change in the) host country institutions.

We also use regional dummies in the regression to test whether aspects like (the establishment of) regional free-trade agreements (FTAs) and currency unions affect the entry patterns in such a way to alter the importance of the institutional competitive

¹⁷ As ordered probit has multiple outcomes, marginal effects should be calculated for each outcome. We therefore show point estimates instead of calculating the marginal effects.

advantage variable. We continue to find the same results (column 7, where the regional dummies themselves are not reported), with an equally strong negative impact of our institutional competitive advantage variable. The institutional difference variable is no longer statistically significant, perhaps as the regional dummies pick up institutional differences. The entry restriction variable remains statistically significant, but at a smaller level of significance (10%), maybe as entry barriers also vary on a regional basis, possibly due to FTAs.

We next investigate the robustness of our results to the specific lag structure used for the explanatory variables. Instead of using the first lag, we use the second lags of all explanatory variables and look at entry for the period 1997-2006. By using a longer lag structure we further reduce the risks of reverse causality, e.g., entry affecting the host institutional environment. Again we find that our institutional competitive advantage variable has a negative and statistically significant impact on entry decisions (column 8).

We also explore the sensitivities to the specific sample of countries. We report two tests: including all source and host countries, even when they did not have any in- or outward investments in banking, except for off-shore financial centers; and including all source countries, but only studying developing countries as host countries. The first sample is much larger than that of our other tests, almost 15,500 observations compared to the 8,838 observations in most other regressions. The second sample of developing host countries only is somewhat smaller, 7,076 observations. The regression results are reported in columns 9 and 10, with the first regression results for all countries and the second for the sample of developing countries only.

When we consider all countries, column 9, we find the institutional competitive advantage variable to remain statistically significant at the 1 percent level with the same negative sign and a somewhat smaller coefficient. The host institutional variable remains also statistically significant, with a somewhat smaller coefficient as well. The results for the sample of only developing host countries (column 10) shows that the institutional competitive advantage variable remains significant at the one percent level, with the marginal effect slightly higher than the base regression. The marginal effect of a one standard deviation change in the institutional quality of the host country is slightly lower for the group of developing countries compared to the base sample. The other control

variables remain of the same sign and general significance level, with a negative effect of entry barriers and a positive effect of bilateral trade on foreign bank presence. GDP of the source country enters generally again negatively.

5. Conclusions

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 institutional competitive advantage, the ability of a foreign bank to deal better with the host country's institutional environment than its competitors can, is a determining factor in a bank's decision to enter a certain market. Our empirical results show that how the difference in institutions between the host country and source country *compares to* the same difference for the bank's competitors has a determining impact on its 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 positively impact cross-border entry, while for banks that are more familiar with working in a country where institutions are weak, a relatively low institutional quality in a host country can be a competitive advantage reason to enter such a market. We find these institutional competitive advantage effects to matter even when controlling for similarity between host and source countries' institutional quality.

Our results are important from a research perspective. They expand the previous literature on how institutional factors affect cross-border banking entry. They introduce the concept of institutional competitive advantage, which has previously only been used qualitatively, in an empirical rigorous way. They also shed light on how institutionally-sensitive sectors are affected by differences in countries' rules, thus fitting in the growing literature on the institutional determinants of countries' general development.

The results are also important from policy perspectives. For one, they show that high institutional quality is not necessarily a prerequisite to be able to attract FDI in banking. As the financial sector is an engine for growth and since foreign banks tend to have a generally beneficial impact on the domestic financial system, this is potentially good news for low-income developing countries that have poorly developed financial

systems. However, some caution is warranted. The fact that banks with an institutional competitive advantage entering institutionally less developed countries are more likely to come from other institutionally less developed countries could create some risks. These foreign banks could become a source of instability in the host countries because they lack proper supervision in their source country, as has happened in some cases (BCCI is one notorious example). These foreign banks may also take advantage of weak institutional environments in the host countries and exploit the safety nets provided to banks by taking on excessive risks. As such, increased foreign bank entry from institutionally less developed countries could pose risks that may require specific policy responses.

