

**What Drive Foreign Expansion of the Top 100 Multinational Banks?
The Role of Credit Reporting Systems**

Hsiangping Tsai *

Department of Finance
Yuan Ze University
Chung-Li, Taoyuan, Taiwan
Tel: (886)-3-463-8800 ext. 2672; Fax: (886)-3-435-4624
Email: hptsai@saturn.yzu.edu.tw

Yuanchen Chang

Department of Finance
National Chengchi University
Mucha, Taipei, Taiwan
Tel: (886)-2-2939-3091 ext. 81102; Fax: (886)-2-2939-3394
Email: yccchang@nccu.edu.tw

Pei-Hsin Hsiao

Department of Finance
Yuan Ze University
Chung-Li, Taoyuan, Taiwan
Tel: (886)-3-463-8800 ext. 3628; Fax: (886)-3-435-4624
Email: s967224@mail.yzu.edu.tw

* Corresponding author.

What Drive Foreign Expansion of the Top 100 Multinational Banks? The Role of Credit Reporting Systems

Abstract

This study explores how information costs in host countries affect foreign expansion of the top 100 multinational banks from 2002 to 2008. Indices representing characteristics of a credit reporting system are used to proxy for the lenders' information costs in 106 host countries. We document that banks are more likely to enter or expand operations in countries where a credit bureau exists and in countries where credit reports shared within the credit system are of better quality in terms of timeliness, accuracy and completeness. We suggest that the existence of credit bureaus help reduce bank information costs by sharing information among members and the information costs are further reduced when the quality of credit information shared within the credit system is better. Overall, our results indicate that banks are attracted to countries where the credit reporting system functions to reduce bank information costs.

JEL classification: G21, D82, G11, G28

Keywords: Banks, Credit Information Sharing, Foreign Expansion, Location Decision

What Drive Foreign Expansion of the Top 100 Multinational Banks? The Role of Credit Reporting Systems

1. Introduction

Motivated by the business trend of globalization and internationalization, banks may expand abroad to support existing clients' international business and to develop new businesses in host countries. Researchers have documented several stylized facts about what drive multinational banks' foreign expansion. According to a review by Clarke et al. (2003), banks tend to follow their customer abroad, larger banks are more likely to expand abroad, but restrictions on foreign direct investment may reduce bank incentives to enter other countries. Further, banks prefer expanding to countries with larger economic size (Brealey and Kaplanis, 1996) and they are less likely to operate in countries far away from their home country (Focarelli and Pozzolo 2005).

One strand of literature shows that regulatory barriers and information costs are main features which drive bank activities. For example, Buch (2003) show that deregulation encourages international banking activities and, to reduce information costs, banks tend to expand operations to countries that are closer and countries that use the same language. Moreover, when credit bureaus exist to facilitate exchanges of information among banks, information costs of banks will be reduced (Pagano and Jappelli, 1993). The reduced information costs tends to increase bank lending, reduce bank risk level, increase credit availability to firms, and reduce credit costs of firms (Jappelli and Pagano, 2002; Brown et al., 2009).

This study extends the literature to investigate how information costs affect banks' decision on where to expand their foreign operations. In countries with a credit reporting system, it will be easier for banks to collect information and evaluate the potential borrowers' creditworthiness. Thus, the cost of gathering information on borrowers may be reduced. This is especially crucial to foreign banks which are new to the market and are not familiar with the local borrowers. With access to credit history of potential borrowers from the credit reporting system, foreign banks can avoid making loans to borrowers with late payments or defaults, and identify potential customers with good payment histories. Therefore, we expect lenders' information costs will be lower in countries where a credit reporting system exists or in countries where credit reports provide better borrower information in terms of timeliness,

accuracy and completeness. To directly test the importance of information costs on banks' foreign expansion, we ask whether bank foreign operations are more likely to be in host countries where a credit reporting system exists and where better borrower information is available from the credit reports.

Using data of foreign branches and subsidiaries of the Top 100 banks, we document that bank decisions to enter or expand operations in a country is affected by the characteristics of credit reporting systems in that host country. First, we show that banks are attracted to countries where credit reporting agencies exist. Second, banks are more attracted to countries with private credit bureaus than countries with public credit registries. Third, banks prefer expanding to countries where the credit reporting system provides better quality of credit information in terms of timeliness, accuracy, and completeness. In summary, these results suggest the existence of credit reporting agencies help reduce bank information costs by sharing information among members and bank information costs are further reduced when the quality of information shared in the credit system is better. Consequently, our results indicate that banks are attracted to enter or further expand operations to countries where information costs are lower.

The remainder of the paper proceeds as follows. Section 2 presents the literature review and hypothesis development. Section 3 explains how we construct our datasets. Section 4 describes the model specifications. Section 5 reports our empirical results and Section 6 concludes.

2. Literature and Hypothesis Development

2.1 Foreign Expansion of Banks

Earlier studies on the development of multinational banks examine the cross-border activities of the U.S. banks and the entry of foreign banks into the U.S. (Fieleke, 1977; Kvishnan, 1986, Budzeika, 1991; Goldberg and Johnson, 1990; Parkhe and Miller, 1998). According to these studies, bank foreign operations are more likely to develop when the host countries have high gross national product or international trade volume, and are less likely to develop when the host countries put stringent regulations on bank entry or when the host countries exhibit higher country risk.

Some studies focus on foreign activities of Non-U.S. banks. By analyzing foreign

expansion of German banks, Buch (2000) show that bank foreign activities are positively related to overseas activities of German firms, which means German banks follow clients to expand abroad. By examining foreign bank operations in Australia, Williams (1998) show that larger foreign banks are more likely to obtain banking license in Australia and they seem to have higher interest margin and fees compared to local banks.

One strand of literature examines foreign operations of banks around the world. Both Brealey and Kaplanis (1996) and Focarelli and Pozzolo (2005) examine large international banks and their results confirm previous finding that banks tend to expand to host countries which have high degree of integration with the home country and banks are less likely to have foreign operations in countries far from the home country. Further, Focarelli and Pozzolo (2005) provide results that differentiate bank decisions on establishing branches or subsidiaries. They show that banks prefer to setup subsidiaries in countries with higher profit opportunities and less regulatory restrictions, but banks prefer to setup branches in financial centers. Further, Cerutti et al. (2007) also tries to identify factors that affect bank organizational forms. They show that that economic and political risks matter but have opposite influence on bank organizational form. Banks prefer subsidiaries in host countries with higher economic risk, but one the other hand, they prefer branches in host countries with higher political risk.

2.2 Effects of Regulatory Restrictions on Bank Foreign Expansion

Recently, research focus has been turned to examine the regulation effects on foreign operations of international banks. Buch (2003) argues that regulatory barriers may influence international activities of banks and tests how deregulation drives commercial bank activities in the European market. The result suggests deregulation (the implementations of Basel Capital Accord and EU Single Market) tends to have positive impact on lending to OECD countries and intra-EU asset holdings, and capital controls may reduce cross-border lending. Using data of the world's top 100 banks, Cerutti et al. (2007) examines regulatory effects on the organizational forms of bank foreign operations. They show that more branch restrictions, required either by home or host country regulators, result in fewer foreign branches. In addition, banks choose foreign subsidiaries instead of branches in countries with more requirements on bank entry and in countries with lower corporate taxes. However, banks seem to have no preference on organizational forms in host countries where stringent restrictions on bank activities exist.

2.3 Effects of Credit Reporting Systems on Bank Activities

Some researchers examine how credit reporting systems reduce bank information costs and the interaction between credit reporting agencies (credit bureaus) and banks. In a theoretical model, Pagano and Jappelli (1993) consider banks in a country establish a credit bureau to share information about quality of potential borrowers. Their results suggest that banks have the greatest incentive to establish credit bureaus when they experience lack of previous relationship and lack of information on many customers, and this is confirmed by an empirical analysis using data of consumer credit market in 14 OECD countries. They also suggest credit bureaus may increase lending activities by attracting safe borrowers who originally stay out of the market because of severe information asymmetry problems.

Credit bureaus collect borrower information from member banks and other sources (public registers, tax authorities, courts, financial reports, etc.), maintain a database containing credit files for each borrower, and provide credit reports as member banks request. By facilitating exchange of borrower information among banks, credit bureaus may have the following impact on banking activities (Jappelli and Pagano, 2002). First, credit bureaus make it easier for banks to exchange borrower information, such as borrower characteristics, credit history, and borrowing details (loan size granted, loan type, etc.). This reduces bank information costs, improves bank knowledge on borrower credit worthiness, and enhances bank ability to predict probability of borrower repayment. Second, credit bureaus can be viewed as a mechanism to discipline borrowers. Borrowers understand that member banks of the credit bureau will refuse lending to borrowers with bad credit and thus are more willing to repay loans.

Since credit bureaus may affect bank customer relationship and bank activities, Jappelli and Pagano (2002) conduct a survey on credit bureaus in 49 countries and examine how information sharing through credit bureaus affects bank lending and defaults. They show that bank lending is higher and credit risk is lower in countries where public or private credit bureaus exist to facilitate exchange of information among banks. Brown et al. (2009) show that information sharing improves credit availability and reduces credit costs to firms; the effect is stronger for opaque firms and for countries with weak legal systems.

Some studies indicate that information sharing by private credit bureaus and public

credit registries influence bank activities differently. Love and Mylenko (2003) show that private credit bureaus is associated with lower financing constraints and higher percentage of financing from banks, but public credit registries seems to have no significant effects on corporate financing constraints. Barth et al (2009) show that the system of credit reporting and information content of credit reporting matters to constrain corruption in bank lending. They present that information sharing by private credit bureaus rather than public credit registries works to limit lending corruption. Further, longer history of credit bureaus and credit bureaus with both negative and positive information are more important to constrain lending corruption.

In summary, when credit bureaus exist to facilitate exchanges of information among banks, information costs of banks will be reduced. The reduced information costs tends to increase bank lending, reduce bank risk level, increase credit availability to firms, and reduce credit costs of firms. Further, compared with public credit registries, private credit bureaus may have stronger impact on bank activities.

