

Galindo, Arturo; Micco, Alejandro; Serra, César Manuel

Working Paper

Better the Devil that You Know: Evidence on Entry Costs Faced by Foreign Banks

Working Paper, No. 477

Provided in Cooperation with:

Inter-American Development Bank (IDB), Washington, DC

Suggested Citation: Galindo, Arturo; Micco, Alejandro; Serra, César Manuel (2003) : Better the Devil that You Know: Evidence on Entry Costs Faced by Foreign Banks, Working Paper, No. 477, Inter-American Development Bank, Research Department, Washington, DC

This Version is available at:

<https://hdl.handle.net/10419/88000>

Standard-Nutzungsbedingungen:

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

Terms of use:

Documents in EconStor may be saved and copied for your personal and scholarly purposes.

You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.

If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.



*INTER-AMERICAN DEVELOPMENT BANK
BANCO INTERAMERICANO DE DESARROLLO (BID)
RESEARCH DEPARTMENT
DEPARTAMENTO DE INVESTIGACIÓN
WORKING PAPER #477*

BETTER THE DEVIL THAT YOU KNOW: EVIDENCE ON ENTRY COSTS FACED BY FOREIGN BANKS

BY

**ARTURO GALINDO
ALEJANDRO MICCO
CÉSAR SERRA**

INTER-AMERICAN DEVELOPMENT BANK

JANUARY 2003

**Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library**

Galindo, Arturo.

Better the devil that you know : evidence on entry costs faced by foreign banks / by
Arturo Galindo, Alejandro Micco, César Serra.

p. cm. (Research Department Working paper series ; 477)
Includes bibliographical references.

1. Banks and banking--Deregulation. 2. Foreign Direct investments. 3. Banks and banking,
Foreign. I. Micco, Alejandro. II. Serra, César. III. Inter-American Development Bank.
Research Dept. IV. Title. V. Series.

332.15 G129-----dc21

©2003
Inter-American Development Bank
1300 New York Avenue, N.W.
Washington, D.C. 20577

The views and interpretations in this document are those of the authors and should not be
attributed to the Inter-American Development Bank, or to any individual acting on its behalf.

The Research Department (RES) produces the *Latin American Economic Policies Newsletter*, as
well as working papers and books, on diverse economic issues.

To obtain a complete list of RES publications, and read or download them please visit our web
site at: <http://www.iadb.org/res>

Abstract¹

Institutional and legal differences between countries increase entry costs and reduce the ability of banks to expand abroad. We use bilateral foreign banking data for 176 countries to estimate a gravity model in which bilateral cross-border banking activity is explained, in addition to standard variables, by legal and institutional differences. We find that foreign banking is negatively affected by absolute differences in the legal setup and in basic institutions between source and host countries. Differences in the legal origin, for example, reduce bilateral participation in the banking system by nearly 11 percent. Additionally we do not find strong evidence suggesting asymmetries in adapting to “better” or “worse” institutional/legal environments.

Keywords: foreign direct investment, international banking, institutions

JEL: F21, F23, G21, G34, K40, K20

¹ We are grateful to Inessa Love, Ernesto Stein and participants at the IADB-World Bank conference “The FDI Race: Who Gets the Prize? Is it Worth the Effort?” for comments on a previous version. All findings, interpretations and conclusions expressed in this paper are entirely those of the authors and do not necessarily represent the views of the IADB, its Board of Directors, or the countries they represent. *Contact Information:* Arturo Galindo, Inter-American Development Bank, 1300 New York Ave NW, Stop W0436, Washington DC 20577. Phone: (202) 623-3587. Fax: (202) 623-2481. E-mail: arturog@iadb.org.

1. Introduction

Banks face multiple costs when expanding abroad. On the one hand, there are learning and research costs associated with finding profitable investment opportunities, and on the other there are costs of learning how to deal with a different institutional and legal framework. Despite the fact that foreign banking has grown conspicuously since the 1990s, especially in Latin America and Eastern and Central Europe, this paper shows that legal and institutional differences have limited the expansion of banks' activities across borders.

