International Labour Migration and Foreign Bank Penetration in Developing Economies

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Abstract

This paper examines the impact of international labour migration on foreign bank presence in 30 Asian and Latin American countries. While it is well established that social and economic ***characteristics*** of the host economy influence entry by foreign banks, we test whether social and economic ***linkages*** between bank-host and bank-origin economies influence foreign bank activity. In particular, we consider whether international migration from bank-host to the bank-origin countries affects foreign bank activity. Panel Tobit models find that international migration promotes foreign bank presence. Banks originating in industrialised nations with large immigrant populations tend to expand into migrant-source developing countries.

Keywords: International Banks, International Migration, FDI
JEL classification codes: G15, F22, F21

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1. Introduction

The increased globalisation of financial markets is readily observed in the dramatic increase in bank expansion into developing countries from the developed world. According to Cull and Martínez Pería (2010), "On average, across developing countries, the share of bank assets held by foreign banks has risen from 22 percent in 1996 to 39 percent in 2005. At the same time, foreign bank claims on developing countries … increased from 10 percent of Gross Domestic Product (GDP) in 1996 to 26 percent in 2008." Clearly, foreign banks are playing a larger role in developing economies.

Foreign banks enter developing countries in search of greater market share and in order to earn greater profits. Recent studies (Bonin, Hasan and Wachtel, 2005; Claessens and Horen, 2009) also suggest that international banks perform better than domestic banks in the economies they expand to. They appear to have better profit margins on account of better cost conditions and due to production efficiencies. At the same time, however, foreign banks face multiple risks. By expanding into foreign markets, they increase their exposure to country and systemic risks. It is crucial, therefore, for foreign banks to choose wisely the countries that they enter.

The entry of foreign banks is important to the host economy as well. Foreign bank entry appears to affect the domestic banking systems. Analysing the impact of foreign banks on the domestic banking system of 80 host countries, Claessens et al. (2001) found that foreign bank penetration increases the efficiency of domestic banks by perhaps eliciting a more competitive environment. As such, foreign bank entry could be beneficial to the financial systems of host economies. Studies by Arena et al. (2007) and Jeon et al. (2006) argue that foreign banks promote financial stability in the host country by providing more access to lending. Consequently, countries with a lower degree of financial development may

want to attract foreign banks into their financial markets in order to enjoy the stability that foreign bank establishments may impart.

This paper examines factors that affect foreign bank presence in 30 developing and emerging Asian and Latin American economies from 10 Organisation for Economic Co-operation and Development (OECD) bank-origin countries. Two sets of determinants of foreign bank presence are considered. Social and economic ***characteristics of the host economy*** are incorporated into our model to see whether and how they affect investment by foreign banks from these 10 bank-origin nations. Real GDP growth, population, the urbanisation rate and a measure of economic freedom of the host economy are used to represent social and economic conditions in the bank-host economies. Next, social and economic ***linkages*** between the bank-host and the bank-origin economy are incorporated to test whether those links influence foreign bank investment. To capture these links, this paper considers foreign direct investment (FDI) inflows from the bank-origin country to the bank-host country along with immigration into bank-origin countries from the bank-host economies.

This study differs from the literature to date by considering the impact of labour migration on foreign bank penetration. Immigration flows from the bank-host economy into the bank-origin country are hypothesised to initiate and strengthen social and economic linkages between the two countries in a number of ways. For one, immigration promotes the flow of remittances from the bank-origin country to the bank-host economy. Greater and more frequent financial transactions between the bank-origin and the bank-host country may provide business opportunities for international banks wishing to service those remittance flows. Second, banks may be attracted to areas that have experienced much out-migration due to the inflow of savings that tend to be observed in

these areas and likely originating from those migrants. Banks may wish to provide financial intermediation services in these cash-rich economies. Third, given the supposition that remittance receipts stimulate business opportunities, banks may gravitate to these same areas to services those concerns. Finally, migration will increase networks and make available, to the bank-origin countries, human capital that can be used to successfully penetrate the migrant-source countries. Banks will be in a better position to succeed in their investment given the availability of expertise as well as the mitigation of information costs and uncertainty (due to the specific human capital embodied in the migrant community). In this paper we seek to discern whether indeed, migration facilitates *international bank penetration*.

Since the rationale for expecting foreign bank entry in out-migration areas is couched, to a large extent, in terms of the desire to service *remittances* and their impacts in recipient areas, it is reasonable to question why we test instead for the impact of *migration* on foreign bank entry. There are two reasons for this. First, while remittances from say, Spain to Peru, may induce banks from Spain to invest in Peru, bilateral data on remittances are not usually available. Central banks generally publish total remittance receipts, but rarely disaggregate the receipts from the various source countries. We would, therefore, only be able to test the impact of remittances to Peru from the rest of the world (**multilateral** flows) on the presence of foreign banks in Peru. In contrast, given the typical stringent regulations on migratory flows, information on **bilateral** immigrant flows is generally available. It is presumed that migrant flows will proxy for the remittance flows and for this reason we argue that the use of migrant flows in place of remittance flows is valid. The second reason for using migration flows is because there

are factors derived from migration (and not remittances) that may influence bank behavior. Specifically, banks may be able to tap into migrant networks to obtain information and the expertise needed to successfully negotiate a banking presence in a particular foreign country.