2.4 Hypothesis: Influence of Credit Reporting Systems on Bank Foreign Expansion

Buch (2003) suggests regulatory barriers and information costs are main features which drive international activities of banks. This study extends the literature to explore how information costs of host countries affect banks' decision on the location of their foreign activities. We rely on the characteristics of credit reporting systems to proxy for information costs of the host countries. Compared with local banks in the host country, foreign banks lack previous relationship and information of local customers. Therefore, they have the greatest incentive to exchange borrower information through credit bureaus, which may largely reduce their information costs and credit risks (Pagano and Jappelli, 1993). We expect bank information costs are lower in host countries where a credit bureau exists, especially when it is a private credit bureau and when the credit reports contain borrower information with better quality in terms of timeliness, accuracy, and completeness. Based on this idea, we expect banks are more likely to have foreign operations in countries where a credit bureau exist, especially when private credit bureau exists and when credit reports with better quality are available from the credit bureau.

Hypothesis: Banks are more likely to have foreign operations in countries where a credit bureau exists. The effects will be stronger in countries where private credit bureau exists and in countries where credit information quality is better in terms of timeliness, accuracy and completeness.

3. Data and Summary Statistics

3.1 Sample Banks

The list of Top 100 multinational banks is identified using rankings of bank total assets in 2006 and the bank accounting data is collected from the May 2008 DVD-ROM edition of Bankscope. Only commercial banks, savings banks, and cooperative banks are included in our sample. Further, we remove a bank from our list if more than 50% of this bank's shares are held by another bank in the list.

Two types of bank foreign operations are identified: foreign branches and foreign subsidiaries. Information about foreign branches is collected from the January version of The Banker's Almanac. For each bank, we consider each address listed in The Banker's Almanac to be the location for a branch and we calculate how many branches a bank has in each host country. Information about foreign subsidiaries is also obtained from the ownership database in Bankscope. Earlier editions of Bankscope are used to collect the ownership information for each sample bank in each year. When a sample bank holds over 50% shares of a commercial bank, savings bank or cooperative bank in the host country, we say that the sample bank hold that foreign bank as a foreign subsidiary. Since the earliest data we have for identifying bank subsidiary is in 2002, our data contains yearly information about bank foreign operations from 2002 to 2008.

3.2 Information about the Top 100 Banks' Home Countries and Host Countries

This study uses four types of country data. The first is information about host country's credit reporting systems. We collect them from the dataset, Getting Credit, which is a subset of the Doing Business database supplied by the World Bank¹. Since Doing Business database only contains data for 2004~2008, we use 2004 data to represent data for the years 2001~2004.

¹ Doing business includes 11 groups of indicators which measures the environment for firms to conduct business in the host countries. The 11 groups of indicators contain information for firms to start business, deal with construction permits, hire workers, register property, get credit from lenders, protect investors, pay tax, trade across borders, enforce contracts, and close business.

Second, we collect information about host country's supervisory regulations on banks from the Bank Regulation and Supervision database supplied by the World Bank. This database publishes information from surveys on bank supervisory authorities for the years 2001, 2003, and 2006.

Third, we collect host country characteristics including foreign direct investment, gross domestic product (GDP), GDP per capita, and inflation. Data on foreign direct investment are from International Financial Statistics published by International Monetary Fund. Information about gross domestic product, inflation and population is from World Development Indicators supplied by the World Bank². Finally, we collect proxies on economic integration between the top banks' home country and host country. The proxies are distance between and language used by the home country and host country. Information used to identify distance and language is collected from the World Factbook.³

We identify the list of host countries using the following criteria. First, if at least one bank owns a foreign branch or a subsidiary in a country, we include that country to our list. Second, we exclude countries where information about their credit reporting system is not available and countries where banks can easily establish paper companies⁴. The final sample contains information about foreign operations of the Top 100 banks from 26 home countries to 106 host countries.

3.3 Summary Statistics about Home Countries, Bank Foreign Operations, and Host Countries

Table 1 lists bank information by the 26 home countries. For each home country, the table illustrates how many top banks are from that country, its income level and whether it belongs to OECD or not, and the percentage of asset share it holds on the Top 100 banks. Japan has the highest number of top banks (9), United States is ranked as the second (8), and countries ranked as the third (7) are China, Spain and United Kingdom. If we look at percentage of asset share, the top three countries hold over 38% assets of the top banks: United Kingdom is number

² The website of World Development Indicators is

<http://ddp-ext.worldbank.org/ext/DDPQQ/member.do?method=getMembers&userid=1&queryId=135>

³ The website of the World Factbook is <https://www.cia.gov/library/publications/the-world-factbook/>. We collect the longitude and latitude of the Capitals of the two countries and calculate the great circle distance between the two cities using the website: <http://www.chemical-ecology.net/java/lat-long.htm>.

⁴ Countries excluded due to lack of information about credit reporting systems are Belize, Cape Verde, Estonia, Fiji, Iceland, Iraq, Luxemburg, Mauritius, Paraguay, Tonga, and Vanuatu. Countries which allow bank establishing paper companies are Cayman Island, Channel Island, and Bahrain

one (14.42), France is the second (13.13%), and the third is United States (10.66%). It is noticeable that 89 banks are from OECD countries and most home countries belong to high income group except China and Brazil.

[Insert Table 1 here]

Table 2 and Table 3 report information of branches in 2002 and 2008. During this period, number of foreign branches increases from 1,091 to 2,613. In 2002, the top three countries which attract most foreign branches are USA (95), China (78) and UK (73). In 2008, the top three countries which attract highest number of foreign branches are Spain (327), Italy (320) and USA (180). The large increase of foreign branches in Spain and Italy is because these two countries attract huge number of branches established by German banks. Moreover, German banks significantly increase their foreign operations (from 121 to 798) during this period. Countries which attract more than 50 new foreign branches are Argentina (55), France (137), India (77), Ireland (66), Japan (261), Korea (55), Romania (103), Spain (280), UK (55) and USA (85).

[Insert Table 2 and Table 3 here]

Table 4 and Table 5 report numbers of subsidiaries in 2002 and 2008. During this period, number of foreign subsidiaries increases by about 100 (from 412 to 509). In 2002, only UK (30), USA (28) and Poland (21) attract more than 20 foreign subsidiaries by the top banks. In 2008, countries which attract more than 20 foreign subsidiaries by the top banks are USA (59), UK (51), Luxembourg (26), Germany (22) and France (20). Our data on bank foreign operations suggests that establishing foreign branches are the main strategy for banks to expand their international activities. It may be due to that establishing subsidiaries is more costly than opening branches, but both strategies provide banks an opportunity to penetrate the local market in a host country.

[Insert Table 4 and Table 5 here]

In Table 6, we present summary statistics for bank total assets (TA) and return on assets

(ROA) at the end of years 2001 and 2007. Compared with the whole sample, banks with foreign operations tend to have larger size (TA). During the sample period, banks with foreign operations increase their performance (ROA) more rapidly than those without foreign operations. Our statistics seem to suggest larger banks are more likely to have foreign operations and banks which chose foreign expansion are more likely to improve profits quickly.

[Insert Table 6 here]

Table 7 and Table 8 report country characteristics used in this study for the years 2001 and 2007. Indices related to credit reporting systems are information sharing (InfoShare), public credit registry (PubReg), private credit bureau (PriBur), and credit information index (CreditIdx). Indices related to supervisory regulations on banks are entry requirement (EntReg) and activity restriction (ActReg). Other country characteristics are foreign direct investment (FDI), gross domestic product (GDP), GDP per capita (GDPcap), inflation (INF) and population (Popu).

[Insert Table 7 and Table 8 here]

4. Model

Our study aims at identifying what influence banks' location decision on foreign operations. We consider five groups of factors: credit reporting systems in host countries, bank regulations in host countries, other characteristics of host countries, economic integrations between home country and host country, and parent bank characteristics. The following model is used to conduct our analysis.

$$\begin{aligned}
 NBSD_{ijk,t} \text{ or } NBS_{ijk,t} = & \alpha + \sum \beta_l \text{Credit reporting systems}_{k,t-1} + \sum \gamma_l \text{Bank regulations}_{k,t-1} \\
 & + \sum \delta_l \text{Economic Integration}_{jk,t-1} + \sum \phi_l \text{Other host country characteristics}_{k,t-1} \\
 & + \sum \eta_l \text{Bank characteristics}_{i,t-1} + \varepsilon
 \end{aligned}$$

where $NBSD_{ijk}$ (or NBS_{ijk}) measures foreign operations of bank i from home country j in host country k . Variables representing credit reporting systems, bank regulations and other host country characteristics are applied to capture the host country attractiveness to multinational

banks. Variables representing economic integration measure how the relationship between home country and host country affect multinational banks' location decision. Bank characteristics are control variables representing bank size and performance. All of our independent variables are lagged by one year.

4.1 Bank Foreign Operations (NBSD; NBS)

Following the literature, we use foreign branches and subsidiaries to measure a bank's foreign activities. We are interested in what attract banks to start business in a foreign country. We are also curious about what drive banks to increase their foreign operations in a host country. Hence, we measure bank foreign operations in two ways. First, for each bank we check whether it has any branch (subsidiary) in each host country. If a bank owns at least one branch (subsidiary) in a host country we assign 1 to *NBSD*; 0 otherwise. Second, for each bank we assign number of branches (subsidiaries) it holds in each country to *NBS*.

4.2 Credit Reporting Systems

We obtain several indices from the Doing Business database to capture characteristics of credit reporting systems for each host country. First, we examine whether in a country there exists any credit reporting agency to help the banking system share information among lenders. Credit reporting agencies can be classified into two types. In some countries, there exist private credit bureaus which are either nonprofit institutions or formed by members which are banks or lending financial institutions. Private credit bureaus periodically collect borrower information from members and other sources. They process the information to create a credit file for each borrower, compile a database containing those credit files, and make it available to all members. In some countries, there exists a public credit registry which is managed by the central bank or the supervisory authority of banks. All lenders are required to participate in the public credit registry and exchange customer credit information. In comparison with a private credit bureau, a public credit registry has complete coverage of all borrowers in a country, but discloses information in less detail. To capture differences in the level of information sharing among lenders for different systems, we construct indices *InfoShare*, *PriBur*, and *PubReg*. If there is at least one private credit bureau or one public credit registry in a host country, we assign 1 to *InfoShare*; 0 otherwise. If in a country at least one private credit bureau exists, we assign 1 to *PriBur*; 0 otherwise. If in a country there exists one public credit registry,

we assign 1 to *PubReg*; 0 otherwise.