Several recent research papers have shown that foreign banking can contribute to increase the efficiency of financial markets. Claessens, Demirgüç-Kunt and Huizinga (2001) suggest that the effects of internationalizing the banking system are positive since banking systems increase their competition and efficiency, in particular when foreign banks come from more developed countries.² However, there is some controversy on whether credit volatility is reduced or increased by foreign banks.³ On the one hand, some authors claim that foreign banks are able to stabilize credit when shocks hit the economy because they have access to external funds that allow them to smooth shocks out. Additionally, due to their reputation (franchise name), they are able to stabilize local deposits in turbulent times. In addition, foreign bank entry may generate competitive pressure that leads to policies that guarantee future stability such as more aggressive provisioning standards and higher capital ratios.⁴ On the other hand, some economists claim that foreign banks are more sensitive to shocks in the host economy because they can substitute local assets with alternative investments abroad that are not easily available for local banks.⁵

The decision of banks to expand their activities across their borders has been linked to several forms of economic integration, such as bilateral trade flows and FDI, and to specific host and source country characteristics. In the literature, there is clear evidence that foreign direct investment in banking is correlated with the degree of integration between the host and the source country. Grosse and Goldberg (1991), Brealey and Kaplanis (1996), Williams (1998) and Yamori (1998) measure this relationship using bilateral trade and FDI, and find a positive and significant correlation between proxies of the flow of foreign direct investment in banking and

² See also Levine (1996) and Martínez Pería and Schmukler (2001).

³ See Goldberg (2001), Crystal, Dages and Goldberg (2001) and IMF (2000).

⁴ See Crystal, Dages and Goldberg (2001) for a discussion.

⁵ See Caballero (2002).

the level of bilateral economic integration.⁶ These authors find no conclusive evidence on the link between regulatory restrictions and local market opportunities and the decision of banks to expand abroad. In a recent study, using bank-level data, Focarelli and Pozzolo (2000) show that banks prefer to have subsidiaries in countries where expected profits are larger, owing to higher expected economic growth and the prospect of reducing local banks' inefficiency.

The literature has not focused, however, on how the cost of learning to deal with institutional differences across countries can become an obstacle to foreign banking. For example, learning how to work in a corrupt system can be costly for a banker whose lifetime experience has been in Switzerland. The cost of learning the skills required to operate in a corrupt state could be high enough as to discourage banking investment in such a country. The opposite can also be true. A banker who has developed expertise in dealing with corruption can be lagged in the development of other particular skills that can make it costly to expand to a less corrupt environment. The same holds for differences in legal codes, regulations and the rule of law. There is a cost in learning how laws treat specific issues and a greater one, probably, in learning how the judicial system deals with law enforcement. The literature in industrial organization shows that learning costs are an important entry barrier in many industries.⁷

This paper shows that besides economics integration and local financial characteristics (profitability, size, etc.), unifying certain rules and regulations and converging towards international institutional standards can reduce barriers to financial integration and allow countries, especially developing ones, to enjoy the benefits of foreign bank penetration.

The rest of the paper is organized as follows. Section 2 presents some broad evidence of the relationship between cross-border banking activity and differences in legal origin. Section 3 presents the data and the empirical framework used. Section 4 presents our results, and Section 5 concludes.

⁶ In a similar spirit, Moshirian (2001) uses aggregate-country time series from the United States, United Kingdom and Germany, and analyzes if foreign investment in banking in these countries depends on how much they trade and how much they invest abroad in manufacturing.

⁷ See Tirole (1988) for a general discussion and Benkard (2002) for a discussion of the role of learning by doing in the aircraft industry behavior (<http://www.stanford.edu/~lanierb/>).

2. Broad Evidence

As discussed in the introduction, several institutional features can become an entry cost for financial institutions that decide to expand abroad. The most straightforward is differences in legal origin. Our main hypothesis is that banks are more willing to locate in foreign countries with which they share legal features. As shown by La Porta, Lopez-de-Silanes and Shleifer (1997 and 1998), the fact that some basic legal features, such as the origin of the legal code, are shared, implies that further regulations that protect creditors and shareholders in different ways tend to evolve in similar fashions.

A Spanish bank that has skills for dealing with regulations and legal procedures derived from the Napoleonic Commercial Code can use those skills in Latin American countries that have the same French legal tradition. Hence a Spanish bank, for example has a cost advantage over a German bank in entering Latin America. To test this idea, Table 1 compares bilateral foreign-controlled assets between countries that share the same legal origin and ones that have different legal origins. To control for income per capita, we divided the sample between developed and developing countries.

Table 1. Differences in Means of Share of Foreign Assets

| Source \ Host | Developed | | Developing | |
|----------------------|------------------------|----------|------------------------|----------|
| | | | | |
| Developed | Different Legal Origin | 0.48 | Different Legal Origin | 0.38 |
| | Same Legal Origin | 2.96 | Same Legal Origin | 2.41 |
| | Difference | -2.48*** | Difference | -2.03*** |
| | Observations | 506 | Observations | 3059 |
| Developing | Different Legal Origin | 0.00 | Different Legal Origin | 0.02 |
| | Same Legal Origin | 0.02 | Same Legal Origin | 0.13 |
| | Difference | -0.02*** | Difference | -0.11*** |
| | Observations | 3059 | Observations | 17556 |

The share of bilateral foreign control of bank's assets is the sum of assets of banks of the host country in which the source country owns 50% or more of their equity, divided by the total amount of banks' assets in the host country.