We use a panel Tobit model to test the hypothesis that foreign bank penetration is influenced by migration. The Tobit model is used to capture both the incidence of bank entry and the intensity of entry. The panel structure allows us to control for the unobservable variables that might otherwise explain foreign bank penetration. Overall, we expect that foreign bank entry to be dependent on host economic conditions. We also anticipate that bank entry will be more likely when economic and social linkages between the bank-home and bank-host nations are stronger. We measure these economic and social linkages by accounting for the level of FDI inflows from bank-origin to the bank-host countries and by tracking migration from bank-host to the bank-home countries.

2. Related Literature

2.1 Banking and Host Economy Conditions

Entry of foreign banks into host countries has been extensively studied. A consistent finding in this area is that foreign banks make their entry decision based on host market conditions. Economic growth, market size and financial depth of the host economy affect the entry decision by foreign banks. In a study of the determinants of foreign penetration by German banks, Buch (2000) used regionally disaggregated panel data from 1981 to 1998 and found that GDP per capita of the host country positively affects the foreign assets of German banks abroad. Likewise, Claessens et al. (2008) found that the host economy's Gross National Product (GNP) induces foreign bank penetration.

The argument that host country characteristics affect foreign bank entry is corroborated by Hryckiewicz and Kowalewski (2008). They studied the determinants of bank entry into Central Europe and concluded that the inflation rate, bank freedom index and creditor rights affect foreign banks' decision to expand into Central European countries. Other host country characteristics have been found to explain foreign bank penetration in a variety of studies. These are country risk, institutional quality of the host economy and population size. (Claessens and Horen, 2008; Magri et al. 2005; García Herrero and Martínez Pería, 2007).

Other economic and social linkages -- common legal origin, geographic distance between the home and host countries, common language, sharing a border and economic union -- have also been found to positively impact both entry and the degree of penetration by foreign banks (Buch, 2000a; Claessens and Horen, 2008; Hryckiewicz and Kowalewski, 2008). These factors help mitigate information costs and serve as proxies for cultural and geographic proximity. It is easy to imagine that they could facilitate expansion into foreign markets.

Summarising their investigation into foreign bank penetration, Cull and Martínez Pería (2010) wrote, "When it comes to the drivers of foreign bank participation, there is little doubt that the search for profit opportunities, the elimination of barriers to entry, and the presence of factors that help mitigate the information costs of operating in foreign markets have played a key role in promoting foreign bank participation in developing countries." Our contribution to this literature is in investigating the role of international labour migration on promoting bank penetration.

2.2 Linkages between Countries and Bank Penetration

While a vast literature exists arguing that the host economy conditions influence bank entry, a more recent strand in the literature proposes that economic and social *linkages* between host and home areas may serve as a factor driving bank expansion. In an early paper on this subject, Goldberg and Grosse (1994) examined foreign bank activity during 1972 to 1989 in the United States (US) at the state level. They used total assets and total offices of foreign banks as proxies for the degree of foreign bank penetration in each state. They included the normal host area explanatory variables (e.g. market size and regulation on foreign banks), but they also included the level of international trade and of FDI in each state, suggesting that these potential linkages to the international economy might help induce bank expansion into the state. They conclude that the size of the state's banking market is the most important explanatory factor in attracting foreign banks. While greater FDI inflows and permissive regulations concerning foreign bank operations also encouraged foreign bank entry to the state, they did not find the intensity of international trade to influence foreign banking activity.

In contrast to the earlier study, Focarelli and Pozzolo (2000) found that the level of bilateral trade between the bank-origin and bank host-country positively impacts the penetration of banks originating in OECD countries. Similarly, Magri et al. (2005) analysed foreign bank entry into Italy and concluded that the level of trade between Italy and the bank-origin country increased the incidence of bank expansion into Italy. Claessens and Horen (2008) also found that trade between host and home countries exerted a positive influence on foreign bank penetration.

A few studies have examined how international remittances influence bank penetration and financial development. Aggarwal et al. (2006) is a case in point. They examined 99 remittance-recipient developing countries and measured how increases in the volume of remittances impacted the aggregate level of deposits and credit intermediated by the local banking sector. In conclusion, they found that remittances into developing countries have a significant and positive impact on bank deposits and credit as a percent of GDP.

Other studies have investigated the impact of remittances on financial sector development. Gupta, Pattillo and Wagh (2009) found that the receipt of remittances in Sub-Saharan nations contributes toward financial deepening as measured by the ratio of bank deposits to GDP and of M2 to GDP. Using data for Mexico, Demirgüç-Kunt et al. (2011) show that high remittance receiving areas (*municipios*) are associated with greater banking breadth and depth. Banking sector breadth and depth is measured in a number of ways: number of bank branches per capita, number of accounts per capita, volume of deposits to GDP and value of loans to GDP.