Second, we use the credit information index (*CreditIdx*) to measure the coverage, availability and quality of borrower information provided by a country's credit reporting system. The credit information index is compiled from six features of the system and ranges from 0 to 6. In a country, we add a score of 1 to the index for each of the following 6 information categories when they are available from at least one credit agency: both positive and negative information, both firm and individual data, data from all types of lenders, more than 2 years of historical data, data on loans below 1% of income per capita, and borrowers' access to their own credit information in the largest registry is guaranteed by the law. To evaluate how credit agencies' information quality affects bank's information costs, we also examine the effects of two interaction terms: *CreditIdx* with *PubReg* and *CreditIdx* with *PriBur*.

4.3 Bank Regulations

We consider entry requirements (*EntReg*) and activity restrictions (*ActReg*) on banks in a country. *EntReg* measures requirements on legal documents, financial projections, experience of the future management team, source of capital, and financial information about the main fund providers. It ranges from 0 to 8 and a higher value indicates more stringent requirements on bank entry. *ActReg* measures the extent to which banks are restricted to conduct the following four types of non-lending activities: securities activities, insurance activities, real estate activities and investments on non-financial firm. The database allows us to identify four levels of activity restrictions: unrestricted, permitted, restricted, and prohibited. For each activity we identify the restriction level and assign scores of 1~4 to the four levels of activities restrictions and a higher value indicates more restrictions. *ActReg* is an index which adds up the scores for each activity and ranges from 0 to 16.

4.4 Economic Integration

Variables proxy for economic integration between a bank's home country and host country are *Distance* and *Language*. To calculate the distance between the home country and host country, we identify the Capitals of the two countries, search for the longitude and latitude for each city from the World Factbook, and calculate the great circle distance between the two cities. Longer distance increases the difficulty of information collection and multinational companies' (banks') communication with local managers and customers. Thus, we expect

longer distance may be associated with lower economic integration between two countries and discourage banks' expansion to the host country.

Following Buch (2003), we identify the official and common language which is used in a country from World Factbook. If two countries have the same language, we assign 1 to *Language*; 0 otherwise. Similarly, when the same language is used by two countries, multinational firms (banks) can easily collect information and communicate with local managers and customers. Hence, we expect the same language may be associated with higher economic integration between two countries and encourage banks' expansion to the host country.

4.5 Other Host Country Characteristics

This study also considers other host country characteristics which may influence a country's attractiveness to foreign banks. They are foreign direct investment (*FDI*), economic size measured by gross domestic product (*GDP*) and GDP per capita (*GDPcap*), inflation (*INF*), and population (*Popu*). Previous studies have identified a stylized fact that a country which attracts large business from foreign firms (measured by trade between two countries) may also attract foreign banks (Brealey and Kaplanis, 1996; Miller and Parkhe, 1998; Buch, 2000). Due to the desire to maintain long-run relationship with their clients, banks may follow clients to establish foreign operations in the host country. This is called "follow-the-client" theory. Based on a similar idea, we expect banks are more likely to be attracted to a host country when it attracts large foreign direct investment because this may indicate large business opportunities for banks. Further, we use gross domestic product (*GDP*) or GDP per capita (*GDPcap*) to measure economic size of the host country. Following the literature, we expect host countries where GDP or GDP per capita is higher are more attractive to multinational banks (Brealey and Kaplanis, 1996; Focarelli and Pozzolo, 2005). Moreover, we also include inflation (*INF*) and we expect banks tend to avoid countries with high inflation.

4.6 Bank Characteristics

To control for the possibility that bank characteristics may affect a bank's expansion strategy, our model includes the size and profitability of sample banks. Size is measured by nature log of total assets (*TA*) and profitability is measured by return on assets (*ROA*). Clarke et al. (2003) suggests that larger banks get more benefits from economies of scale from foreign expansion and they may have more overseas clients which require banks to have presence in the

host country to maintain a good relationship. Following the literature, we expect larger banks or better performed banks are more ambitious to expand abroad.

Some studies find parent banks' size has positive effect on bank expanding activities (Tschoegl, 1983; Williams, 1998; Mahajan et al., 1996). Cerutti et al. (2007) find foreign banks with smaller size are more likely to expand branches instead of subsidiaries abroad. Focarelli and Pozzolo (2005) discuss the bank with a larger size diversify their portfolio more and they find profitability of parent bank have a positive effect for bank integration.

5. Results

We run two types of models to investigate what influence bank decision on entering a host country. First, we use Logit estimation for models which examine what affect a bank's decision to have foreign operations in a host country. Second, we use OLS estimation for models which study what stimulate banks to have larger number of foreign operations in a host country.

5.1 Information Costs Determine the Attractiveness of a Host Country

We use indices of credit reporting systems to proxy for bank information costs in a host country. In models 1-4 of Table 9, we report determinants of bank entry by establishing branches. We show that banks are attracted to enter countries where information costs are lower. When a credit reporting agency exists in a country, it will be easier for foreign banks which are new to the market to collect information of potential customers. Thus, in model 1 of Table 9, we show that the probability of multinational banks to enter a host country is higher for the countries with credit reporting agencies.

We also show that the type of credit reporting agencies matters. In model 2 of Table 9, the probability of multinational banks to enter a host country is increased with private credit bureaus (PriBur) but decreased with public credit registries (PubReg). This may be due to that private credit bureaus provide information which is more timely, accurate and comprehensive. By joining the private credit bureau, banks which plan to enter a host country can enjoy the low information costs shared among members. Hence, countries with private credit bureaus are more attractive to multinational banks. However, public credit registries tend to provide lower quality information in terms of timeliness, accuracy and completeness. In countries where the main credit information provider is a public credit registry, foreign banks which are new comers

may not have other information sources and therefore may have information disadvantage compared to local or incumbent banks. Consequently, foreign banks tend to avoid entering countries with public credit registries.

Further, our results suggest that information quality of the credit systems also matters. In model 3 of Table 9, we show that the probability of bank entry is increased with the information quality of a credit system (CreditIdx), implying that information costs of banks are lower when the credit system provides both positive and negative information, borrower data from different types of lenders, and longer periods of historical data. In model 4 of Table 9, our results indicate that the both credit system types and information quality matter. We show that the probability of banks to start business in a country is decreased with the existence of a public credit registry, but it is increased with the existence of private credit bureaus and the quality of information provided.

We report results of bank decision to enter a country by establishing subsidiaries in a host country in models 9-12 of Table 9. Basically, the effects of credit reporting systems on decisions to enter by establishing branches and subsidiaries are quite similar. The only difference is that the impact of public credit registry on bank entry through establishing subsidiary is not negative. We try to explain it in this way. Banks usually start business in a country by establishing a branch. Thus, in a host country a multinational bank may establish its first subsidiary from an existing branch or acquire a local bank. In both cases, the management teams have experience of doing business in the host country for a period of time. Since they actually are incumbent, decisions to setup the first subsidiary may not be affected by the types of credit reporting agency.

In models 5-8 and 13-16 of Table 9, with controls for other factors identified by previous studies, we test the effects of credit reporting systems on bank decisions to enter a host country by branches or subsidiaries respectively. The results indicate that effects of credit reporting systems on bank decisions to enter a host country remain. Specifically, our finding suggests that a credit reporting agency helps promote exchange of information, reduce bank information costs and thus increase the attractiveness of a host country. The effect is especially stronger in countries where the credit reporting agency is a private credit bureau and in countries where the information exchanged within the credit system is more timely and complete.

5.2 Information Costs Affect Bank Decisions to Expand a Host Country

In Table 10, we examine what drive bank decisions to increase operations in a host country. Information costs remains to have significant impacts on bank operations in a host country. The results show that banks increase foreign operations in response to cheaper information costs in host countries. In models 1-4 of Table 10, we show that banks increase number of branches in a host country where private credit bureaus or public credit registry exist and where quality of credit information disclosure is better. Further, among countries where credit reporting agencies exist, banks prefer expansions to countries where credit reporting agencies provide more timely, accurate and comprehensive information. In models 9-12 of Table 10, we show similar results for bank decisions to increase subsidiaries in a host country. Moreover, the effect is stronger in countries where private credit bureaus exist than in countries where public credit registries exist. When we control for other factors identified by past studies, in models 5-8 and 13-16 of Table 10, the effects that banks increase foreign operations in response to cheaper information costs in host countries remain.

5.3 Do Host Country regulations Restrict Bank Expansion?

This subsection analyzes how supervisory requirements on bank entry and restrictions on bank activities in a host country influence international expansion of multinational banks. According to Buch (2003), regulation discourages international banking activities. Based on the arguments of Buch (2003), banks should have higher probability to establish foreign operations in countries where bank entry requirements are less stringent or where bank activities are less restricted. As reported in models 5-8 and models 13-16 of Tables 9-10, we show that banks are more likely to start establishing subsidiaries or increase number of subsidiaries in countries where bank activities are less restricted. But, activities restrictions seem to have no significant effect on bank branches. The results can be explained by the fact that in many countries banks are only allowed to conduct some activities in subsidiaries. Thus, activities restrictions only matter for establishing subsidiaries, i.e., bank incentives to setup subsidiaries are decreased by stringent activities restrictions.

On the other hand, our results suggest that stringent entry requirements seem to have no significant effect on bank entry, but banks tend to increase number of branches and subsidiaries in countries where entry requirements are more stringent. This may be due to that there are learning effects for banks' setting up new offices in a country. Once a bank has experience on

establishing a branch (or subsidiary) in a host country, it becomes easier for that bank to follow the same requirements to open other new branches (or subsidiaries). Thus, incumbent banks may have advantage over new comers to establish new offices in the host country.

5.4 Economic Integration, Other Host Country Characteristics and Bank Characteristics

Following Buch (2003), we use *Distance* and *Language* to measure economic integration between home country and host country. We hypothesize that shorter distance and same language enhance information collection and communication between the home and host countries. As a result, these two factors are expected to be associated with higher economic integration and increased bank activities. Consistent with our hypothesis, the results show that shorter distance and the same language have significant positive effect on bank entry and number of branches (subsidiaries) in the host country.

Our analysis indicates that a country with high foreign direct investment (*FDI*) attract bank entrance and is associated with more foreign branches (subsidiaries). Consistent with the “follow-the-client” theory, banks view high *FDI* as huge business opportunities from customers and thus are willing to enter the host country and establish new offices there. Our results also suggest bank decisions are affected by the economic conditions of a host country. Banks are attracted to countries with large GDP per capita (or GDP) and countries with low inflation rates. Lastly, we also show that larger and better performed banks are more likely to extend activities abroad.