*** Significant at 1%

A developed-country source has on average 3 percent of the host banks' assets when the host country is developed and shares the same legal origin. This percentage drops to only 0.5 percent when the host has a different legal origin. When the host is a developing country the difference is similar. The same results hold when the source is a developing country; sharing

legal origin increases significantly the foreign bank participation in the host country. These results suggest that sharing a similar legal environment significantly reduces the costs of entering a foreign financial market.

The next section presents the data and the empirical framework that we use to explore, more formally, if differences in the basic legal and institutional framework lead to higher financial integration and, additionally, we explore if differences in bank specific regulations lead to the same result.

3. Data and Empirical Framework

This paper uses bilateral country data to explore how differences in institutions and regulations affect foreign bank cross-border shareholdings.

Cross-Border Shareholding Measure

We measure foreign bank penetration according to the control of the banking sector of a source country in any specific host one. This bank-specific data is taken from Fitch IBCA's Bankscope. Bankscope's ownership data is complemented with information from bank superintendencies, annual bank reports, the periodicals *Euromoney* and *The Banker* and from web pages of the biggest financial holdings in the world such as Citigroup, CSFB, HSBC, UBS Warburg, among others.

Our proxy of bilateral foreign control of bank's assets is the sum of assets of banks of the host country in which the source country owns 50 percent or more of their equity. Our analysis is conducted on a sample of 7,912 operating banks in 176 countries during 2001.⁸ Europe has the largest number of banks (4,334) in our sample, followed by Asia and the Pacific (884) and USA and Canada (802). The remaining regions have fewer than 600 banks. A total of 1,006 banks have cross-border shareholdings (almost 13 percent of the sample).

⁸ We include investment banks, mortgage banks, savings banks and commercial banks as defined by BankScope.

Table 2. Foreign Banking in Regional Systems According to Origin¹

| Source Region | Africa & Middle East | Asia & Pacific | Latin America ² | USA & Canada | Transition Economies ³ | Europe ⁴ | TOTAL |
|-----------------------------------|----------------------|----------------|----------------------------|--------------|-----------------------------------|---------------------|-------|
| Host Region | | | | | | | |
| Africa & Middle East | 7.68 | 0.14 | 0.00 | 1.89 | 0.03 | 3.66 | 13.39 |
| Asia & Pacific | 0.05 | 1.32 | 0.00 | 1.22 | 0.00 | 3.30 | 5.89 |
| Latin America ² | 0.11 | 0.23 | 1.47 | 18.81 | 0.06 | 26.64 | 47.32 |
| USA & Canada | 0.08 | 0.68 | 0.03 | 0.95 | 0.00 | 8.61 | 10.34 |
| Transition Economies ³ | 0.01 | 0.26 | 0.02 | 4.45 | 1.39 | 34.69 | 40.82 |
| Europe ⁴ | 0.34 | 2.49 | 0.03 | 3.34 | 0.02 | 15.89 | 22.11 |
| TOTAL | 0.34 | 1.64 | 0.05 | 2.47 | 0.02 | 11.25 | 15.77 |

Source: Estimates based on data from Fitch IBCA's Bankscope database.

¹ Ownership data reflect changes up to July 2001 while balance sheet data are the most recent available.

² Excludes The Bahamas, Cayman Islands and Panama.

³ Includes economies in transition from central and eastern Europe.

⁴ Excludes Europe in transition.

Table 2 reports the level of foreign control in several regional banking systems according to source regions. Latin America and transition economies have been the principal receivers of FDI in banking, with foreign control of 47 percent and 41 percent, respectively, the majority coming from European owners. Europe has foreign participation of nearly 22 percent, most of it coming from regional banks. In contrast, the United States and Canada together have almost 10 percent foreign participation in their banking systems, while Asia has only 6 percent.

Legal and Institutional Differences

We use several variables to analyze the impact of differences in institutions and regulations on cross the border banking activity.

Differences in Legal Origin: This is a dummy that takes the value of one if host and source countries have different legal origins (British, French, Socialist, German or Scandinavian), and zero otherwise. Sharing legal regimes can minimize learning costs in the investment process, and it can also reduce operational costs given that certain economies of scale can be exploited at the international level. Our prior is that banks are more willing to locate in foreign countries with which they share legal features. As shown by La Porta, Lopez-de-Silanes and Shleifer (1997 and 1998), the fact that some basic legal features such as the origin of the legal code are shared implies that further regulations that protect creditors and shareholders evolve in similar fashions. Similarities in these regulations reduce costly adaptation to new environments. Our primary source for this variable is the Easterly and Sewadeh (2001) Global Development Network Growth database.