In this paper, we investigate how *migration* rather than *remittances* influences foreign bank penetration. While it is understandable that banks might "follow" remittances in an attempt to service the flow or to take advantage of financial intermediation services that may develop from remittance-receipts in the recipient areas, we have argued earlier that there are other linkages -- measurable using migratory flows -- that might facilitate bank investment in developing economies. Migrant populations in bank-source countries may reduce the information costs of doing business in the foreign market. These migrant population may or may not be remitting back home, yet they do

provide the bank-source country with access to specific human capital to facilitate the investment. Additionally, since migration flows are obtainable on a bilateral basis (while remittances are usually only available on a multilateral) we can use "finer" data in our analysis by pairing the bilateral migrant flows with bilateral banking flows and thus improve the precision of the estimates.

3. Data and Empirical Model

We construct panel data with 10 OECD countries and 30 developing countries from 2000 to 2008 in this study. The 10 OECD countries serve as bank-origin countries while 30 developing/emerging economies are considered as bank-host countries. The 30 bank-host countries are identified in Table 1 while the 10 bank-origin countries are listed in Table 2. For each developing country i we derived the level of bank assets (Y) originating from each of the 10 OECD countries j in each of the t time periods. Y_{ijt} may assume a zero value -- no bank presence in country i from country j in year t -- or it may assume a positive value if banks from j are present in country i in year t.

The foreign bank asset data is obtained from Bureau van Dijk - Orbis. Bureau van Dijk (BvD) is a data publishing company that collects global business and financial data. Orbis is Bureau van Dijk's product, a global database covering information from 60 million companies located all over the world. Over 31,000 banks are included in the database with information on each individual bank's balance sheets, profit and loss statements and financial ratios. One can use the database to discern ownership of the individual banks through its detailed shareholder information. We distinguish foreign banks from domestic banks using the shareholder and asset information. A bank is identified as foreign-owned when total bank assets owned by foreigners is greater than 50

percent of its total assets[2]. In some cases, ownership information is not discernible from the Orbis database. In these cases we obtained shareholder information from Thomson One Banker, a financial database by the Thomson Reuters Company. When the information was still not discernible from either database, we consulted the company website.

Using the ownership information, we group foreign banks by origin in each year and aggregate their assets. For example, if there are 5 US banks in Argentina in 2000, we summed the bank assets of the 5 US banks. This provides us with the total of US bank owned asset in Argentina in 2000. We computed a comparable statistic for each of the other nine OECD bank-origin countries that could own bank assets in Argentina in 2000. This derivation is repeated for each year from 2000 through 2008 and for each of the other 29 developing countries in the sample.

The average annual sum of foreign bank assets from the 10 OECD countries to each of the 30 developing economies in our study is reported in Table 1. Cambodia and Sri Lanka share last place in terms of foreign bank presence, with an annual average of US$140 million over the nine year period. Mexico is the country with the largest stock of foreign bank assets, with stock averaging US$283 billion.

The empirical model for this study is summarised as:

$$\qquad (1)$$

where represents the stock of bank assets owned by banks from origin country j in the bank-host country i at time t and and are matrices of explanatory variables. The vector β represent the coefficients that are estimated to capture the relationship between

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[2] We use shareholder and asset information in 2008 to classify banks as foreign and domestic over the entire time period.

country characteristics and banking investment while the vector γ represents the coefficients that are estimated to capture the relationship between country linkages and bank investment.

3.1 Bank-Host Country Characteristics: Four host characteristics are included in the model and their summary values are displayed in Table 1. These variables are intended to account for the attractiveness of locating in country i from the perspective of banks originating in the OECD countries. The real GDP growth rate in the host country i at time t, is included to account for economic conditions in the bank-host economy. Banks are likely to be attracted to markets that are growing rapidly, and in particular, if that growth is expected to continue. Countries with slower growth are less promising as perspective income generating entities for banks.

The population of the developing economy i at time t (POP_{it}) is likely to influence the desirability of banking in the country as it provides information on the potential market size. Countries with large populations are likely to be more attractive as there is likely to be a greater volume of business to tap into. China and India top the countries in our sample on the basis of population. We also include the urban population as a percentage of the total population of the host country i at time t to capture the concentration of the population in the host economy. Greater concentrations of population in urban areas decrease the costs of doing business since effort can be more easily directed and economies of scale more easily attained. Some of the countries in our sample of developing economies are fully urbanised (e.g. Hong Kong and Singapore), while others have relatively low urbanisation rates. India's urbanisation rate averaged 28 percent over the time period, while Cambodia's averaged only 19 percent. China has the

largest urban population at 512 million, but the share of the urban population to its total population is only 39 percent.

Economic freedom of the host country i at time t is obtained from the Heritage Foundation (www.heritage.org/index). This final bank-host characteristic is constructed from ten sub-indices that take into consideration factors such as the ease of running a business, the ability to engage in international trade and the degree to which property rights are upheld. The ten components are averaged to give an overall economic freedom score for each country. Higher scores are interpreted as signifying that conditions are more favourable for businesses. The average scores ranged from a low of 50 in Venezuela to a high of 89.6 in Hong Kong.