6. Conclusions

This paper analyzes foreign expansion of the top 100 multinational banks. According to Buch (2003), regulatory barriers and information costs are main factors which drive international activities of banks. Existing studies explore the regulatory effects on bank foreign activities (Buch, 2003; Focarelli and Pozzolo, 2005; Cerutti et al., 2007). To increase our understanding on how information costs affect bank activities, this study aims to investigate whether information costs matter for multinational banks’ location decisions.

With indices representing characteristics of credit reporting systems in 106 host countries, we are able to use those indices as proxies for information costs of multinational banks in these countries. We ask what attract banks to start business in a host country and what drive banks

to further increase their foreign operations in a host country. In support of our main argument, the results show that banks prefer expanding to countries where information costs of banks are lower. Information costs of banks in a country are lower when credit reporting agencies exist and when the credit reporting system provides better quality of credit information.

The main results are summarized as follows. First, the existence of a credit reporting agency increases the probability of banks to enter a host country. It also improves bank incentives to further expanding activities through establishing branches or subsidiaries in a host country. Second, the types of credit reporting agencies matter for bank decisions to enter a market or to further increase operations in a country. The existence of private credit bureaus increase the probability of banks to enter a host country while the existence of public credit registry decrease bank willingness to enter a country. Once a bank becomes an incumbent in a country, both private credit bureau and public credit registry have positive effect on the bank's further expansion in this country. Third, what information contained in the credit reports provided by a credit reporting system matters for bank decisions to enter a country or to increase operations in a country. Banks are more likely to enter a country where the credit information supplied by the credit agencies is better in terms of timeliness, accuracy and comprehensiveness. Also, the incumbent banks tend to increase their operations in countries where the quality of credit information provided is better.

We also find some interesting results regarding the effects of supervisory regulations. First, stringent regulation on bank entry does not significantly influence the probability of banks to enter a host country, but it increases incumbent banks' incentive to further expanding in the host country. We suggest that incumbent banks have advantage over new comers to establish new offices or subsidiaries because of the learning effects from past experience. Second, activities restrictions negatively influence bank incentive to establish subsidiaries, but do not affect branch decisions. In many countries restriction levels reflect the extent to which whether banks are allowed to conduct an activity in subsidiaries or not and thus restrictions only affect bank decisions on setting up subsidiaries, i.e., less restrictions increase bank incentives to establish subsidiaries.

We contribute to the literature on bank foreign expansion by examine how credit reporting systems affect bank decisions to enter or expand operations in the host countries. Previous studies usually investigate host country attractiveness by examining effects of economic integration between countries, economic condition of host country, and supervisory

regulations. Different from earlier research, our study tries to document how information costs affect bank decisions on where to expand foreign operations. We suggest the existence of credit reporting agencies help reduce bank information costs by sharing information among members. We also suggest that bank information costs are further reduced in countries where the credit agencies provide better credit information in terms of timeliness, accuracy and completeness. Consistent with our suggestions, our results show that banks are attracted to enter or further expand operations to countries where information costs are lower.

We also contribute to the literature by documenting the role of credit reporting systems on bank activities. While earlier studies show that existence of credit reporting agencies help reduce bank information costs, recent studies further document that the reduced information costs may increase bank lending, reduce bank risk level, increase credit availability to firms and reduce credit costs of firms (Pagano and Jappelli, 1993; Jappelli and Pagano; 2002; Brown et al.; 2009). This study enhances our understanding that, by reducing bank information costs, credit reporting systems play a role to affect bank decisions on where to expand foreign operations.

References

- Barth, James R., Gerard Caprio, and Ross Levine, 2001, The Regulation and Supervision of Banks around the World: a New Database, *World Bank Policy Research Working Paper* No. 2588.
- Barth, James R., Gerard Caprio, and Ross Levine, 2004, Bank Regulation and Supervision: What Works Best? *Journal of Financial Intermediation* 13, 205-248.
- Barth, James R., Gerard Caprio, and Ross Levine, 2007, Bank Regulation and Supervision: But For Better or Worse? Working Paper.
- Barth, James R., Chen Lin, Ping Lin, and Frank M. Song, 2009, Corruption in Bank Lending to Firms: Cross-country Micro Evidence on the Beneficial Role of Competition and Information Sharing, *Journal of Financial Economics* 91, 361-388.
- Brealey, R.A., and E. C. Kaplanis, 1996, The Determination of Foreign Banking Location. *Journal of International Money and Finance* 15, 577-597.
- Brown, Martin, Tullio Jappelli, and Marco Pagano, 2009, Informational Sharing and Credit: Firm-level Evidence from Transition Countries, *Journal of Financial Intermediation* 18, 151-172.
- Buch, Claudia M., 2003, Information or Regulation: What Drives the International Activities of Commercial Banks? *Journal of Money, Credit, and Banking* 35, 852-869.
- Buch, Claudia M., 2000, Why Do Banks Go Abroad? Evidence from German Data, *Journal of Financial Markets, Institutions, and Instruments* 9, 33-67.
- Budzeika, George, 1991, Determinants of the Growth of Foreign Banking Assets in the United States, *Research paper* No. 9112, Federal Reserve Bank of New York.
- Cerutti, Eugenio, Giovanni Dell' Ariccia, and Maria Soledad Martinez Peria, 2007, How Banks Go Abroad: Branches or Subsidiaries? *Journal of Banking and Finance* 31, 1669-1692.
- Clarke, George, Robert Cull, Maria Soledad Martinez Peria, and Susana M. Sanchez, 2003, Foreign Bank Entry: Experience, Implications for Developing Economies, and Agenda for Further Research, *The World Bank Observer* 18, 25-59.
- Fieleke, Norman S., 1977, The Growth of U.S. Banking Abroad: An Analytical Survey, *Federal Reserve Bank of Boston*.
- Focarelli, Dario, and Alberto Franco Pozzolo, 2005, Where Do Banks Expand Abroad? An Empirical Analysis, *Journal of Business* 78, 2435-2463.
- Goldberg, Lawrence G., and Denise Johnson, 1990, The Determinants of U.S. Banking Activity Abroad, *Journal of International Money and Finance* 9, 123-137.
- Jappelli, Tullio, and Marco Pagano, 2002, Information Sharing, Lending and Defaults: Cross-country Evidence, *Journal of Banking and Finance* 26, 2017-2045.
- Love, Inessa, and Nataliya Mylenko, 2003, Credit Reporting and Financing Constraints, *World Bank Policy Research Working Paper* 3142.
- Mahajan, Arvind, Nanda Rangan, and ashgar Zardkoohi, 1996, Cost Structures in Multinational and Domestic Banking, *Journal of banking and Finance* 20, 238-306.
- Pagano, Marco, and Tullio Jappelli, 1993, Information Sharing in Credit Markets, *Journal of Finance* 48, 1693-1718.

- Parkhe, Arvind, and Stewart R. Miller, 1998, Foreign Operations of U.S. Banks: Impacts of Environmental Differences and Ownership Advantages on Organizational Form Preferences, *Journal of International Management* 4:1, 59-83.
- Tschoegl, Adrian E., 1983, Size, Growth, and, Transnationality among the World's Largest Banks. *Journal of Business* 56, 187-201.
- Williams, Barry, 1998, Factors affecting the performance of Foreign-owned Banks in Australia: A Cross Sectional Study, *Journal of Banking and Finance* 22, 197-219.

Table 1 Summary of Home Country

Countries	Code	Number of banks in top 100	Income group	Assets' share among top 100 banks in 2006 (%)
Australia	AU	4	High income; OECD	2.40
Austria	AT	2	High income; OECD	0.84
Belgium	BE	3	High income; OECD	3.43
Brazil	BR	3	Upper middle income	0.76
Canada	CA	6	High income; OECD	3.86
China	CN	7	Lower middle income	7.48
Denmark	DK	2	High income; OECD	1.35
Finland	FI	1	High income; OECD	0.37
France	FR	5	High income; OECD	13.13
Germany	DE	6	High income; OECD	8.75
Greece	GR	1	High income; OECD	0.21
Hong Kong	HK	1	High income; non OECD	0.87
India	IS	1	High income; OECD	0.40
Ireland	IE	5	High income; OECD	2.04
Italy	IT	5	High income; OECD	5.11
Japan	JP	9	High income; OECD	5.38
Korea	KR	5	High income; OECD	1.73
Netherlands	NL	2	High income; OECD	4.13
Norway	NO	1	High income; OECD	0.38
Portugal	PT	2	High income; OECD	0.50
Singapore	SG	3	High income; OECD	0.71
Spain	ES	7	High income; OECD	5.23
Sweden	SE	3	High income; OECD	1.60
Switzerland	CH	1	High income; OECD	4.15
United States	US	8	High income; OECD	10.66
United Kingdom	GB	7	High income; OECD	14.42
Total		100		100.00

Note: Top 100 banks are ranked by total assets in 2006. Income group data comes from the World Bank database: "A New Database on Financial Development and Structure".