Differences in Financial Regulation: We construct a bilateral measure of differences in 11 specific items of regulation taken from the Barth, Caprio and Levine (2001) Bank Regulation and Supervision database.⁹ Our variable is defined as 11 minus the number of regulatory items that are shared by the host and source country. Our measure ranges from 0 to 11, where 0 means that both countries share the majority of the regulations. Differences in regulation imply learning costs related to how to manage a bank in a different environment. An important feature for this variable is that it is measured at the end of 1990's and hence it could have been affected by the presence of foreign banks.¹⁰

Differences in the Regulatory Burden: Kaufmann, Kraay and Zoido-Lobaton (2002) construct measures on the excessive burden of regulations. Their index ranges from -2.5 to 2.5, with higher values indicating a lower burden. We construct the absolute value of the country pair difference of this measure. Once again, differences in regulatory burdens imply the development of specific skills to deal with them efficiently.

Differences in Corruption: Based on indexes of corruption widely used in the literature, we construct the absolute value of their difference across country pairs. Entering into a country with a different level of corruption implies developing the necessary skills to learn how to operate in such markets. Our primary source is Kaufmann, Kraay and Zoido-Lobaton (2002). Their corruption measure ranges from -2.5 to 2.5, where higher values indicate less corruption.

Differences in Rule of Law: As above, we construct the absolute value of the difference across country pairs of the Kaufmann, Kraay and Zoido-Lobaton (2002) rule of law index. Their index ranges from -2.5 to 2.5 and higher values indicate better rule of law. Differences in degrees of law enforcement also imply the development of specific skills to deal with them. As a robustness test and based on La Porta, Lopez-de-Silanes and Shleifer (1997) we construct a measure of differences in the efficiency of the judicial system. Their index ranges from 0 to 10 where higher values indicate more efficient judicial systems. Differences in the efficiency of judiciary authorities imply additional costs for bankers that have to learn how to deal in a different judicial regime.

⁹ The appendix describes the elements of the banking regulatory index.

¹⁰ See Levine (1996).

Empirical Framework

In order to test if institutional and legal differences constitute an entry cost for foreign banks, we follow recent empirical literature on FDI and trade flows that has addressed, to some extent, similar issues. The empirical strategy of this paper is based on the gravity model. This model has been used previously in the empirical literature on the determinants of bilateral trade and in the analysis of FDI location. The model states that bilateral trade or investment flows depend positively on the GDP of both economies and negatively on the distance between them, in analogy to Newton's gravitational attraction between two bodies.

Most applications of this model usually add variables to the simplest gravity specification in order to capture additional effects that can determine the nature of the analyzed flow. Dummies indicating whether two countries share a common border, a common language, or past colonial links, among other variables, are usually included. We also control for trade flows, which have been used to explain foreign banking.¹¹

To the variables that appear in the standard gravity specification, we add the institutional and legal differences discussed above. To control for additional effects that can determine the location of banking activity, we include both host and source country dummies. Intuitively, there are several country specific factors that can determine the location of foreign banking activity. The size of the financial markets, both in source and host countries, the profitability of the banking business, the exposure to certain types of risks (credit, currency, maturity, etc.), and the quality of regulations and institutions, among many other factors, can limit the decision of banks to increase their international exposure. Identifying the precise factors and moreover controlling for possible endogeneity issues can be a complex task, and it goes beyond the objectives of this paper. Therefore, to control for these and additional issues, we include host and source country fixed effects in our basic specifications. We believe that this is the cleanest possible way of identifying the role of institutional and legal differences in the determination of banking location.

In our benchmark model, we estimate how the size of foreign-controlled assets from source country j in host country i is related to standard gravity model variables. Namely, we

¹¹ Ideally we would like to test if foreign banking follows other forms of FDI. However, there are two problems that impede us from testing this. First, the FDI data available includes FDI in banking. It is not possible to separate what goes to banking and what not. Second, data on FDI is relatively scarce with respect to foreign banking data. The sample size of our estimations is reduced to nearly 1/4th of the total sample, given that FDI flows are only available for OECD source countries. Nonetheless, we include total bilateral FDI in some unreported regressions, and results, though weaker than those reported below, hold.

control for common border, common language, past colonial links, and distance between countries, the source and host country dummies, and other economic integration variables such as trade flows. Our regression is of the form:

$$FC_{ij} = \alpha_1 CB_{ord_{ij}} + \alpha_2 CLang_{ij} + \alpha_3 Dist_{ij} + \alpha_4 CollLinks_{ij} + \alpha_5 Trade_{ij} + \alpha_6 Inst/Leg_{ij} + \alpha_7 DHost + \alpha_8 DSource + \varepsilon_{ij}$$

Where:

FC: Is the log of 1 plus the foreign control of source country *j* in host country *i*. We use the log of 1 plus the variable to deal with the fact that many observations are zero, as is usual in this literature.