3.2   Home and Host Country Linkages: a couple of home/host variables serve to measure linkages between the bank-origin country and the bank-host country. It is hypothesised that stronger links between the two countries, increase the likelihood of bank expansion from the bank-origin to the host country and the magnitude of these investments. FDI inflows to the bank host country i from the bank origin country j at time t are included to measure potential business links between i and j. Foreign banks originating in j may follow FDI in order to service the firms originating in j investing in i. In addition, FDI inflows into i may provide banks with information on the business climate in i, promoting bank expansion independently of FDI from j. FDI inflows across the bank-host countries are rather varied (See Table 1). The largest recipients of FDI inflows from the bank-origin countries are China and Mexico. Averaged annual inflows of FDI to these two countries exceed US$13 billion a year. Sri

Lanka and Cambodia have the lowest levels of FDI inflows -- below US$4 million a year, on average.

The main contribution of this paper is to determine whether immigration influences bank expansion into foreign markets. We let represent the flow of immigrants originating in i and settling in country j at time t as a percent of the total population of the bank-host country i. These data are obtained from OECD Stat. Immigrant flows are derived, in some cases, from population registers from which inflows can be discerned by comparing the registers from year to year. In other cases the immigrant flows are obtained from reports detailing the issuance of residency and work permits during the year by government officials. As we discussed earlier, larger immigrant inflows will likely result in higher remittance flows to bank-host countries. The presumption is that greater financial transactions between these two countries, on account of that flow of remittances, will encourage banks from j to enter the bank-host country i to service these transactions. Furthermore, developing country business enterprises that may be an outcome or by-product of remittance inflows may also provide business opportunities for banks[3]. In addition, it is likely that the concentration of immigrants in the bank-origin country may provide networks, language skills and knowledge about the bank-host country that facilitate bank investments. Immigrants' expertise about markets, customs and language may lead to reductions in the cost of doing business, facilitating and encouraging OECD bank investment in the developing/emerging economy.

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[3] See Amuedo-Dorantes and Pozo (2006) and Woodruff and Zentano (2007) for evidence of business expansion and formation in developing economies due to remittance inflows.

In terms of migrant outflows to the bank-origin countries, China (not surprisingly) displays the largest flows. Over the time period of this study, China exported more than 365,000 persons to the 10 OECD countries each year. Mexico, India and the Philippines also have large migrant outflows to the 10 bank-origin countries – exceeding 140,000 persons per year. Barbados and Cambodia have the lowest levels of migrant outflows, averaging less than 900 persons per year. As a share of the migrant-source population, Jamaica has the greatest concentration of emigrants per year – approximately 0.75 percent or 7.5 persons per 1,000 resident Jamaicans. Ecuador (4.9 per 1,000 resident Ecuadorians) and El Salvador (4.6 per 1,000 Salvadorian residents) rank second and third in emigrant flows, while Cambodia has the smallest share of migrants in its total population, a mere 0.005 percent or 5 per 100,000 residents.

In Figure 1, a scatterplot of asset levels by banks from country j into country i against immigrant flows from i to j (as a percent of the migrant-sending country's population) is displayed. The scatterplot suggests that there is a positive relationship between the two variables. Immigration flows from developing to OECD countries are associated with bank investment going in the other direction.

Table 2 displays some descriptive information about the 10 OECD countries during the time period of our study. Spain's banking sector displays the highest level of overseas expansion to the 30 developing/emerging market economies. Total overseas bank asset by Spanish banks is greater than US$290 billion and reflects the high degree of Spanish bank penetration into Latin America. The United Kingdom (UK) and US are the second and the third largest owner of overseas bank assets, with more than US$180 billion of bank asset in Asia and Latin America during the time period of this study. In

the sample, Korean banks have the lowest level of overseas bank asset ownership to these areas, averaging only US$4.4 billion worth of bank assets in Asia and Latin America.

Table 2 also provides information on flows of persons from the 30 host countries to the 10 OECD economies. According to this information, the US is the largest yearly recipient of immigrants with more than 556 thousand immigrant inflows to the US every year from 2000 through 2008 from the 30 developing/emerging economies. The second largest recipient of immigrants is Spain, with more than 250 thousand immigrants per year.

With respect to FDI, the US is the largest investor in Asia and Latin America. From 2000 to 2008, the average annual level of US foreign direct investment to the 30 countries was US$36.8 billion. The second and third largest investors were Spain and Japan. Spain, on average, invested US$11.7 billion per year and Japan, on average, invested US$11.6 billion per year. Canada and Sweden placed last in amount invested in these 30 bank-host countries. The average investment from Canada and Sweden was less than US$1 billion per year.

4. Empirical Results

The model is estimated by random-effects panel Tobit. This methodology is suitable on a number of dimensions. First, the Tobit methodology accounts for selection into bank investment in each of the 30 developing economies. There are many instances of no bank presence from country j to i. Because of this, if we were to estimate the equation via OLS we would obtain biased estimates of the impact of the explanatory variables on bank investments. The Tobit corrects for this. In addition, the panel nature

of the estimation is helpful because it allows us to account for unobservable effects in our data[4].