Our results also suggest a further research agenda. One area of future research is to investigate in more detail the source of institutional competitive advantage using additional and more specific measures of institutional differences. For example, whether institutional competitive advantage is based on differences in countries' business environment or on differences in the way banks are being supervised, can be analyzed by estimating which of these differences is the stronger determinant of foreign bank entry. Related, it will be important to trace the impact of institutional competitive advantage. Is it that foreign banks coming from weak institutional environments are better able than banks from well developed countries to deal with a weak contracting environment in the host country, and therefore can make loans easier and better, with lower risks and less need for loan-loss provisioning? Or is it that banks from weak institutional environments are more willing to take advantage of weak supervisory structures in host countries, in the process taking more risks, leading to more non-performing loans? One way to differentiate between these hypotheses is to investigate how measures of actual foreign bank performance vary with institutional competitive advantage. Do foreign banks with specific institutional competitive advantage make more loans, to more informationally intensive borrowers, at lower risks? Another, complementary way is to investigate the impact of foreign bank entry on the domestic banking system, especially of low-income countries. Do banks from different countries with more institutional competitive advantage have a greater impact on the domestic financial system? None of these areas has yet much been studied, however.

References:

- Barth, Jim, Gerard Jr. Caprio, and Ross Levine, 2006, *Rethinking Bank Regulation; Till Angels Govern*, New York: Cambridge University Press.
- Berger, Allen N., Qinglei Dai, Steven Ongena and David C. Smith, 2003, To What Extent will the Banking Industry be Globalized? A Study of Bank Nationality and Reach in 20 European Countries, *Journal of Banking and Finance* vol. 27, pp. 383–415.
- Brealey, Richard and E.C. Kaplanis, 1996, The Determination of Foreign Banking Location, *Journal of International Money and Finance*, vol. 15, pp. 577–597.
- Buch, Claudia, 2005, Distance and International Banking, *Review of International Economics*, vol. 13, pp. 787–804.
- Buch, Claudia and Gayle DeLong, 2004, Cross-Border Bank Mergers: What Lures the Rare Animal? *Journal of Banking and Finance*, vol. 28, pp. 2077–2102.
- Buckley, Peter J. and Mark Casson, 1991, *The Future of the Multinational Enterprise*, 2nd Edition, London: MacMillan.
- Casson, Mark, 1987, *The Firm and the Market: Studies in Multinational Enterprises and the Scope of The Firm*, Cambridge, Mass: MIT Press and Oxford: Blackwell.
- Cerutti, Eugenio, Giovanni Dell’Ariccia, and Maria Soledad Martinez Peria, 2007, How banks go abroad: Branches or subsidiaries? *Journal of Banking and Finance*, 31 1669-92.
- Claessens, Stijn, Asli Demirgüç-Kunt, and Harry Huizinga, 2001, How Does Foreign Entry Affect the Domestic Banking Market? *Journal of Banking and Finance*, Vol. 25(5), pp. 891–911.

- Claessens, Stijn, Neeltje Van Horen, Tugba Gurcanlar and Joaquin Mercado, 2007, Foreign Bank Presence in Developing Countries 1995-2006: Data and Trends, mimeo, The World Bank.
- Clarke, George, Cull, Robert, Maria Soledad Martinez Peria, and Susana M. Sánchez, 2003, Foreign Bank Entry: Experience, Implications for Developing Countries, and Agenda for Further Research, *World Bank Research Observer* 18 (1), 2003, 25-40.
- Focarelli, Dario and Alberto F. Pozzolo, 2000, The Determinants of Cross-Border Bank Shareholdings: An Analysis with Bank-Level Data from OECD Countries, Federal Reserve Bank of Chicago, *Proceedings* (May), pp. 199–232.
- Focarelli, Dario and Alberto F. Pozzolo, 2005, Where do Banks Expand Abroad? An Empirical Analysis, *Journal of Business*, vol. 78, pp. 2435–2463.
- Galindo, Arturo, Alejandro Micco, and César Serra, 2003, Better the Devil That You Know: Evidence on Entry Costs Faced by Foreign Banks, Inter-American Development Bank Working Paper No. 477.
- Grosse, Robert and Linda G. Goldberg, 1991, Foreign Bank Activity in the United States: An Analysis by Country of Origin, *Journal of Banking and Finance*, vol. 15, pp. 1092-1112.
- Kaufmann, Daniel, Aart Kraay, and Massimo Mastruzzi, 2005, Governance Matters IV: Governance Indicators for 1996-2004, Washington, DC, The World Bank.
- Petersen, Mitch A. and Raghuram Rajan, 1994, The Benefits of Lending Relationships: Evidence from Small Business Data, *Journal of Finance*, vol. 49, pp. 3–38.

