How Does Foreign Entry Affect the Domestic Banking Market?

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Abstract: Using bank level data for 80 countries in the 1988-1995 period, this paper examines the extent of foreign ownership in national banking markets. The net interest margins, overhead, taxes paid, and profitability of foreign and domestic banks are compared. The functioning of foreign relative to domestic banks is very different in developing and developed countries, with foreign banks achieving higher (lower) profits than domestic banks in developing (developed) countries. Estimation results further suggest that an increase in the share of foreign banks leads to a lower profitability of domestic banks.

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1. *Introduction*

Recent years have seen an increased importance of international trade in goods and financial services. To facilitate such trade, many banking institutions have also become international.[2] Banks expand internationally by establishing foreign subsidiaries and branches or by taking over established foreign banks. The internationalization of the banking sector is facilitated by the liberalization of financial markets worldwide. Developed and developing countries alike now increasingly allow banks to be foreign-owned.

Financial liberalization of this kind proceeds on the premise that the gains to domestic market participants from foreign entry outweigh any losses to domestic banking institutions. Several authors have addressed the potential benefits of foreign bank entry for the domestic economy in terms of better resource allocation and higher efficiency (see Levine (1996), Walter and Gray (1983), and Gelb and Sagari (1990)). Levine (1996) specifically mentions that foreign banks may (i) improve the quality and availability of financial services in the domestic financial market by increasing bank competition, and enabling the application of more modern banking skills and technology, (ii) serve to stimulate the development of the underlying bank supervisory and legal framework, and (iii) enhance a country's access to international capital.

As yet, little cross-country systematic evidence exists that these presumed benefits of an internationalization of the banking sector indeed materialize. The literature, however, contains several case studies of financial liberalization episodes. McFadden (1994) reviews

[2] See Aliber (1984) for an early survey of the literature on the internationalization of banking.

foreign bank entry in Australia, and finds that this has lead to improved domestic bank operations. Bhattacharaya (1993) reports specific cases in Pakistan, Turkey, and Korea, where foreign banks helped to make foreign capital accessible to fund domestic projects. Pigott (1986) describes the policies that have made increased foreign bank activity possible in nine Pacific Basin countries, and he provides some aggregate statistics on the size and scope of foreign banking activities.[3] Using aggregate accounting data, Terrell (1986, Table 20-2) further compares the banking markets of 14 developed countries (8 of which allow foreign bank entry) for 1976 and 1977. Interestingly, countries that allow foreign bank entry on average experience lower gross interest margins, lower pre-tax profits, and lower operating costs (all scaled by the volume of business). Terrell (1986), however, does not control for influences on domestic banking other than whether or not foreign banks are permitted to enter. This paper aims to provide a systematic study of how foreign bank presence has affected the domestic banking markets in 80 countries. To do this, we use bank-level accounting data and macroeconomic data for the 1988-1995 period.

We first examine the scale of foreign bank operations in each of the 80 countries. To ensure foreign control of operations, we define a bank to be foreign, if at least 50 percent of its shares is foreign-owned. As measures of foreign bank penetration, we consider the importance of foreign banks in terms of numbers and in terms of assets.

[3] Cho and Khatkhate (1989) provide in-depth case studies of financial liberalization in five Asian countries, however with no particular emphasis on foreign bank entry. Liberalization, though, is shown to lead to faster growth of the financial system and to increased competitiveness of the banking system, even if there is no conclusive evidence that financial liberalization leads to lower intemediation margins. In their comparative study, Frankel and Montgomery (1991) also bypass the issue of internationalization.

The data also allow us to consider how foreign banks differ from domestic banks in terms of interest margins, taxes paid, overhead expenses, loan loss provisioning, and profitability. This work extends the work on the accounting decomposition of interest margins by Hanson and Rocha (1986) and, more recently, Demirgüç-Kunt and Huizinga (1997) to look at foreign and domestic banks separately. While foreign banks have lower interest margins, overhead expenses, and profitability than domestic banks in developed countries (consistent with Terrell's (1986) findings), the opposite is true in developing countries. This suggests that the reasons for foreign entry, as well as the competitive and regulatory conditions found abroad, differ significantly between developed and developing countries.