Table 3 presents the empirical results from the panel Tobit estimation. The first two columns of results in Table 3 display the coefficients and their standard errors. The results indicate that a number of our variables do indeed appear to significantly impact bank presence. Immigrant flows from the bank-host (i) countries to the bank-origin (j) countries, FDI inflows from bank origin countries (j) into the bank-host countries (i), population and the urbanisation rate of the host country all have positive and significant impacts on foreign bank investment in the host economy. RGDP growth, on the other hand, does not appear to affect bank presence.

The third and fourth columns of the results in Table 3 report the two marginal effects from the panel Tobit estimation allowing us to interpret the effects of each variable on bank penetration and hence address the economic significance of the effects. The first marginal effect obtained is the marginal effect on the latent dependent variable, described as ——— This captures the underlying propensity to invest or the probability to be uncensored. It specifies how a one unit change in the independent variable alters the probability of foreign bank assets being non-zero -- that foreign banks from j are present in country i. The results displayed in Table 3 indicate that a one percentage point increase in the share of emigrant flows to the bank-origin country increases the probability of bank entry by a half of a percent (0.5 percent). At the same time, the probability of bank entry is increased by 0.04 percent, due to an increase in FDI inflows into the host economy of

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[4] Note also that the panel is unbalanced due to missing observations. In some cases, data coverage for some pairs of countries is missing. For example, migration data from i to j was missing over some of the years. If the panel were balanced, we would have 300 pairs of countries in our model. Due to missing data, we only have 221.

US$1 billion. Given relative emigrant and FDI flows, it seems that the impact of migration on bank entry is non-trivial and stronger than FDI.

Population increases of one million increase the probability of bank presence by only 0.0003 percent. While this is statistically significant, it is an economically insignificant amount. On the other hand, a ten percentage point increase in the level of urbanisation of the host economy increases the probability of bank entry by 0.07 percent while a 10 percentage point increase in the Economic Freedom Index raises bank entry by 0.04 percent.

Column 4 reports on the expected change in the level of bank investment in i due to variation in the explanatory variables conditioned on positive bank presence in i from j or ———. Foreign bank owned assets in the host country increased by US$10.25 billion on account of a one percentage point increase in the share of immigrants in the host country. A US$ 1 billion increase in the FDI inflows increases foreign bank owned assets by US$787 million. Bank assets increases by US$1.3 billion when there is a 10 percentage point increase in the urbanisation rate and by US$1.62 million should the population grow by one million persons. A 10 percentage point increase in the Freedom Index increases bank investment by US$670 million.

Overall then, the impact of immigrants on bank entry is positive, statistically significant and of economic significance. Greater immigration into the bank origin country encourages banks to branch into the immigrants' home countries, which suggest that migratory flows from one country may encourage (banking) business flows in the other direction. On the other hand, we find that some of the variables found to influence bank presence have impacts that are of relatively modest magnitude.

Table 4 provides us with a robustness check by estimating a panel Tobit model with the inclusion of certain bank-origin country dummies and year dummies. While the magnitude of the effects is slightly altered, by and large, the results are similar. Furthermore, they reveal that US banks are less likely than banks from other countries to invest abroad, a phenomena observed in the simple descriptive statistics presented earlier. UK banks, on the other hand, are more likely to invest abroad. The time dummies also reveal that in the years prior to the 2009 global financial crises (2006, 2007 and 2008) foreign bank penetration into these 30 Asia and Latin American host countries was greater. In the years after the Asian financial crisis (those crisis years being 2000 and 2001), fewer banks invested or increased their investments in these countries. This may suggest that the entry decision by foreign banks may have been impacted by financial crisis.

5. Conclusion

This paper investigates factors that affect foreign bank entry and investment into 30 Asian and Latin American countries. Two sets of factors are considered—the characteristics of the bank-host economy and the economic/social linkages that exist between the bank-home and bank-host economies. In particular, we focus on whether the development of linkages through immigrant flows encourages banks to branch out into immigrants' home countries. We find that the flows of immigrants from the bank-host country to the bank-origin country significantly affect the presence of banks in the developing/emerging market country. This suggests that immigrant flows into bank-origin countries create business linkages that encourage banks to invest in the immigrant source economies. There are several channels by which this effect may operate. Banks

may be "servicing their customers," by facilitating transfers of remittances to immigrants' home communities. But perhaps more interestingly, migrant populations in the bank-home country may help mitigate information costs of expanding into these countries.

A host of other factors are also found to encourage bank expansion into the 30 developing/emerging market economies. The characteristics of the bank-host economy such as the degree of urbanisation of the host economy and its population have positive impacts on foreign bank presence. Linkages other than immigration -- such as FDI inflows -- also significantly and positively increase foreign bank presence as does the business climate -- measured using the Heritage Foundation's Freedom Index. It is interesting however, that the strength of these factors is relatively weaker than that of immigration flows. In sum then, linkages of economies through the flows of people have important repercussions in that they accentuate ties among nations through banking networks.