Table 2 Number of Foreign Branches in 2002 (Columns: Home Country; Row: Host Country)

	AU	AT	BE	BR	CA	CN	DK	FR	DE	GR	HK	IS	IE	IT	JP	KR	NL	PT	SG	ES	SE	CH	GB	US	Total
Argentina				2				1								1	1			2			1	3	11
Australia	8				2	2		2	5						1		2		3				3	3	31
Austria								1	3				1				1							1	7
Bangladesh					1						1	1				1							1	1	6
Belgium			1					3	5			1			1		1			2			3	2	19
Brazil				2	1			1	2								2	1		3			2	3	17
Bulgaria								2		1							1							1	5
Canada					6	2		1	4								2						1	8	24
Chile				1					1												1			3	6
China	1	1	3		3	16		7	5		4			1	10	5	3		7	1			1	10	78
Czech Republic								1	2					1			1						1	1	7
Denmark							2		1													3		1	7
Egypt					1			1		1													1	1	5
Finland							1															3			4
France	1		2	1		1			5			1	1	1	3		2	3		5	2		5	3	36
Germany	1		2	1		4	3	5	4	4		1		3	3		2			2	3		4	5	47
Greece					2			3	1								1						5	4	16
Hong Kong	4	1	2		5	5		3	3			1		2	5	3	2		5	2	1	1	5	5	55
Hungary								1						1			2								4
India			1		2			3	5		2				3		3		2	1			3	5	30
Indonesia	2								1		1						1						2	3	10
Ireland			1					1					2				2				1		2	3	12
Italy			1	1		1		2	6						1		2			2			3	5	24
Japan	4			2	5	5		2	5		2	2		1	7	6	1		3	2		1	4	7	59
Korea	2				1			2	2		2				3	1	1		3			1	2	5	25
Malaysia			1					3	3						4		1		3			1	3	2	21
Netherlands				1				2	3	1							2						3	3	15
New Zealand	3							1	1		1					1	1							1	9
Norway							2	1	1								1					3		1	9
Pakistan								1			1												1	1	4
Panama				1	1	1			1						1					1			1	2	9
Philippines	1		1		1			1	1		1				2		1						1	3	13
Poland							2	1	1												1			1	6
Portugal			1	1				1	2												2		3		11
Romania									1	1														2	5
Russian Federation										1												1		2	5
Singapore	4	1	1		5	5	1	3	3		1			3	6	2	2		1		2	1	3	3	47
South Africa						1		1	2			1					1						2	2	10
Spain			4	1				2	10					3	2					7			10	8	47
Sri Lanka								1			1	1											1	1	5
Sweden							1		2												2	1	1	1	8
Switzerland					1		1	1	5									2					2	5	17
Taiwan	1		2		2			2	2		1				2		1		3			1	1	4	22
Thailand			1		1	1		1	2		1				3		1		3				1	2	17
Turkey								1																2	4
UK	4	2	2	1	6	3	2	3	4	1	1	2	7	3	7	2	2	1	3	3	3	1	5	5	73
USA	4	1	3	3	6	3	2	9	12			3	2	5	14	2	1	2		4	3	4	10	2	95
Venezuela				1	1												1						1	2	6
Vietnam	1					1		2	1		1				2	2	1		1				1	3	16
OTHERS	8			1	5	2	3	3	1		1			1				4	2	2			10	29	72
Total	49	6	29	20	57	54	20	79	121	10	22	14	13	25	80	26	60	9	37	43	26	12	109	170	1091

Note: In the host country list, the category, *OTHERS*, consists of countries which attract less than 3 foreign branches. We use country code to represent top 100 banks' home country and please refer to Table 1 for information regarding the country name.

Table 3 Number of Foreign Branches in 2008(Columns: Home Country; Row: Host Country)

Country	AU	AT	BE	BR	CA	CN	DK	FI	FR	DE	GR	HK	IS	IE	IT	JP	KR	NL	NO	PT	SG	ES	SE	CH	GB	US	Total		
Argentina				1					1												1			2	61	66			
Australia					3	4			5	8		1	1	3		2				3				2	6	4	42		
Austria			1						1	5				1	1								1		2		13		
Bangladesh												2	4			1										3	3	13	
Belgium									2	4			1		1								2			2	2	17	
Brazil									2	5													3				8	20	
Bulgaria									2														1				1	4	
Canada						2			3	6			1								1			1	1	1	10	27	
Chile				1					1	1													1				3	7	
China	2	1	5		6				11	5		12			2	12	14	2	1	1	14		2	4	12	13	119		
Czech Republic			1						2	4														1	1		10		
Denmark			1																	1							37		
Egypt					1				1		1														1	1	1	6	
Finland							1			1										1							47		
France			4	1		1				17			1	1	1	2				40		33	2			66	2	173	
Germany	1		1	1		5	2	1	9				1	1	3	2		3	1			2	2			4	5	44	
Greece			1						6	1					1										1	31	1	42	
Hong Kong	4	1	2		5	7			5	4			1	3	6	4	2				8	2	1	1	4	22	82		
Hungary			1			1				2																		5	
India					5				15	8		23			1	1	2				2			1	6	43	107		
Indonesia	2					1				2		6								1	4			1	2	37	57		
Ireland			2		1		63		2	1					1											4	1	78	
Israel					1								1												1	1	1	5	
Italy			1	1		1			6	284				1	2							1				16	5	320	
Japan	4			1	4	7			2	9		2	2	1	2		7	3			3	1		2	5	25	80		
Korea	1				1	8			2	2		6			2						3				1	2	5	35	
Malaysia			1		1				5	4					5		4				3			1	3	1	28		
Netherlands									2	4					1								1			3	2	15	
New Zealand	4								1	1		3				1	2									1	13		
Norway							1		1	1																		49	
Pakistan										3		4															1	10	18
Panama					1	1			1				1		1							1					1	7	
Philippines	1		1			1			1	1		5			1		1									1	9	22	
Poland							1		2	7															4	1		17	
Portugal			1	2					3	2				1								1			1	96		108	
Russian Federation						1			1																1			4	
Singapore	3	1	2		4	5	1	1	4	6		2			1	7	3	3	1			1	2	1	4	5	57		
South Africa						2			1	2			1												1	2	2	11	
Spain			2	1					4	294					1	2					1						17	4	327
Sri Lanka										1		4	1													1	1	8	
Sweden			1				1			1										1						2		6	
Switzerland			1				1	1	1	7				1										1			2	4	21
Taiwan	1		4		1				4	2		7			5		1					3			1	3	16	48	
Thailand					1	1			1	2		1			4	1						1					3	16	
Turkey									1														1				1	4	
UK	4	2	3	1	5	3	3	1	6	21	1	1	6	7	4	6	4	2	1	1	2	6	27	1		10	128		
United States	4	1	6	3	23	3	1	1	19	57			2	3	4	14	4	1	1	1	1	4	3	4	20		180		
Uruguay										1													1			1	2	5	
Vietnam	2					1			2	1		2			3	3						2				2	3	21	
OTHERS	2		1	2	2	2	1	1	4	2			1												4	8	13	44	
Total	35	6	43	15	65	57	76	6	142	789	2	81	24	18	25	79	43	59	8	45	50	62	170	35	337	341	2613		

Note: In the host country list, the category, *OTHERS*, consists of countries which attract less than 3 foreign branches. We use country code to represent top 100 banks' home country and please refer to Table 1 for information regarding the country name.

Table 4 Number of Foreign Subsidiaries in 2002 (Columns: Home Country; Row: Host Country)

Country	AU	AT	BE	BR	CA	CN	DK	FI	FR	DE	GR	HK	IS	IE	IT	JP	KR	NL	PT	SG	ES	SE	CH	GB	US	Total
Argentina				1					1	2											4					8
Australia					1				2	1		1						1					2	1		9
Austria				1						1				1												3
Belgium									1	2					1			2			1					7
Brazil									2	2						1		1	1		7		1			15
Bulgaria		1							3		1				1											6
Canada						1			2				2			2			1				1			9
Chile					1					1											3					5
Croatia		2							1	1					4											8
Czech Republic		3	1						2	2																8
Denmark								2															2			4
Egypt									2																1	3
France			3							4					4				1		2		2	3		19
Germany			1						4				1		1	2	1				2	1	1	1	1	16
Hong Kong			1			5			1	1						1	1								1	11
Hungary		2	1						2	2					1				1							9
Indonesia	2								3	1						1	3	1		3						14
Ireland			2				1		1	4					4	1		2			1					16
Italy									5	1											1			1	1	9
Luxembourg			1			1	1		6	1					1	1	1		1			3	1			18
Malaysia					1					1										2				1		5
Mexico					1					2												6				9
Mozambique																			2		1					3
Netherlands				5					4	1				1												11
New Zealand	4																	1						1		6
Panama					1				1													2				4
Peru									1												2			1		4
Poland		1	2						2	4				4	1			6	1							21
Portugal																					3					3
Romania		4							2						2											8
Russian Federation		2							1	3									1							7
Singapore					1														2							3
Spain									3	2									2				1	1	1	10
Switzerland			1		1				2	3					1	2					1			1		12
Thailand																				2				1		3
United Kingdom	2		2		8		2		2	2	1			3	1	2	1	1			1		2			30
United States					1				6	8	2					3	1				6			1		28
Uruguay									3	1											2					6
OTHERS	2	2	1		1		1	2	9		1		2				3	1	2	1	6	1		4	3	42
Total	10	17	21	3	16	7	5	4	74	53	5	1	5	10	23	14	11	20	11	8	51	7	12	18	6	412

Note: In the host country list, the category, *OTHERS*, consists of countries which attract less than 3 foreign subsidiaries. We use country code to represent top 100 banks' home country and please refer to Table 1 for information regarding the country name.

Table 5 Number of Foreign Subsidiaries in 2008

(Columns: Home Country; Row: Host Country)

Country	AU	AT	BE	BR	CA	CN	DK	FR	DE	GR	HK	IS	IE	IT	JP	KR	NL	NO	PT	SG	ES	SE	CH	GB	US	Total
Argentina				1	1			1	1						1						4				9	
Australia			1		1	1			1						2		1							1	8	
Austria				1				1					1	1											4	
Belgium								4	2					1			2			1		1		1	12	
Brazil								2	2						1				1		2		2	1	11	
Bulgaria		1						2		1							1								5	
Canada						1		4				1			3								2	1	12	
Chile									1								1				1				1	4
Croatia		2						1						5											8	
Czech Republic		2	2					2						1											7	
France	1		2			1			2	1				3			1		1		5		1	1	20	
Germany			2				1	4		1		1		3	2	1	2				1	1	1	1	22	
Hong Kong			1			9		2							1	3								1	17	
Hungary		1	2					2	1					1											7	
India											1													1	1	3
Indonesia								1			1				1		1			5					9	
Ireland			1		2			1	2					5			1				1			1	1	15
Italy			2					8	4												2		1		1	18
Latvia							1															2			3	
Luxembourg			2			1	2	4	6					4	2				1			3	1		26	
Malaysia				1					1											2					4	
Mexico				1					1												3				5	
Morocco								3																	3	
Netherlands			4		1			2	1				1		1										10	
New Zealand	2								1																3	
Panama					1									1							3			1	6	
Peru				1				1												1		1		1	5	
Poland		1	2				1	2	2				1	2			3		1			1			16	
Portugal																					3				3	
Romania			4					1		1				2											8	
Russian Federation		2					1	5	3					2			1				3	1	1		19	
Singapore			1		2			1							1										5	
Slovenia		1						2						1											4	
South Africa										1										1				1	3	
Spain			1	1				2	4						1					1			1	2	1	14
Switzerland			2		1				1				1							1	2			2	10	
Turkey			1					1		1				1						1				2	7	
Ukraine		1						1									1					1			4	
United Kingdom	3		4		1	3	1	4	2	3			4		7	2				3	6		6	2	51	
United States	1				13			7	6						9	2	1		3		13		1	3	59	
Uruguay									2												2				4	
OTHERS	2		1	1	3		2	8			1	1			2	1	1	2	2	2	2	1		7	4	46
Total	9	15	31	4	29	16	9	79	46	9	3	3	8	33	31	11	17	2	12	12	55	10	18	25	17	509

Note: In the host country list, the category, *OTHERS*, consists of countries which attract less than 3 foreign subsidiaries. We use country code to represent top 100 banks' home country and please refer to Table 1 for information regarding the country name.