Cbord: A dummy variable taking value of 1 if the countries share a common border.

Clang: A dummy variable taking value of 1 if the countries share the same language.

CollLinks:¹² A dummy taking value of 1 if the countries have a colonial link.

Dist:¹³ The log of the distance between the two countries.

Trade:¹⁴ The log of 1 plus bilateral trade between countries *i* and *j* in 1990. We use 1990 values to reduce potential endogeneity.

Inst/Leg: Are the set of insitutional and legal differences described above.

Dhost and Dsource: Host and source dummy variables, respectively.

The next section shows our empirical results.

4. Results

Table 3 reports the results of the estimation described in the previous section. Column 1 reports the benchmark regression that includes the standard gravity model controls, bilateral trade, host and source country fixed effects, and the difference in legal origins. The most important result for the purpose of this paper is the significance and economic meaning of the estimated coefficient on the difference in the legal origin variable. Our results suggest that having different legal origins leads to a reduction of nearly 11 percent of bilateral cross-border banking activity.

¹² Colonial links are defined not only between the colonizer and the colony, but also between those colonies having been colonized by the same colonizer. This dummy has been constructed using the Acemoglu, Johnson and Robinson (2001) and Rose (2002) databases.

¹³ Common Border, Common Language and Distance are taken from the CIA's *World Factbook* (2001).

¹⁴ Bilateral trade was obtained from the IMF's Direction of Trade Statistics (2001).

Note that we are controlling for several common cultural issues such as colonial links and language that could also constitute an entry barrier. Given this, it is safe to say that we are truly identifying an effect of differences in the legal setup. It is also interesting to note that our results enforce previous findings suggesting that foreign banking tends to follow trade.

Column 2 analyzes differences in banking specific regulations. The result is significant even when controlling for differences in the legal code, and suggests that differences in banking regulations can account for a reduction of nearly 25 percent of cross border banking activity.¹⁵

Columns 3-6 report the results of differences in the institutional setup, namely they include measures of differences in corruption, the regulatory burden, the rule of law and the efficiency of the judiciary, respectively.¹⁶ As before, we control for differences in legal origin. Results confirm the hypothesis that different institutional environments can constitute an entry cost that deters the entry of foreign banks. Learning how to work in a different institutional setup involves learning costs, which apparently are high enough to deter entry. On average, institutional differences imply a nearly 34 percent reduction in cross-border banking.¹⁷ Even when controlling for differences in particular regulations and institutions, the difference in the legal origin remains strongly significant in all except the last specification, where the sample is dramatically truncated. This suggests that the difference in the legal origin is capturing more general differences in the regulatory setup than those specific to the other measures.

¹⁵ This impact is equal to the estimated coefficient multiplied by the standard deviation of the explanatory variable.

¹⁶ We drop this variable in further analysis since using it restricts our sample significantly.

¹⁷ Other non-reported estimations include differences in overhead ratios as a control for differences in profitability, and the absolute value of the difference of GDP per capita in 1990. Results, regarding the legal variables remain robust in both cases. However, the sample size is significantly reduced when including the overhead variable. The absolute value of the difference in GDP per capita captures the impact of differences in stages of economic development on cross border banking. The sign is negative and significant. This is highly correlated with the differences in the legal/institutional variables. We do not report this result in the table since it captures other effects beyond the focus of this paper. However, it is available upon request.