A number of points can be raised concerning globalisation and economic development from the results of this analysis. First, some globalisation forces promote other globalisation forces. In this study, we appear to observe international migration promoting international banking. This raises the possibility of synergies in globalisation with one globalisation force inducing another globalisation force and strengthening the ties that link economies. Second, while it has been noted that FDI may draw international banks to locate in FDI-recipient areas, our estimates suggest that emigration may have an even stronger impact in promoting banking infrastructure in developing economies. Finally, we note that while emigration is often thought as a sign of "economic failure" with poor economic conditions pushing populations away, our

analysis provides a more nuanced view of emigration. The settlement of emigrants in the host economy may facilitate economic development in the migrant's home economy through it impact on international banking.

References

Aggarwal, R., A. Demirguc-Kunt and & M. S. Martinez Peria (2006). Do workers'remittances promote financial development ? Policy Research Working Paper Series 3957, The World Bank.

Amuedo-Dorantes, C. and S. Pozo (2006). Remittance Receipt and Business Ownership In The Dominican Republic, World Economy, 29, 939-956.

Arena, M., C. Reinhart, and F. Vázquez (2007). The Lending Channel in Emerging Economies: Are Foreign Banks Different? IMF Working Papers 07/48, International Monetary Fund.

Bonin, J., I. Hasan, and P. Wachtel (2005). Bank Performance, Efficiency and Ownership In Transition Countries. Journal of Banking & Finance, 29, 31-53.

Buch, C. (2000). Why Do Banks Go Abroad? Evidence from German Data. Financial Market, Institutions & Instruments, 9, 33-67.

Buch, C. (2000a). Information Or Regulation: What Is Driving the International Activities of Commercial Banks? Kiel Working Papers 1011. Kiel Institute for the World Economy.

Claessens, S., A. Demirguc-Kunt and H. Huizinga (2001). How does foreign entry affect domestic banking markets? Journal of Banking & Finance, 25, 891-911.

Claessens, S. and N. Van Horen (2008). Location Decisions of Foreign Banks and Institutional Competitive Advantage. De Nederlandsche Bank Working Paper, no. 172.

Claessens, S., N. Van Horen, T. Gurcanlar and J. Mercado (2008). Foreign Bank Presence in Developing Countries 1995-2006: Data and Trends. mimeo, The World Bank, Washington, D.C.

Cull, R. and M.S. Martínez Pería (2007). Foreign Bank Participation and Crises in Developing Countries. Policy Research Working Paper Series 4128. The World Bank.

Cull, R. and M.S. Martínez Pería (2010). Foreign Bank Participation in Developing Countries: What Do We Know About the Drivers And Consequences of this Phenomenon? Policy Research Working Paper Series 5398. The World Bank.

Demirgüç-Kunt, A., E. López Córdova, M.S. Martínez Pería and C. Woodruff (2011). Remittances and Banking Sector Breath and Depth: Evidence From Mexico. Journal of Development Economics, 95, 229-41.

Focarelli, D. and A. F. Pozzolo (2000). The Determinants of Cross-Border Bank Shareholdings; an Analysis with Bank-Level Data from OECD Countries. Temi di

discussione (Economic working papers) 381, Bank of Italy, Economic Research Department.

García Herrero, A. and M.S. Martínez Pería (2007). The Mix of International Banks' Foreign Claims: Determinants and Implications. Journal of Banking & Finance, 31, 1613-1631.

Goldberg, L. and R. Grosse (1994). Location Choice of Foreign Banks in the United States. Journal of Economics and Business, 46, 367-379.

Gupta, S., C. Pattillo and S. Wagh (2009). Effect of Remittances on Poverty and Financial Development in Sub-Saharan Africa. World Development, 37, 104-115.

Herrero, A. G., M. Peria and M. Soledad (2007). The mix of international banks' foreign claims: Determinants and implications. Journal of Banking & Finance, 31, 1613-1631.

Hryckiewicz, A. and O. Kowalewski (2008). The Economic Determinants and Engagement Models of Foreign Banks in Central Europe. National Bank of Poland Working Papers 50, National Bank of Poland, Economic Institute.

Jeon, Y., S. M. Miller, and P. A. Natke (2006). Do Foreign Bank Operations Provide a Stabilizing Influence in Korea? Quarterly Review of Economics and Finance, 46, 82-109.

Magri, S., A. Mori and P. Rossi (2005). The Entry and the Activity Level of Foreign Banks in Italy: An Analysis of the Determinants. Journal of Banking & Finance, 29, 1295-1310.

Sigelman, L. and L. Zeng (1999). Analyzing Censored and Sample-Selected Data with Tobit and Heckit Models. Political Analysis, 8, 167–182.

Woodruff, C. and R. Zenteno (2007). Migration Networks and Microenterprises In Mexico. Journal of Development Economics, 82, 509-528.