Table 6 Descriptive Statistics of Sample Banks

	Total Assets (Billion)		ROA	
	2001	2007	2001	2007
Panel A. All the Sample Banks				
Obs.	98	100	98	100
Mean	1,954.2	5,875.7	0.69	0.88
SD	1,889.4	6,119.4	0.77	0.49
Minimum	68.4	1,130.2	-2.21	-0.23
Maximum	8,087.3	29,741.6	5.09	2.64
Panel B. Banks with Foreign Branches				
Obs.	78	83	78	83
Mean	2,151.0	6,433.6	0.64	0.91
SD	1,927.5	6,334.4	0.46	0.5
Minimum	143.5	1,130.2	-0.74	-0.23
Maximum	8,087.3	29,741.6	2.13	2.64
Panel C. Banks with Foreign Subsidiaries				
Obs.	69	76	69	76
Mean	2,327.5	6,688.4	0.65	0.9
SD	2,013.5	6,516.8	0.58	0.47
Minimum	143.5	1,130.2	-1.82	-0.17
Maximum	8,087.3	29,741.6	2.13	2.64

Note: Panel A refers to the top 100 banks in the sample. Panel B refers to banks with foreign branches. Panel C refers to banks with foreign subsidiaries. ROA is defined as income after tax divided by total assets.

Table 7 Host Country Summary Statistics in 2001

Country	Info Share04	Pub Reg04	Pri Bur04	Credit Idx04	Ent Reg	Act Reg	FDI (Billion)	GDP (Billion)	GDPcap (Hundred)	INF (%)	Popu (Million)
Albania	0	0	0	0	8	11	2	41	13	3	3
Algeria	0	0	0	1			11	552	18	1	31
Angola	1	0	1	3			21	89	6	108	14
Argentina	1	1	1	6	6	7	22	2,690	72	-1	37
Australia	1	1	0	5	8	8	83	3,700	191	5	19
Austria	1	1	1	6	8	5	59	1,930	240	2	8
Bangladesh	1	0	1	2	6	12	1	470	3	2	142
Belarus	0	0	0	3	8	13	1	124	12	80	10
Belgium	1	1	1	4	8	9	736	2,320	226	2	10
Bolivia	1	1	1	3	8	12	7	81	10	2	8
Botswana	1	1	0	4	8	10	0	60	34	6	2
Brazil	1	1	1	5	8	10	225	5,520	31	9	177
Bulgaria	1	0	1	2	8	10	8	136	17	7	8
Burkina Faso	1	0	1	1			0	28	2	4	12
Cambodia	0	0	0	0	8	14	1	40	3	3	13
Cameroon	1	0	1	1			1	96	6	2	16
Canada	1	1	0	6	8	7	277	7,150	230	1	31
Chad	0	0	0	0			5	17	2	14	9
Chile	1	1	1	5	3	11	42	686	44	4	16
China	1	0	1	2	6	14	442	13,200	10	2	1,272
Colombia	1	1	0	5			25	820	19	6	42
Costa Rica	1	1	1	5			5	164	41	9	4
Cote D'Ivoire	1	0	1	1			3	105	6	4	17
Croatia	0	0	0	0	7	7	13	199	45	4	4
Czech Republic	1	1	1	4	8	8	56	618	60	5	10
Denmark	1	1	0	4	8	8	93	1,600	299	2	5
Dominican	0	0	0	5			11	216	24	9	9
Ecuador	1	0	1	4			13	213	17	27	12
Egypt	0	0	0	2	6	13	5	976	14	2	68
El Salvador	1	0	1	5			3	138	22	3	6
Finland	1	1	0	5	2	7	37	1,250	241	3	5
France	1	0	1	4	6	6	503	13,400	226	2	59
Georgia	0	0	0	0	7	9	1	32	7	5	5
Germany	1	1	1	6	4	5	262	18,900	230	1	82
Ghana	1	1	0	0	8	12	1	53	3	35	21
Greece	1	1	0	3	8	9	16	1,500	137	3	11
Guatemala	1	1	0	5	8	13	5	187	16	-4	12
Guinea	0	0	0				0	30	4	5	8
Haiti	1	0	1	2			0	37	4	11	9
Honduras	1	0	1	3	8	9	2	76	12	8	6
Hong Kong	1	1	0	4			238	1,670	249	-2	7
Hungary	1	1	0	5	7	9	39	533	52	8	10
India	0	0	0	0	6	10	55	4,780	5	3	1,032
Indonesia	1	0	1	2	7	14	-30	1,600	8	14	209
Iran	0	0	0	2			1	1,150	18	12	65
Ireland	1	1	0	5	7	8	96	1,040	269	6	4
Israel	0	0	0	3	6	13	36	1,190	185	2	6
Italy	1	1	1	6	8	10	149	11,200	197	3	57
Jamaica	0	0	0	0	8	12	6	82	32	9	3
Japan	1	1	0	6	6	13	62	41,000	322	-1	127
Jordan	1	0	1	2	8	11	2	90	18	1	5
Kazakhstan	0	0	0	0	8	6	28	222	15	10	15
Kenya	0	0	0	0	8	10	0	130	4	2	32
Korea	1	1	0	5	7	9	35	4,820	102	4	47

Country	Info Share04	Pub Reg04	Pri Bur04	Credit Idx04	Ent Reg	Act Reg	FDI (Billion)	GDP (Billion)	GDPcap (Hundred)	INF (%)	Popu (Million)
Kuwait	1	1	0	3	5	10	-1	349	153	-8	2
Latvia	0	0	0	0	6	8	1	83	35	2	2
Lebanon	0	0	0	4	8	11	15	172	45	-2	4
Lithuania	1	1	1	3	8	9	4	121	35	0	3
Madagascar	1	0	1	1			1	45	3	7	17
Malaysia	1	1	1	6	7	10	6	880	37	-3	24
Mali	1	0	1	1			1	26	3	0	10
Mauritania	0	0	0	1			1	11	4	8	3
Mexico	1	1	0	6	8	12	294	6,220	63	6	99
Morocco	0	0	0	1	8	13	1	378	13	1	29
Mozambique	1	0	1	3			3	41	2	15	19
Nepal	0	0	0	2	8	8	0	60	2	11	25
Netherlands	1	1	0	5	8	6	520	4,010	250	5	16
New Zealand	1	1	0	5	6	4	-1	522	134	4	4
Nigeria	0	0	0	0	8	9	12	480	4	11	128
Norway	1	1	0	4			21	1,710	379	2	5
Oman	0	0	0	2	8	13	0	199	82	-7	2
Pakistan	1	0	1	3			4	720	5	8	141
Panama	1	1	0	6	8	8	5	118	39	1	3
Papua New Guinea	0	0	0	0			1	31	6	7	6
Peru	1	1	1	6	8	8	11	539	21	1	26
Philippines	1	1	0	3	7	7	2	712	9	6	78
Poland	0	0	0	4	7	10	57	1,900	50	3	38
Portugal	1	1	1	4	7	9	62	1,160	113	4	10
Romania	1	0	1	4	8	13	12	402	18	37	22
Russian Federation	0	0	0	0	8	8	27	3,070	21	16	146
Senegal	1	0	1	1			0	49	5	3	11
Serbia	0	0	0	0			2	118	16	88	8
Singapore	1	1	0	3	7	8	156	856	207	-2	4
Slovak	1	1	1	3	8	9	16	211	39	5	5
Slovenia	1	0	1	3	8	9	5	201	101	9	2
South Africa	1	1	0	5	8	8	73	1,180	26	8	45
Spain	1	1	1	6	8	7	282	6,090	150	4	41
Sri Lanka	1	1	0	4	6	7	2	157	8	14	19
Sweden	1	1	0	4	8	9	131	2,220	250	2	9
Switzerland	1	1	0	5	8	5	94	2,500	346	1	7
Taiwan	1	1	0	5	8	12	0	2,977	133	10	22
Tanzania	0	0	0	0			4	94	3	7	35
Thailand	1	1	0	4	8	9	51	1,160	19	2	61
Togo	0	0	0	1			1	13	2	3	6
Tunisia	1	0	1	3			5	200	21	3	10
Turkey	1	1	1	4	7	12	34	1,960	29	53	69
Uganda	0	0	0	0			2	57	2	7	25
Ukraine	0	0	0	0			8	380	8	10	49
UK	1	1	0	6	8	5	538	14,400	244	2	59
USA	1	1	0	6	7	12	1,670	101,000	354	2	285
Uruguay	1	1	1	4			3	186	56	5	3
Uzbekistan	0	0	0	0			1	114	5	45	25
Venezuela	1	0	1	4	8	10	37	1,230	50	8	25
Vietnam	1	0	1	2	8	14	13	325	4	2	79
Zambia	0	0	0	0	8	13	1	36	3	24	11
Zimbabwe	0	0	0	0			0	103	8	77	13
Average	0.68	0.45	0.40	2.97	7.28	9.58	74.52	2,931.40	7,251.60	9.34	53.24

Note: The source of data and variable definition are provided in Appendix A.