- Rajan, Raghuram, 1998, The Past and Future of Commercial Banking Viewed through an Incomplete Contract Lens, *Journal of Money, Credit and Banking*, vol. 30, pp. 524–551.
- Stein, Ernesto and Christian Daude, 2004, Quality of Institutions and Foreign Direct Investment, Mimeo: University of Maryland and Inter-American Development Bank.
- Van Horen, Neeltje, 2007, Foreign Bank Entry in Developing Countries: Origin Matters, *Emerging Markets Review*, vol. 8, pp. 81–105.
- Williams, Barry, 1998, Factors Affecting the Performance of Foreign-Owned Banks in Australia: A Cross-Sectional Study, *Journal of Banking and Finance*, vol. 22, pp. 197–219.
- World Bank, 2006, *Global Development Finance*, Washington, D.C.
- Yamori, Nobuyoshi, 1998, A Note on the Location Choice of Multinational Banks: the Case of Japanese Financial Institutions, *Journal of Banking and Finance*, vol. 22, pp. 109–120.

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	
<i>Income level</i>							
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
<i>Region</i>							
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 as a bank with 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 using: $\sum_i \text{FB}_i / (\sum_i \text{DB}_i + \sum_i \text{FB}_i)$ for each country i within a group.

Table 2 - Summary statistics

This table shows the summary statistics of our dependent variable *foreign presence* and of those variables that we use of otherwise typically have been used to explain foreign bank entry, both for the years 1995 and 2006. In the top panel, statistics are based on all observations within our sample, while in the bottom panel the statistics reflect only observations when there are banks from the source country present in the host country. Note we have excluded from all our samples all host countries without any foreign banks present between 1995 and 2006 and all source countries that did not invest in any other source country. Furthermore, all host and source countries that are offshore centers were excluded. All variables are in levels and distance is measured in kilometers. For definition of the variables see the Appendix

	All observations in sample					
	1995			2006		
	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.
<i>Foreign presence</i>	0.05	0.36	9,605	0.09	0.46	9,605
<i>Institutional competitive advantage</i>	1.05	0.61	9,605	1.04	0.62	9,605
<i>Institutions host</i>	0.06	0.86	9,605	0.00	0.88	9,605
<i>Entry restrictions</i>	0.44	0.50	9,605	0.13	0.33	9,605
<i>Border</i>	0.03	0.16	9,605	0.03	0.16	9,605
<i>Common language</i>	0.08	0.28	9,605	0.08	0.28	9,605
<i>Colonial Links</i>	0.06	0.23	9,605	0.06	0.23	9,605
<i>Different legal system</i>	0.70	0.46	9,605	0.70	0.46	9,605
<i>Distance</i>	6,359	4,013	9,605	6,359	4,013	9,605
<i>Trade</i>	534,302	4,631,598	9,605	1,269,198	9,202,733	9,605
<i>GDP host</i>	136,177	334,193	9,605	222,133	492,088	9,605
<i>GDP source</i>	330,864	1,002,171	9,605	510,205	1,485,114	9,605
<i>GDP per capita host</i>	6,990	7,003	9,605	10,854	10,552	9,605
<i>GDP per capita source</i>	10,303	8,345	9,605	15,998	12,790	9,605

	Only observations when investment from source in host					
	1995			2006		
	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.
<i>Foreign presence</i>	1.61	1.21	314	1.60	1.24	498
<i>Institutional competitive advantage</i>	1.29	0.76	314	1.19	0.72	498
<i>Institutions host</i>	0.13	0.79	314	-0.01	0.82	498
<i>Entry restrictions</i>	0.47	0.50	314	0.12	0.33	498
<i>Border</i>	0.17	0.37	314	0.17	0.37	498
<i>Common language</i>	0.28	0.45	314	0.27	0.44	498
<i>Colonial Links</i>	0.15	0.36	314	0.19	0.39	498
<i>Different legal system</i>	0.51	0.50	314	0.59	0.49	498
<i>Distance</i>	4,488	3,652	314	3,937	3,620	498
<i>Trade</i>	4,074,157	18,000,000	314	7,871,936	29,900,000	498
<i>GDP host</i>	167,336	304,309	314	233,523	440,998	495
<i>GDP source</i>	1,616,507	2,381,012	314	2,163,259	3,552,207	195
<i>GDP per capita host</i>	6,960	6,162	314	10,484	9,467	478
<i>GDP per capita source</i>	18,111	8,210	308	26,281	12,381	479

Table 3 - First-differences test of institutional competitive advantage in foreign banking