Figures and Tables

Figure 1: Foreign Bank Assets and Flow of Migrants from Bank-Host to Bank-Source Economies
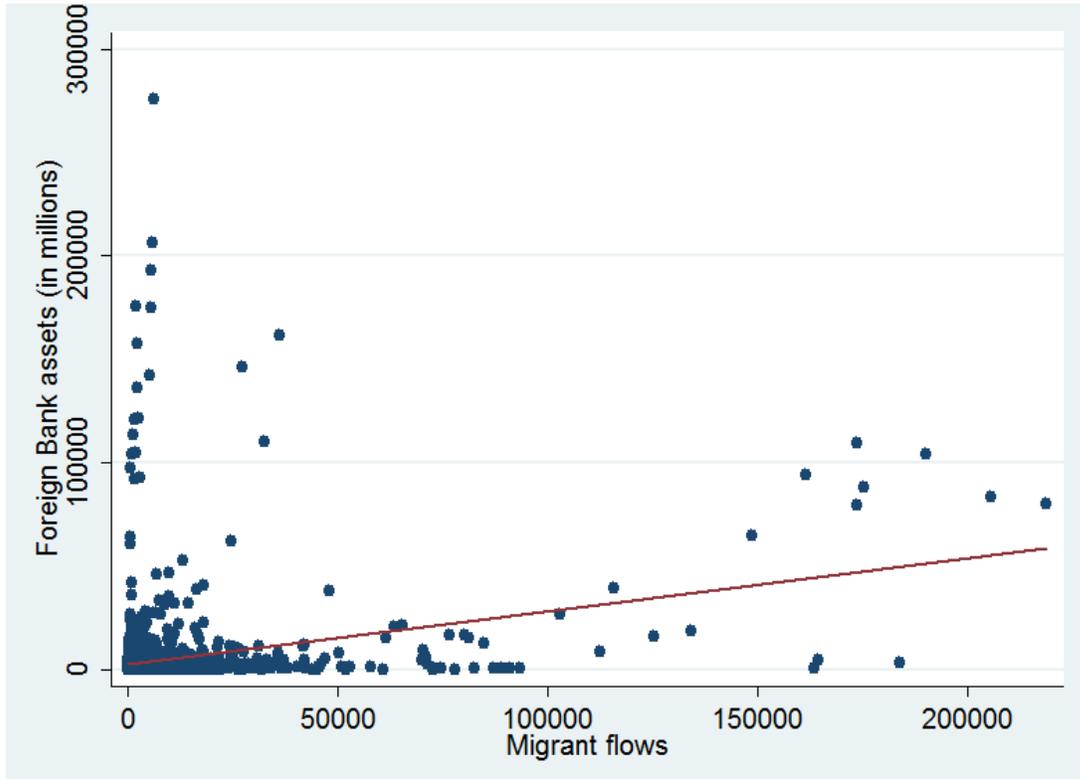
Source: Bank asset data are derived from BvD Orbis and Thomson One Banker while migration data flows are from OECD.stat. See data appendix for details on data construction.

Table 1 : Bank-Host Country Characteristics (Average from 2000 to 2008)

Host Country	Stock of Foreign Bank Assets (in billions USD)	Migrants (outflow)	Emigrant flows as share of total pop.	FDI inflows (in billions USD)	RGDP growth rate (in percent)	Urban population as share of total pop.	Population (in millions)	Freedom Index
Argentina	24.7	28723	0.075	3.77	3.99	91	38.4	58.54
Barbados	9.57	875	0.350	0.06	2.57	40	0.25	70.96
Bolivia	0.31	32895	0.365	0.04	3.72	64	9.01	61.16
Brazil	126	78127	0.042	10.4	3.71	83	184	60.54
Cambodia	0.14	628	0.004	0.0038	9.02	19	13.7	59.21
Chile	44.3	10307	0.064	2.68	4.27	88	16.1	76.96
China	22.8	365893	0.028	14.8	10.07	39	1300	53.26
Colombia	7.13	43623	0.103	1.03	4.41	73	42.4	62.29
Costa Rica	4.89	2669	0.006	0.44	4.65	73	42.4	66.34
Dom. Rep.	6.4	39014	0.415	0.09	5.66	66	9.39	57.22
Ecuador	0.98	63172	0.489	0.09	5.02	63	12.9	54.94
El Salvador	6.51	27727	0.459	0.52	2.8	60	6.04	71.5
Guatemala	3.67	17445	0.140	0.1	3.34	47	12.4	61.39
Honduras	2.48	9889	0.146	0.07	5.12	467	6.76	57.74
Hong Kong	171	8240	0.121	9.22	4.93	100	6.8	89.59
India	39.6	143360	0.013	4.77	6.96	29	1080	51.63
Indonesia	16.2	25836	0.012	1.74	5.21	47	216	53.51
Jamaica	6.73	19747	0.748	0.11	1.38	53	2.64	65.47
Malaysia	56.5	11394	0.045	2.58	5.53	66	25.2	62.04
Mexico	283	183555	0.179	13.8	2.78	76.	102	64.03
Nicaragua	0.21	9763	0.181	0.01	3.33	56	5.39	61.09
Pakistan	1.97	40149	0.026	0.47	4.92	35	152	55.76
Paraguay	1.27	11126	0.192	0.02	2.94	58	5.79	58.46
Peru	12	34231	0.124	0.51	5.61	71	27.5	64.52
Philippines	1.84	152018	0.181	5.72	4.93	62	84	58.56
Singapore	26.4	5678	0.132	8.22	5.81	100	4.3	87.89
Sri Lanka	0.14	5984	0.031	0.0023	5.17	15	19.4	61.64
Thailand	9.95	37062	0.057	2.98	4.76	32	65.1	65.08
Uruguay	7.81	7862	0.238	0.34	2.14	92	3.31	68.19
Venezuela	9.66	18765	0.072	2.15	4.65	92	26.1	50.07

Source: Computed by the authors from data obatained form Bvd Orbis, Thompson One banker, individual bank web sites. OECD.stat, World Development Indicators and Heritage Foundation.