Next, we estimate empirically how foreign bank entry, measured as the change in the share of foreign banks in the total number, affects the operation of domestic banks. We find that the entry of foreign banks reduces the profitability of domestic banks, while there is some evidence that the non-interest income and the overall expenses of domestic banks are also negatively affected by foreign bank entry. Following Amel and Liang (1997), we next estimate a two equation model of the interrelationships between foreign bank presence and profitability (and other characteristics of domestic banks). Again, we find that a large foreign bank presence leads to a low domestic bank profitability, and interestingly a high provisioning for bad loans by domestic banks. Further, we find that low banking costs and low non-interest income of domestic banks are factors that can explain a high foreign bank presence. The remainder of this paper is organized as follows.

Section 2 presents some data on the relevance of foreign banks in 80 national banking markets. Section 3 presents the empirical results, while section 4 concludes.

2. *The data*

Below, we present information from the income statements of domestic and foreign commercial banks. The data comes from the BankScope data base provided by IBCA (for a complete list of data sources and variable definitions, see the Appendix). Coverage by IBCA is comprehensive, with banks included roughly accounting for 90 percent of the assets of banks in each country. We start with the entire universe of commercial banks, with the exception that for France, Germany and the United States only several hundred commercial banks listed as 'large' are included. To ensure reasonable coverage for individual countries, we include only countries where there are at least three banks in a country for a given year. This yields a data set covering 80 countries during the years 1988-1995, with about 7900 individual commercial bank observations. This data set includes all OECD countries, as well as many developing countries and economies in transition.

This section first provides information on aggregate income statement items for domestic and foreign banks in the 80 countries individually. We then present accounting averages for country groups, by income and geographical location to illustrate the differences between domestic and foreign banks in developing and developed countries. From the bank's income statement, we can drive the following accounting identity:

(1) *net margin/ta + non-interest income/ta = before tax profits/ta + overhead/ta + loan loss provisioning/ta*

The first two ratios are the accounting value of a bank's net interest income over total assets, or *net margin/ta,*and net non-interest income over total assets, *non-interest income/ta*. The *non-interest income/ta* accounts for the fact that many banks also engage in non-lending activities, such as investment banking and brokerage services. To reflect bank profitability, we consider the bank's before-tax profits over total assets, or *before tax profits/ta.* The *overhead/ta* variable represents the bank's entire overhead, while *loan loss provisioning/ta* simply measures actual provisioning for bad debts.

While the underlying data reflects international accounting standards as much as possible, some differences in accounting conventions regarding the valuation of assets, loan loss provisioning, hidden reserves, etc., no doubt remain.[4] We focus on accounting measures of income and profitability, as (risk-adjusted) financial returns on bank stocks are equalized by investors in the absence of prohibitive international investment barriers.[5] Similarly, Gorton and Rosen (1995) and Schranz (1993) focus on accounting measures of profitability when examining managerial entrenchment and bank takeovers.

First, we consider the extent of foreign bank penetration in national banking markets. Table 1 presents two measures of foreign bank penetration: the share of banks that is foreign-owned, and the share of foreign bank assets in total bank assets. The

[4] See Vittas (1991) for an account of the pitfalls in interpreting international bank operating ratios.

[5] Also, financial returns data are not available for a similarly large set of banks and countries.

number penetration measure is an appropriate measure, if the number of domestic and foreign banks determines competitive conditions. This is the case, if domestic banking firms adjust the pricing of their lending and other activities as soon as foreign entry occurs to prevent the foreign entrants from ever capturing significant market share. Alternatively, the share penetration measure is appropriate, if foreign banks start to have an impact the pricing and profitability of domestic banks only after gaining substantial size. Foreign banks may indeed have to be sizable for there to be any significant transfer of banking technology to the domestic banking sector. Note that either penetration measure is a measure of actual foreign banking penetration, and thus does not capture the disciplining effects on domestic banks of potential foreign bank entry. The threat of foreign bank entry, however, may not be credible in the absence of actual entry.