The dependent variable is the change in (1 plus) the log of number of banks from source country j in host country i between 1996 and 2006. In column 1-3 changes resulting from all types of investments are taken into account, while in column 4 only greenfield investments and in column 5 only mergers or acquisitions are considered. $dInstCompAdv$ is the change of the institutional competitive advantage variable between 1995 and 2005, which is defined as $\ln((Inst_source-Inst_host)/(\sum(Inst_source-Inst_host)/N))$, see main text for explanation. Institutional quality is calculated as the simple average of six indicators as measured by Kaufmann, Kraay and Mastruzzi (2005). $dInstHost$ is the change in the quality of institutions in the host country. $dInstDif$ is change in the logarithm of the absolute difference between quality of institutions of source and host countries. $dInstAvgDif$ is the change in the average log difference of the institutional quality of all potential source countries with host country i . $dInstCompAdv$ is thus $dInstDif/dInstAvgDif$. $dEntryres$ is the change in entry restrictions, with entry restrictions measured by a dummy which is 1 if foreign bank entry is restricted. $dTrade$ is the change in the log of the sum of export and import between host and source country. $dGDPsource$ and $dGDPpcapsource$ are the changes of the log of respectively GDP and GDP per capita in the source country. A standard tobit model is applied. Regression coefficients are reported as marginal effects. All regressions include a constant. Data are weighted by the inverse of the product of GDP of host and source country averaged over the sample period. The robust p-values appear in brackets and ***, ** and * correspond to one, five and ten percent level of significance respectively.

	All (1)	All (2)	All (3)	Greenfield (4)	M&A's (5)
$dInstCompAdv$	-0.012 *** [0.000]			-0.005 ** [0.010]	-0.006 *** [0.003]
$dInstHost$	0.009 * [0.063]	0.007 [0.135]	0.011 ** [0.020]	0.000 [0.962]	0.011 *** [0.005]
$dInstDif$		-0.010 *** [0.002]	-0.011 *** [0.000]		
$dInstAvgDif$			0.024 ** [0.033]		
$dEntryres$	-0.005 ** [0.038]	-0.005 ** [0.048]	-0.006 ** [0.026]	-0.002 [0.142]	-0.003 * [0.096]
$dTrade$	0.002 *** [0.000]	0.002 *** [0.000]	0.002 *** [0.000]	0.001 *** [0.000]	0.001 *** [0.000]
$dGDPsource$	-0.022 *** [0.000]	-0.022 *** [0.000]	-0.022 *** [0.000]	-0.008 *** [0.000]	-0.017 *** [0.000]
$dGDPpcapsource$	0.000 [0.978]	0.000 [0.990]	-0.001 [0.946]	-0.007 [0.102]	0.008 [0.198]
Wald chi2	105.38	99.06	110.82	95.64	81.18
No. Obs.	8,838	8,838	8,838	8,838	8,838

Table 4 - First-differences test of competitive advantage in foreign banking - Robustness tests

The table shows the results of several robustness tests. The first regression is our benchmark regression. In the second regression we estimate the model using ordered probit, and in the third regression we apply OLS. In the fourth regression we study changes between 1996 and 2000, while in regression 5 we look at changes between 2001 and 2006. In regression 6 the dependent variable reflects the change in assets from source country j in host country i between 1996 and 2005. In the seventh regression we include regional dummies in the model (dummies are not reported). Regression 8 uses the second lag for the explanatory variables instead of the first lag and is estimated for the period 1997-2006. In regression 9 we include in our sample all countries in our database except source and host countries that are offshore centers, while in regression 10 we only include developing countries. $dInstCompAdv$ is the change of the institutional competitive advantage variable, which is defined as $\ln((InstSource-InstHost)/(\bar{Q}))$ (InstSource-InstHost)/ \bar{Q} , see main text for explanation. Institutional quality is calculated as the simple average of six indicators as measured by Kaufmann, Kraay and Mastruzzi (2005). $dInstHost$ is the change in the quality of institutions in the host country. $Entries$ is the change in entry restrictions, with entry restrictions measured by a dummy which is 1 if foreign bank entry is restricted. $dTrade$ is the change in the log of the sum of export and import between host and source country. $dGDPsource$ and $dGDPcapsource$ are the changes of the log of respectively GDP and GDP per capita in the source country. In all regression, except in regression 2, regression coefficients are marginal effects. In regression 2 coefficients are point estimates. All regressions include a constant. In all regressions data are weighted by the inverse of the product of gdp of host and source country averaged over the sample period. The robust p-values appear in brackets and ***, ** and * correspond to one, five and ten percent level of significance respectively.