Notes: See data appendix and text for data construction and more on data sources

Table 2: Bank-Origin Country Characteristics (Average values from 2000 to 2008)

Origin Country	Foreign Assets (in billions)	Migrant inflows	FDI outflows (in billions)
Canada	56.2	85831	0.58
France	11	10549	3.72
Germany	18.4	56198	5.74
Japan	17.2	218124	11.6
Korea	4.43	136852	2.86
Netherlands	44.5	10624	2.94
Spain	294	253470	11.7
Sweden	31.7	7828	0.73
UK	234	103522	8.23
US	183	556861	36.8

Source: Computed by the authors from information in Bvd Orbis, Thompson One banker and OECD.stat,

Notes: Foreign assets are a stock variable, while migration and FDI are flow variables. See the appendix for discussion of data sources and construction.

Table 3: Panel Tobit Model of Foreign Bank Assets in Developing Economies

Variables	Foreign Bank Assets (in millions USD)			
	Coefficient	S.E.	M.E. on Prob (Y>0)	M.E. on E(Y|Y>0)
Emigrants (% home pop.)	32364**	12883	0.546	10250
FDI inflows(in millions USD)	2.49***	0.31	0.00004	0.787
Population (in millions)	10.02***	5.13	0.0003	1.62
Urban/Total Population (%)	418***	81	0.007	132
Real GDP growth rate (%)	133	119	0.0023	42.25
Freedom Index	211*	120	0.0036	66.97
Constant	-51027***	8991	--	--
Observations		1237		
Uncensored observations		829		
Number of id		221		

Source: Data used in analysis was obtained from Bvd Orbis, Thompson One banker, individual bank web sites. OECD.stat, World Development Indicators and Heritage Foundation.

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 4: Panel Tobit Model of Foreign Bank Assets in Developing Economies (with country and year dummies)

Variables	Coefficient	S.E.	M.E. on Prob (Y>0)	M.E. on E(Y|Y>0)
	Foreign Bank Assets (in millions USD)			
Emigrants (% home pop.)	29817**	12387	0.519	9121
FDI inflows(in millions USD)	2.24***	0.31	0.00004	0.684
Population (in millions)	13.55***	4.88	0.0002	4.14
Urban/Total Population (%)	229***	78	0.004	70
Real GDP growth rate (%)	-66.88	135	-0.0012	-20.46
Freedom Index	349***	121	0.0061	107
UK dummy	15653***	5714	0.278	5854
US dummy	-13895***	3306	-0.231	-4045
2000 dummy	-3849**	1757	-0.0653	-1125
2001 dummy	-3170*	1723	-0.0541	-936
2002 dummy	-1917	1630	-0.0330	-575
2003 dummy	-651	1526	-0.0113	-198
2005 dummy	2018	1485	0.0354	631
2006 dummy	3488**	1416	0.0615	1105
2007 dummy	4087***	1445	0.723	1304
2008 dummy	5023***	1479	0.089	1617
Constant	-43139***	8861	--	--
Observations		1237		
Uncensored observations		829		
Number of id		221		

Source: Data used in analysis was obtained from Bvd Orbis, Thompson One banker, individual bank web sites. OECD.stat, World Development Indicators and Heritage Foundation.

Data Appendix

Variable	Description	Source
Foreign bank owned asset (in millions USD)	Total bank assets owned by banks from origin country j in the host country i. This variable is constructed by the authors from individual bank data in BvD Orbis. Total bank assets in country i, owned by banks originating in country j, is constructed by aggregating bank asset data obtained from analysing firm-level balance sheet data. The authors assigned ownership from firm-level shareholder information. . Data are reported in millions of US dollars. See the text for additional details.	BvD Orbis and Thomson One Banker or bank website if not available in either of the two databases.
Migrant flows as a share of total population (in percent)	Variable is calculated by dividing population flows from the bank-host to the bank-origin country by total population of the bank-host country. Foreign population flows data are obtained from OECD.Stat and population data are obtained from World Development Indicators. See the text for additional details.	OECD.Stat and World Development Indicators
FDI inflows (in millions USD)	FDI inflows into the bank-host country by bank-origin country. Data are presented in millions of US dollars.	OECD.Stat
Urban population as a share of the total population (in percent)	Variable is calculated by dividing urban population of the bank- host country by its total population.	World Development Indicators
Real GDP growth rate (in percent)	Yearly real GDP growth rate of the bank-host country.	World Development Indicators
Economic Freedom Index	Overall economic freedom of the bank-host country i at time t. The economic freedom index is constructed from ten component indexes and assigned a value from 0 to 100. Higher scores indicated fewer restrictions on economic activities.	Heritage Foundation