Table 3. Baseline Econometric Results

| Dependent Variable: Log(1+Foreign Control_{ij}) | | | | | | |
|--|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Colonial Links | 0.142 (0.062)** | 0.154 (0.142) | 0.161 (0.071)** | 0.158 (0.066)** | 0.146 (0.066)** | 0.350 (0.348) |
| Common Border | 1.578 (0.127)*** | 2.802 (0.269)*** | 1.465 (0.141)*** | 1.481 (0.133)*** | 1.468 (0.133)*** | 4.272 (0.502)*** |
| Common Language | 0.216 (0.072)*** | 0.329 (0.169)* | 0.237 (0.085)*** | 0.183 (0.078)** | 0.202 (0.078)*** | 0.116 (0.386) |
| Log(Distance) | -0.318 (0.028)*** | -0.528 (0.060)*** | -0.364 (0.033)*** | -0.356 (0.031)*** | -0.348 (0.031)*** | -0.660 (0.156)*** |
| Log(1+ trade_{ij})^a | 0.287 (0.014)*** | 0.341 (0.028)*** | 0.242 (0.017)*** | 0.259 (0.015)*** | 0.251 (0.016)*** | 0.160 (0.093)* |
| Difference in Legal Origin | -0.107 (0.042)*** | -0.179 (0.089)** | -0.119 (0.049)** | -0.122 (0.045)*** | -0.106 (0.045)** | -0.344 (0.219) |
| Diff in Bank Regulation^b | | -0.124 (0.044)*** | | | | |
| Abs(Difference in Corruption)^c | | | -0.356 (0.027)*** | | | |
| Abs(Diff in Regulatory Burden)^c | | | | -0.439 (0.035)*** | | |
| Abs(Diff in Rule of Law)^c | | | | | -0.357 (0.025)*** | |
| Abs(Diff in Efficiency of the Judiciary)^c | | | | | | -0.176 (0.054)*** |
| Observations | 19762 | 7600 | 16666 | 18142 | 18142 | 2630 |
| Number of Source Countries | 152 | 93 | 137 | 144 | 144 | 52 |

Notes: All specifications include host and source country dummies

^a Bilateral trade in 1990. ^b Refers to sum of differences in each of 11 elements of the index.

^c Refers to the absolute value of the difference between the indexes for countries i and j.

Standard errors in parenthesis. * significant at 10%; ** significant at 5%; *** significant at 1%

Empirical results presented above suggest that the difference in regulations and institutions *per se* play a significant role in explaining foreign bank penetration. Adapting to institutional and legal differences can be costly and can deter investment in banking. However, it is likely that adjustment is not symmetric, that is, that it can be easier to adjust in one direction (say upward) than in the other (downward). In other words, adapting to a better environment, i.e., to a place where institutions and regulations are “better,” can be easier than adapting to a place where institutions and regulations are “worse” than those known by the banker. In order to test this hypothesis, we include an interaction between an indicator variable showing if regulations/institutions are relatively “better” in the host country, and the difference in regulations/institutions variable. Namely, we estimate:

$$FC_{ij} = \alpha_1 X_{ij} + \beta_1 Abs(Inst/Leg_i - Inst/Leg_j) + \beta_2 D * Abs(Inst/Leg_i - Inst/Leg_j) + \alpha_2 DHost + \alpha_3 DSource + \varepsilon_{ij}$$

Where X are the gravity model controls in Table 3, and:

$$D = 1 \text{ if } Inst/Leg_i > Inst/Leg_j \text{ (} i=host, j=source \text{)}$$

$$D = 0 \text{ otherwise}$$

The total effect of differences in institutions and regulations is given by the summation of β_1 and β_2 . β_2 captures possible asymmetries. Positive values of β_2 indicate that the adjustment is less costly when institutions/regulations in the host country are “better” than in the source.

Table 4 reports the results of our estimations including this asymmetric effect. Column 1 presents results differences in banking regulation, while columns 2-5 show results for institutional differences. Regarding the bank regulation variable, results suggest that adjustment costs are not an issue when the regulatory framework is stronger in the host country. When regulations are “better” in the host country the difference in regulations is not a problem, i.e., the sum of the coefficients becomes positive. As above this result has to be interpreted with caution, since there is a risk that regulations are somewhat endogenous to foreign bank participation.

Columns 2-4 report the effects of differences in institutions. In general, our empirical results suggest that there is no evidence that adjusting upward or downward is significantly different. In particular, columns 2 and 3, where we analyze the impacts of differences in corruption and in the regulatory burden, show that the interactive term is not significant. According to this result, moving to a less corrupt country for example, is as costly as moving to a more corrupt one. This is consistent with the assumption that particular skills are developed to deal with different levels of corruption. The same interpretation holds for the overall regulatory burden. Nonetheless, it is interesting to note that the sign is positive, suggesting some slight form of asymmetric response. Column 4 reports asymmetric impacts of differences in law enforcement. We find a significant interaction between the difference in rule of law variable and the dummy, which indicates that adjustment can be in some sense asymmetric. However, in any case, we find evidence that moving to a country with better law enforcement is also costly.