Technique	Tobit	Ordered probit	OLS	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit	Tobit
Period	1996-2006	1996-2006	1996-2006	2001-2000	2001-2006	1996-2005	1996-2006	1997-2006	1996-2006	1996-2006	1996-2006
Sample	Countries in sample	Countries in sample	Countries in sample	Countries in sample	Countries in sample	Countries in sample	Countries in sample	Countries in sample	All countries	All countries	Developing countries
Dependent variable	Number banks	Number banks	Number banks	Number banks	Number banks	Assets	Number banks	Number banks	Number banks	Number banks	Number banks
Other	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(9)	(10)
<i>dInstCompAdv</i>	-0.012 *** [0.000]	-0.213 *** [0.000]	-0.013 *** [0.001]	-0.008 ** [0.016]	-0.005 [0.000]	-0.019 *** [0.000]	-0.022 *** [0.001]	-0.010 *** [0.002]	-0.006 *** [0.001]	-0.006 *** [0.001]	-0.014 *** [0.000]
<i>dInstHost</i>	0.009 * [0.063]	0.186 ** [0.040]	0.014 *** [0.006]	0.011 ** [0.034]	0.030 *** [0.000]	-0.002 [0.753]	-0.052 [0.320]	0.012 *** [0.006]	0.007 *** [0.005]	0.007 *** [0.005]	0.008 * [0.097]
<i>dEntries</i>	-0.005 ** [0.038]	-0.108 ** [0.022]	-0.010 *** [0.002]	-0.003 [0.152]	-0.012 ** [0.447]	-0.009 ** [0.013]	-0.304 * [0.097]	-0.006 *** [0.033]	-0.003 ** [0.036]	-0.003 ** [0.036]	-0.006 * [0.052]
<i>dTrade</i>	0.002 *** [0.000]	0.029 *** [0.000]	0.002 *** [0.000]	0.001 *** [0.000]	0.001 * [0.238]	0.002 *** [0.000]	1.600 *** [0.004]	0.001 * [0.056]	0.001 *** [0.000]	0.001 *** [0.000]	0.002 *** [0.000]
<i>dGDPsource</i>	-0.022 *** [0.000]	-0.422 *** [0.000]	-0.024 *** [0.000]	-0.017 *** [0.000]	0.048 *** [0.000]	-0.041 *** [0.000]	0.626 *** [0.000]	-0.009 ** [0.300]	-0.011 *** [0.000]	-0.011 *** [0.000]	-0.023 *** [0.000]
<i>dGDPcapsource</i>	0.000 [0.978]	0.005 [0.975]	0.003 [0.723]	0.026 *** [0.002]	-0.164 *** [0.000]	0.002 [0.860]	0.457 [0.954]	-0.004 [0.657]	0.002 [0.614]	0.002 [0.614]	0.000 [0.986]
Wald chi2/F-test	105.38	98.87	12.29	51.09	50.09	61.22	186.9	39.62	94.10	94.10	96.83
No. Obs.	8,838	8,838	8,838	9,057	8,838	8,838	8,838	8,838	15,495	15,495	7,076

Appendix - Variable Definitions and Sources

Variable	Definition	Source
<i>ForPresence</i>	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 Form F-20, and
<i>InstCompAdv</i>	The absolute difference between the institutional quality of the source country and that of the target host country divided by the average absolute difference between the institutional quality of each competitor source country and that of the host country.	Kaufmann, Kraay and Mastruzzi (2005), International Country Risk Guide, Heritage Foundation, World Bank and IMF International Financial Statistics
<i>InstHost</i>	The simple average of six indicators of quality of institutions in the host country (voice and accountability, political 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.	Kaufmann, Kraay and Mastruzzi (2005), International Country Risk Guide, Heritage Foundation, World Bank
<i>InstDif</i>	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)
<i>InstAvgDif</i>	The average absolute difference between quality of institutions of each competitor source country and that of the host country, based on the simple average of the absolute difference of each of the six	Kaufmann, Kraay and Mastruzzi (2005)
<i>Entryres</i>	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 opened, 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
<i>Border</i>	Dummy which is 1 if the countries share a border, zero otherwise.	CIA World Factbook (2005)
<i>Comlang</i>	Dummy which is 1 if the countries share the same language, zero otherwise.	CIA World Factbook (2005)
<i>Collinks</i>	Dummy which is 1 if host and source country have had colonial links either between colonizer and colony or between those countries having been colonized by the same colonizer after 1945, zero otherwise.	CIA World Factbook (2005)
<i>LegalDif</i>	Dummy which is 1 if the origin of the legal system of host and source country differ, zero otherwise.	Easterly and Sewadeh (2001) Global Development Network Growth Database and CIA World Factbook
<i>Distance</i>	The log of the distance between the host and source countries, zero otherwise.	CIA World Factbook (2005)
<i>Trade</i>	Log of export plus import between the source and host countries.	UN Comtrade
<i>GDP_{host(source)}</i>	Log of GDP in US dollars in host (source) country.	International Financial Statistics
<i>GDP_{cap_{host(source)}}</i>	Log of GDP per capita in current international \$ in host (source) country	World Development Indicators