Table 8 Host Country Summary Statistics in 2007

Country	Info Share	Pub Reg	Pri Bur	Credit Idx	Ent Reg	Act Reg	FDI (Billion)	GDP (Billion)	GDPcap (Hundred)	INF %	Popu (Million)
Albania	0	0	0	0				106	33	1	3
Algeria	1	0	1	2	8	10		1,350	40	7	34
Angola	1	0	1	4	8	9		585	34	0	17
Argentina	1	1	1	6	7	11	57	2,620	66	14	40
Australia	1	1	0	5	7	10	230	8,220	391	4	21
Austria	1	1	1	6	8	7	307	3,770	453	4	8
Bangladesh	1	0	1	2	6	13	8	677	4	6	159
Belarus	0	0	0	3	8	10	18	448	46	12	10
Belgium	1	0	1	4	8	7	461	4,490	423	2	11
Bolivia	1	1	1	5	8	13	2	131	14	7	10
Botswana	1	1	0	4	8	11		118	63	8	2
Brazil	1	1	1	5	8	9	346	13,100	68	5	192
Bulgaria	1	0	1	5	8	10	84	395	52	8	8
Burkina Faso	1	0	1	1	8	11		68	5	3	15
Cambodia	0	0	0	0			9	86	6	6	14
Cameroon	1	0	1	2	8	11		206	11	2	19
Canada	1	1	0	6	8	8	1,104	13,300	403		33
Chad	1	0	1	1	8	11		71	7	2	11
Chile	1	1	1	5	4	14	145	1,640	99	5	17
China	1	0	1	4	8	15	1,384	32,800	25	5	1320
Colombia	1	1	0	5	8	14	90	1,720	37	4	46
Costa Rica	1	1	1	5	5	14	17	252	57	8	4
Cote D'Ivoire	1	0	1	1	8	11	4	196	10	2	19
Croatia	0	0	0	0	7	8	49	513	116	4	4
Czech Republic	1	1	1	5	8	12		1,680	163	0	10
Denmark	1	1	0	4	8	9	113	3,080	564	1	5
Dominican	1	1	1	6	8	12	17	367	38	6	10
Ecuador	1	1	1	5				442	33	5	13
Egypt	1	0	1	2	8	10		1,280	17	11	75
El Salvador	1	1	1	6	8	15	15	202	30	4	7
Finland	1	1	0	5	7	9	87	2,460	465	3	5
France	1	0	1	4	7	9	159	25,600	415	2	62
Georgia	0	0	0	3			17	102	23	10	4
Germany	1	1	1	6	6	7	51	33,000	401	2	82
Ghana	1	1	0	0	8	11		152	7	15	23
Greece	1	1	0	4	7	8		3,600	322	3	11
Guatemala	1	1	1	5	8	13		334	25	6	13
Guinea	0	0	0	0	8	11		46	5	17	9
Haiti	1	0	1	2				61	6	9	10
Honduras	1	1	1	5	8	11	8	123	17	7	7
Hong Kong	1	1	0	5	6	5	599	2,070	299	3	7
Hungary	1	1	0	5	8	11	373	1,380	137	5	10
India	1	1	0	3	6	11		11,700	10	4	1123
Indonesia	1	1	1	2	8	16	56	4,330	19	12	226
Iran	1	0	1	3				2,710	38	14	71
Ireland	1	1	0	5	8	7	261	2,550	584	1	4
Israel	1	1	0	5	3	12	106	1,620	226		7
Italy	1	1	1	5	8	12	400	21,100	355	3	59
Jamaica	0	0	0	0	8	14		107	40	9	3
Japan	1	1	0	6	7	11	22	43,800	343		128
Jordan	1	0	1	2	8	11	18	158	28	6	6
Kazakhstan	1	1	0	4	7	12	103	1,040	67	15	15
Kenya	1	1	0	2	8	13	7	295	8	13	38
Korea, Rep.	1	1	0	5	6	11	16	9,700	200	1	49

Country	Info Share	Pub Reg	Pri Bur	Credit Idx	Ent Reg	Act Reg	FDI (Billion)	GDP (Billion)	GDPcap (Hundred)	INF %	Popu (Million)
Kuwait	1	1	0	3	8	10					3
Latvia	1	0	1	4	8	8	22	272	119	13	2
Lebanon	1	0	1	5	8	11	28	240	59	3	4
Lithuania	1	1	1	6	8	11		383	114	9	3
Madagascar	1	0	1	1				73	4	9	20
Malaysia	1	1	1	6	8	11	85	1,810	68	3	27
Mali	1	0	1	1	8	11		69	6	4	12
Mauritania	1	0	1	1				26	8		3
Mexico	1	1	0	6	8	5	247	8,930	85	3	105
Morocco	1	0	1	1	8	12		733	24	2	31
Mozambique	1	0	1	3	8	10	4	78	4	8	21
Nepal	1	1	0	2			0	102	4	9	28
Netherlands	1	1	0	5	7	6	1,042	7,540	460	1	16
New Zealand	1	1	0	5	7	5	29	1,290	305	2	4
Nigeria	0	0	0	0	8	11		1,660	11	5	148
Norway	1	1	0	4	8	11	38	3,820	811	1	5
Oman	1	0	1	2	8	11					3
Pakistan	1	1	1	4	7	13	53	1,440	9	8	162
Panama	1	1	0	6	8	11	18	197	59	4	3
Papua New Guinea	0	0	0	0	8	16		63	10	2	6
Peru	1	1	1	6	6	12	53	1,090	39	3	28
Philippines	1	1	0	3	8	7	29	1,440	16	3	88
Poland	1	1	0	4	8	8	176	4,200	110	3	38
Portugal	1	1	1	4	7	12		2,200	207	2	11
Romania	1	1	1	5	7	11	95	1,660	77	12	22
Russian Federation	0	0	0	0	8	8	525	12,900	91	14	142
Senegal	1	0	1	1	8	11		112	9	5	12
Serbia	1	1	1	5				416	56	7	7
Singapore	1	1	0	4	8	10		1,610	351	4	5
Slovak	1	1	1	3	8	10	34	749	139	1	5
Slovenia	1	0	1	3	8	10	15	455	225	4	2
South Africa	1	1	0	5	8	10	57	2,780	58	8	48
Spain	1	1	1	6	7	7	601	14,300	319	3	45
Sri Lanka	1	1	0	4	7	9		324	16	14	20
Sweden	1	1	0	4	6	10		4,440	485	3	9
Switzerland	1	1	0	5	8	8	407	4,160	551	1	8
Taiwan	1	1	0	5	8	13	65	4,016	176	10	23
Tanzania	0	0	0	0	8	9	6	162	4	6	40
Thailand	1	1	0	5	8	13	96	2,460	39	3	64
Togo	1	0	1	1	8	11		25	4	1	7
Tunisia	1	0	1	3			16	350	34	2	10
Turkey	1	1	1	5			220	6,570	89	8	74
Uganda	0	0	0	0	8	12	5	112	4	8	31
Ukraine	0	0	0	0			99	1,400	30	22	46
UK	1	1	0	6	8	4	225	27,300	447	3	61
USA	1	1	0	6	8	11	238	138,000	458	3	302
Uruguay	1	1	1	6	7	12	9	231	70	9	3
Uzbekistan	0	0	0	0				223	8	24	27
Venezuela	0	0	0	0	7	11		2,280	83	14	27
Vietnam	1	0	1	3			67	712	8	8	85
Zambia	0	0	0	0			10	114	10	9	12
Zimbabwe	0	0	0	0	8	10					13
Average	0.84	0.58	0.51	3.42	7.52	10.47	164.60	5,121.04	133.20	5.82	56.90

Note: The source of data and variable definition are provided in Appendix A.

Table 9 Logit Model: The Determinants of a Bank's Decision to Enter a Host Country

	NBSD=1, with branches; =0, no branches (model 1- model 8)								NBSD=1, with subsidiaries; =0, no subsidiaries (models 9- 16)							
	model (1)	model (2)	model (3)	model (4)	model (5)	model (6)	model (7)	model (8)	model (9)	model (10)	model (11)	model (12)	model (13)	model (14)	model (15)	model (16)
Intercept	-4.208 ^a (0.068)	-3.408 ^a (0.049)	-4.301 ^a (0.057)	-3.509 ^a (0.047)	-21.874 ^a (0.475)	-21.011 ^a (0.474)	-21.668 ^a (0.475)	-20.948 ^a (0.474)	-4.027 ^a (0.079)	-3.943 ^a (0.069)	-4.546 ^a (0.077)	-4.0735 ^a (0.066)	-12.437 ^a (0.670)	-12.329 ^a (0.672)	-12.407 ^a (0.672)	-12.201 ^a (0.672)
InfoShare	1.850 ^a (0.060)				0.944 ^a (0.070)				0.775 ^a (0.063)				0.265 ^a (0.081)			
PriBur		1.408 ^a (0.035)				0.652 ^a (0.048)				0.857 ^a (0.048)				0.283 ^a (0.069)		
PubReg		-0.246 ^a (0.030)				-0.161 ^a (0.037)				0.052 (0.044)				0.083 (0.053)		
CreditIdx			0.436 ^a (0.009)				0.282 ^a (0.014)				0.303 ^a (0.013)				0.222 ^a (0.019)	
PriBur*CreditIdx				0.331 ^a (0.007)				0.198 ^a (0.010)				0.2118 ^a (0.010)				0.117 ^a (0.014)
PubReg*CreditIdx				-0.088 ^a (0.006)				-0.051 ^a (0.008)				0.0106 (0.010)				0.016 (0.011)
EntReg					0.003 (0.012)	0.011 (0.012)	0.017 (0.012)	0.006 (0.012)					0.007 (0.018)	0.008 (0.018)	0.010 (0.018)	0.008 (0.018)
ActReg					0.009 (0.008)	0.006 (0.008)	0.002 (0.008)	0.011 (0.008)					-0.124 ^a (0.012)	-0.125 ^a (0.012)	-0.129 ^a (0.012)	-0.120 ^a (0.012)
Distance					-0.189 ^a (0.017)	-0.223 ^a (0.018)	-0.233 ^a (0.017)	-0.258 ^a (0.018)					-0.733 ^a (0.025)	-0.739 ^a (0.025)	-0.780 ^a (0.025)	-0.771 ^a (0.025)
Language					0.826 ^a (0.042)	0.814 ^a (0.042)	0.786 ^a (0.042)	0.786 ^a (0.043)					0.997 ^a (0.060)	1.005 ^a (0.060)	0.946 ^a (0.061)	0.972 ^a (0.061)
FDI					0.000 ^a (0.000)	0.000 ^a (0.000)	0.000 ^a (0.000)	0.000 ^a (0.000)					0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GDPcap					0.541 ^a (0.017)	0.485 ^a (0.018)	0.408 ^a (0.019)	0.420 ^a (0.019)					0.187 ^a (0.024)	0.167 ^a (0.026)	0.015 (0.029)	0.089 ^a (0.027)
INF					-0.033 ^a (0.004)	-0.033 ^a (0.004)	-0.034 ^a (0.004)	-0.030 ^a (0.004)					0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)
TA					0.940 ^a (0.020)	0.940 ^a (0.020)	0.945 ^a (0.020)	0.945 ^a (0.020)					0.787 ^a (0.029)	0.787 ^a (0.029)	0.791 ^a (0.029)	0.789 ^a (0.029)
ROA					0.291 ^a (0.034)	0.296 ^a (0.034)	0.299 ^a (0.034)	0.304 ^a (0.034)					0.155 ^a (0.054)	0.154 ^a (0.054)	0.152 ^a (0.054)	0.154 ^a (0.054)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	73,100	73,100	73,100	73,100	51,488	51,488	51,488	51,488	73,100	73,100	73,100	73,100	50,945	50,945	50,945	50,945
Adj. R square	0.022	0.030	0.039	0.039	0.115	0.115	0.119	0.119	0.003	0.005	0.009	0.008	0.055	0.056	0.058	0.057

Note: Standard errors are in parentheses. The marks a, b, and c indicate significance at the 1%, 5%, and 10% levels respectively. Please refer to Appendix A for variable definition.