In summary, empirical evidence regarding asymmetries in the costs of adapting to institutional/legal differences is mixed but tends to favor the notion of no asymmetries in the way it impacts the decision to locate abroad. It is worthwhile noting that the difference in legal origin

remains significant no matter the specification that we look at, indicating that differences in the whole regulatory framework, aside from the specificities of each of the indexes analyzed, matter.

Table 4. Econometric Results Including Asymmetric Responses

| Dependent Variable: $\text{Log}(1+\text{Foreign Control}_{ij})$ | | | | |
|---|----------------------|----------------------|----------------------|----------------------|
| | (1) | (2) | (3) | (4) |
| Colonial Links | 0.162 (0.142) | 0.161 (0.071)** | 0.158 (0.066)** | 0.146 (0.066)** |
| Common Border | 2.780 (0.269)*** | 1.465 (0.141)*** | 1.481 (0.133)*** | 1.468 (0.133)*** |
| Common Language | 0.339 (0.169)** | 0.237 (0.085)*** | 0.183 (0.078)** | 0.202 (0.078)*** |
| Log(Distance) | -0.520 (0.060)*** | -0.364 (0.033)*** | -0.356 (0.031)*** | -0.348 (0.031)*** |
| $\text{Log}(1+\text{trade}_{ij})^a$ | 0.340 (0.028)*** | 0.242 (0.017)*** | 0.259 (0.015)*** | 0.251 (0.016)*** |
| Difference in Legal Origin | -0.177 (0.089)** | -0.119 (0.049)** | -0.122 (0.045)*** | -0.106 (0.045)** |
| Abs(Difference in Bank Regulation Index)^b | -0.265 (0.056)*** | | | |
| D^d*Abs(Difference in Bank Regulation Index) | 0.376 (0.104)*** | | | |
| Abs(Difference in Corruption)^c | | -0.464 (0.118)*** | | |
| D^d*Abs(Difference in Corruption) | | 0.216 (0.226) | | |
| Abs(Diff in Regulatory Burden)^c | | | -0.477 (0.065)*** | |
| D^d*Abs(Diff in Regulatory Burden) | | | 0.077 (0.122) | |
| Abs(Diff in Rule of Law)^c | | | | -0.512 (0.075)*** |
| D^d*Abs(Diff in Rule of Law) | | | | 0.309 (0.143)** |
| Observations | 7600 | 16666 | 18142 | 18142 |
| Number of Source Countries | 93 | 137 | 144 | 144 |

Notes: All specifications include host and source country dummies

^a Bilateral trade in 1990. ^b Refers to difference in indexes that add each of 11 elements apply in the country.

^c Refers to the absolute value of the difference between the indexes for countries i and j.

^dD takes values of 1 if institutions/regulations are "better" in the host country and 0 otherwise.

Standard errors in parenthesis. * significant at 10%; ** significant at 5%; *** significant at 1%

5. Conclusions

Legal and institutional differences across countries increase entry costs and reduce the participation of banks in foreign countries. Controlling for variables usually used in the analysis of determinants of bilateral trade and FDI flows, we find that foreign banking activity is significantly reduced between countries that have different legal origins, differences in banking regulation, and in general where the institutional setup (corruption, law enforcement, the burden

of regulations and the efficiency of the judiciary system) differs. Learning how to deal with these differences is costly and leads to significant reductions in cross the border banking. Differences in legal origin, for example, can explain an 11 percent reduction in foreign banking compared to countries that share legal traditions.

Additionally, we do not find strong evidence suggesting that it is easier to adapt upwards (to a better institutional/legal framework) than downwards (to a worse legal/institutional setup). In any case, differences in the institutional and/or legal framework deter the decision of banks to locate abroad. In this sense, our research suggests that international investors in banking tend to prefer the devil that they know.

6. References

- Acemoglu, D., S. Johnson and J. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91: 1369-1401.
- Barth, J., G. Caprio and R. Levine. 2002. "Bank Regulation and Supervision: What Works Best?" Domestic Finance Working Paper No. 2725. Washington, DC, United States: World Bank.
- Benkard, C.L. 2002. "A Dynamic Analysis of the Market for Wide-bodied Commercial Aircraft." Stanford, United States: Stanford University. Mimeographed document.
- Brealey, R., and E.C. Kaplanis. 1996. "The Determination of Foreign Banking Location." *Journal of International Money and Finance* 15: 577-597.
- Caballero, R. 2002. "Coping with Chile's External Vulnerability: A Financial Problem." Cambridge, United States: Massachusetts Institute of Technology. Mimeographed document.
- Central Intelligence Agency (CIA). 2001. *World Factbook*.
www.cia.gov/cia/publications/factbook/index.html
- Claessens, S., A. Demirgüç-Kunt and H. Huizinga. 2001. "How Does Foreign Entry Affect Domestic Banking Markets?" *Journal of Banking and Finance* 25: 891-911.
- Crystal, J., G. Dages and L. Goldberg. 2001. "Does Foreign Ownership Contribute to Sounder Banks in Emerging Markets? The Latin American Experience." Staff Reports 137. New York, United States: Federal Reserve Bank of New York.
- Focarelli, D., and A. Pozzolo. 2000. "The Determinants of Cross-Border Bank Shareholdings: An Analysis with Bank-Level Data from OECD Countries." Chicago, United States, Federal Reserve Bank of Chicago. *Proceedings* (May): 199-232.
- Easterly, W. and M. Sewadeh. 2001. "Global Development Network Growth Database." Washington, DC, United States: World Bank.
- Goldberg, L.G. 2001. "When is US Banking Lending to Emerging Markets Volatile?" Staff Reports 119. New York, United States: Federal Reserve Bank of New York.
- Grosse, R., and L.G. Goldberg. 1991. "Foreign Bank Activity in the United States: An Analysis by Country of Origin." *Journal of Banking and Finance* 15: 1092-1112.

- International Monetary Fund (IMF). 2000. "The Role of Foreign Banks in Emerging Markets." In: *International Capital Markets, Developments, Prospects and Key Policy Issues*. Washington, DC, United States: IMF.
- Kaufmann, D., A. Kraay and P. Zoido-Lobaton. 2002. "Governance Matters II: Updated Indicators for 2000/01." Washington, DC, United States: World Bank.
- La Porta, R., F. Lopez-de-Silanes and A. Shleifer. 1997 "Legal Determinants of External Finance." *Journal of Finance* 52: 1131-1150.
- . 1998. "Law and Finance." *Journal of Political Economy* 106: 1113-1155.
- Levine, R. 1996. "Foreign Banks, Financial Development and Economic Growth." In: C. Berried, editor. *International Financial Markets*. Washington, DC, United States: AEI Press.
- Martínez Peria, M.S., and S. Schmukler. 2001. "Do Depositors Punish Banks for Bad Behavior? Market Discipline, Deposit Insurance, and Banking Crises." *Journal of Finance* 56: 1029-1051.
- Moshirian, F. 2001. "International Investment in Financial Services." *Journal of Banking and Finance* 25: 317-337.
- Rose, A., and R. Glick. 2002. "Does a Currency Union Affect Trade? The Time-Series Evidence." *European Economic Review* 46: 1125-1151.
- Tirole, J. 1988. *The Theory of Industrial Organization*. Cambridge, United States: MIT Press.
- Williams, B. 1998 "Factors Affecting the Performance of Foreign-Owned Banks in Australia: A Cross-Sectional Study." *Journal of Banking and Finance* 22: 197-219.
- Yamori, N. 1998. "A Note on the Location Choice of Multinational Banks: the Case of Japanese Financial Institutions." *Journal of Banking and Finance* 22: 109-20.

Appendix 1: Elements included in the Bank Regulation Index

We use the following information from Barth, Caprio and Levine (2002) to construct the Bank Regulation Index:

- On Prudential Regulation:

1) Is this ratio risk-weighted in line with the Basle guidelines? 2) Does the minimum ratio vary as a function of an individual bank's credit risk? 3) Does the minimum ratio vary as a function of market risk? 4) Is subordinated debt allowable (required) as part of capital? 5) Are there explicit, verifiable, and quantifiable guidelines regarding asset diversification?

Before minimum capital adequacy is determined, which of the following are deducted from the book value of capital? 6) Market value of loan losses not realized in accounting books. 7) Unrealized losses in securities portfolios. 8) Unrealized foreign exchange losses.

- On Restrictiveness of Financial Activities

1) What is the level of regulatory restrictiveness for bank participation in securities activities (the ability of banks to engage in the business of securities underwriting, brokering, dealing, and all aspects of the mutual fund industry)? 2) What is the level of regulatory restrictiveness for bank participation in insurance activities (the ability of banks to engage in insurance underwriting and selling)? 3) What is the level of regulatory restrictiveness for bank participation in real estate activities (the ability of banks to engage in real estate investment, development, and management)?¹⁸

¹⁸ Possible answers to these questions are: Unrestricted—A full range of activities in the given category can be conducted directly in the bank; Permitted—A full range of activities can be conducted, but all or some must be conducted in subsidiaries; Restricted—Less than a full range of activities can be conducted in the bank or subsidiaries. Prohibited—The activity cannot be conducted in either the bank or subsidiaries.