Table 10 OLS Model: The Determinants of a Bank's Decision to Expand Operations in a Host Country

	NBS= Number of branches (models 1- 8)								NBS= Number of subsidiaries (models 9- 16)							
	model (1)	model (2)	model (3)	model (4)	model (5)	model (6)	model (7)	model (8)	model (9)	model (10)	model (11)	model (12)	model (13)	model (14)	model (15)	model (16)
Intercept	0.036 (0.050)	0.011 (0.548)	-0.064 (0.048)	-0.013 (0.045)	-4.909 ^a (0.580)	-4.887 ^a (0.581)	-4.761 ^a (0.582)	-4.773 ^a (0.583)	0.024 ^a (0.003)	0.026 ^a (0.003)	0.005 (0.003)	0.020 ^a (0.003)	-0.248 ^a (0.034)	-0.240 ^a (0.034)	-0.229 ^a (0.034)	-0.233 ^a (0.034)
InfoShare	0.252 ^a (0.036)				0.170 ^a (0.058)				0.027 ^a (0.002)				0.016 ^a (0.003)			
PriBur		0.310 ^a (0.031)				0.199 ^a (0.053)				0.035 ^a (0.002)				0.017 ^a (0.003)		
PubReg		0.113 ^a (0.031)				0.170 ^a (0.045)				-0.002 (0.002)				0.001 (0.003)		
CreditIdx			0.090 ^a (0.008)				0.087 ^a (0.015)				0.012 ^a (0.000)				0.012 ^a (0.001)	
PriBur*CreditIdx				0.069 ^a (0.006)				0.059 ^a (0.011)				0.010 ^a (0.000)				0.008 ^a (0.001)
PubReg*CreditIdx				0.039 ^a (0.008)				0.051 ^a (0.010)				0.000 (0.000)				0.000 (0.001)
EntReg					0.035 (0.019)	0.036 ^c (0.019)	0.040 ^b (0.019)	0.039 ^b (0.019)					0.002 (0.001)	0.002 ^c (0.001)	0.002 ^b (0.001)	0.002 ^c (0.001)
ActReg					-0.004 (0.010)	-0.007 (0.010)	-0.010 (0.010)	-0.006 (0.010)					-0.005 ^a (0.001)	-0.005 ^a (0.001)	-0.006 ^a (0.001)	-0.005 ^a (0.001)
Distance					-0.232 ^a (0.026)	-0.237 ^a (0.026)	-0.255 ^a (0.026)	-0.255 ^a (0.027)					-0.051 ^a (0.002)	-0.052 ^a (0.002)	-0.054 ^a (0.002)	-0.054 ^a (0.002)
Language					0.123 ^b (0.062)	0.126 ^b (0.062)	0.112 ^c (0.062)	0.114 ^c (0.062)					0.062 ^a (0.004)	0.062 ^a (0.004)	0.061 ^a (0.004)	0.060 ^a (0.004)
FDI					0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)					0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
GDPcap					0.119 ^a (0.018)	0.106 ^a (0.019)	0.053 ^b (0.022)	0.068 ^a (0.020)					0.011 ^a (0.001)	0.009 ^a (0.001)	0.001 ^a (0.001)	0.005 ^a (0.001)
INF					0.000 (0.001)	0.000 (0.000)	0.000 (0.000)	0.000 (0.001)					0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
TA					0.338 ^a (0.024)	0.338 ^a (0.024)	0.339 ^a (0.024)	0.339 ^a (0.024)					0.038 ^a (0.001)	0.038 ^a (0.001)	0.038 ^a (0.001)	0.038 ^a (0.001)
ROA					0.026 (0.038)	0.027 (0.038)	0.029 (0.038)	0.029 (0.038)					0.006 ^a (0.002)	0.006 ^a (0.002)	0.006 ^a (0.002)	0.006 ^a (0.002)
Year Dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
No. observations	73,100	73,100	73,100	73,100	51,488	51,488	51,488	51,488	73,100	73,100	73,100	73,100	50,945	50,945	50,945	50,945
Adj. R square	0.0006	0.001	0.002	0.002	0.008	0.008	0.009	0.009	0.002	0.005	0.009	0.009	0.056	0.056	0.059	0.058

Note: Standard errors are in parentheses. The marks a, b, and c indicate significance at the 1%, 5%, and 10% levels respectively. Please refer to Appendix A for variable definition.

Appendix A Variable Definition and Source of Information

Variables	Definition and source of information
NBSD or NBS	<p>We have two types of dependent variables. The first is numbers of branches or subsidiaries a bank has. The second is set to 1 if a bank has branches or subsidiaries; 0 otherwise.</p> <p><i>Source: BankScope & Banker's Almanac</i></p>
Information Sharing (InfoShare)	<p>It equals 1 if the country has at least one credit reporting agency (public credit registry or private credit bureau); 0 otherwise.</p> <p><i>Source: The Doing Business database provided by World Bank.</i></p>
Private Credit bureau (PriBur)	<p>It equals 1 if the country has a private credit bureau; 0 otherwise. The database we use to collect this information only contains data from 2004-2008. Thus, we use the data of 2004 to represent whether there exists a private credit bureau or not for the years 2002~2004 by assuming it is unchanged for the period.</p> <p><i>Source: The Doing Business database provided by World Bank.</i></p>
Public Credit Registry (PubReg)	<p>It equals 1 if the country has a public credit registry; 0 otherwise. The database we use to collect this information only contains data from 2004-2008. Thus, we use the data of 2004 to represent whether there exists a public credit registry or not for the years 2002~2004 by assuming it is unchanged for the period.</p> <p><i>Source: The Doing Business database provided by World Bank.</i></p>
Credit Information index (CreditIdx)	<p>This index measures how much information is disclosed by the public credit registry or private credit bureau. We check for the availability of the following 6 categories of information: (1) both positive and negative credit information; (2) both borrowing individuals and firm's data; (3) retailer, trade creditors or utility company; (4) more than 2 years of historical data; (5) loans below 1% of income per capita's data; (6) the guarantee of borrower's rights. We add 1 to the index for each of the above information if it is available; 0 otherwise. Thus, the index ranges from 0 to 6. A higher value indicates the credit information system in a country discloses better information to creditors.</p> <p><i>Source: The Doing Business database provided by World Bank.</i></p>
Entry Requirement (EntReg)	<p>The index measures how stringent the requirement for bank entry that a country has. For each category of information listed below, we add 1 to the index if banks file for entrance are required to report it; 0 otherwise: (1) draft by laws; (2) intended organizational chart; (3) first 3-year financial projections; (4) financial information on main potential shares; (5) background/ experience of future directors; (6) background/ experience of future managers; (7) sources of funds to capitalize new bank and (8) intended differentiation of new bank from others. This index ranges from 0 to 8. A higher value indicates a country has more stringent requirement for bank entry.</p> <p><i>Source: Bank Regulation and Supervision database by World Bank. Barth et al.(2001, 2003, 2007).</i></p>
Activity Regulation (ActReg)	<p>Banks may face different restrictions on the following four types of activities: (1) insurance underwriting and selling, (2) the business of securities underwriting, brokering, dealing, and all aspects of the mutual fund industry, (3) whether banks can own non-financial firms, (4) real estate investment, development and management. The degree of supervisory restrictions for each activity is classified into four categories: unrestricted, permitted, restricted and prohibited. We assign 1 to the unrestricted case, 2 to the permitted case, 3 to the restricted case and 4 to the prohibited case, and thus this index ranges from 1 to 16. A country with higher value indicates it put more restrictions on the activities that a bank can conduct.</p> <p><i>Source: Bank Regulation and Supervision database by World Bank. Barth et al.(2001, 2003, 2007)</i></p>

GDP and GDPcap in the host Country	Gross domestic product (GDP) and GDP per capita (GDPcap) in a host country from 2001 to 2007, expressed in billion dollars. <i>Source: World Development Indicators provided by World Bank</i>
Inflation(INF)	Inflation rate in a host country from 2001 to 2007. <i>Source: World Development Indicators provided by World Bank</i>
Population (Popu)	The population of a host country, expressed in millions. <i>Source: World Development Indicators provided by World Bank</i>
Distance	The great circle distance from home country to host country. We search for the longitude and the latitude of the Capital of each country from the World Factbook and calculate the great circle distance between two Capitals. <i>Source: Longitude and latitude are from The World Factbook and the great circle distance is calculate by: http://www.chemical-ecology.net/java/lat-long.htm</i>
Language	It equals 1 if the same language is used in the home country and the host country; 0 otherwise. <i>Source:</i>
Total Assets	Total assets of the Top 100 banks in the beginning of the year. It represents parent bank size from 2001 to 2007 and is expressed in billion dollars. <i>Source: BankScope.</i>
ROA	Return of assets of the Top 100 banks in the beginning of the year. It represents parent bank profitability from year 2001 to 2007. <i>Source: BankScope</i>