From Table 1, we see that for most countries the number foreign penetration measure exceeds the asset penetration measure (this is the case for France, Germany, Italy, the U.K. and the U.S., but not Japan). This reflects that foreign banks tend to be smaller than domestic banks. Either penetration measure is zero for Finland, Guatemala, Haiti, India, Malta, Oman, and Yemen, reflecting regulatory barriers to foreign bank entry. At the other extreme, Nepal and Swaziland only have foreign-owned banks in our sample. Other countries with a large foreign bank presence (with both foreign penetration measures of at least 75 percent) are Bahrain, Botswana, Luxembourg, and New Zealand. A colonial past or the presence of a large neighboring country can explain some of these high ratios. Among the developed countries, Denmark, Finland, Italy, Sweden and the United States have relatively insulated banking markets, with foreign penetration measures

below 10 percent.[6] The last column for each country reports the total number of banks in the sample for 1995.

Next, we consider whether there is a systematic link between foreign bank penetration and national income. In Table 2 we present average foreign penetration shares by national income group.[7] Interestingly, the foreign asset share in the low-income countries is comparable to that of the high-income countries, with somewhat higher penetration shares for middle-income countries. This finding suggests that differences in national foreign penetration shares in Table 1 are primarily due to national differences unrelated to national income. Table 2 also provides a breakdown of the average foreign penetration share by geographical region.[8] Interestingly, the foreign penetration share is highest in the group of transitional economies at 0.54.

Next, Table 3 presents the net interest margins and other accounting variables for domestic and foreign banks in the 80 countries in the 1988-1995 period. An ownership index of zero refers to the group of domestic banks, while a value of one refers to the foreign banks. As already evident from Table 1, not all countries harbor both domestic and foreign banks.

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[6] Previous studies, such as DeYoung and Nolle (1996) report foreign bank penetration ratios of almost 50 percent for the U.S. However these studies define a bank as foreign if has more than 10 percent foreign ownership. In addition, these studies include off-shore operations of foreign banks. Data reported in Federal Reserve Bulletins confirm the figures we obtain above.

[7] For country groupings by income, see the World Development Report (1996).

[8] Countries in transition are China, the Czech Republic, Estonia, Hungary, Lithuania, Poland, Romania, Russia, and Slovenia. Neither this group of countries nor the industrial economies are in regions in the strict sense.

In some developing countries (such as Costa Rica, Jamaica, and Venezuela), foreign banks are able to realize net interest incomes of over 10 percent of assets. In these countries and in many other developing countries, foreign banks in fact achieve higher net interest margins than domestic banks. Instead, in most developed countries (for instance, in France, Germany, Japan, the United Kingdom, and the United States), foreign banks obtain lower net interest margins than domestic banks.

These differences may reflect varying reasons for banks to go abroad as well as the diverse regulatory conditions they find abroad after entering. Some banks expand abroad to be able to serve and retain important domestic customers with foreign operations, even if this does not translate into sizable interest margins. Perhaps this reason for foreign entry is particularly important for the developed countries. The relatively low interest margins foreign banks obtain in the developed countries may also reflect that foreign banks in these countries engage in more competitively priced wholesale rather than retail transactions. These low margins may also be due to the fact that any technical advantages foreign banks may have in developed countries are not significant enough to overcome the informational disadvantages they face relative to domestic banks.

In developing countries, foreign banks may be able to realize high interest margins, because they are frequently exempt from credit allocation regulations and other such restrictions. Especially in countries where domestic banking markets are dominated by state banks, institutions frequently use non-commercial criteria to allocate their credit. Furthermore, pervasive market inefficiencies and outmoded banking practices that exist in

developing countries should also lead to high interest margins for foreign banks, outweighing the information disadvantages they face.

The *overhead/ta* variable reflects the bank's overhead associated with its deposit and loan operations as well as any other activities. Foreign banks can be expected to face high overhead costs if they have to overcome large informational disadvantages, but they may have low overhead expenses if they engage mostly in wholesale transactions. Most developed countries, such as Canada, France, Japan, the United Kingdom, and the United States have foreign banks with lower overhead (as a percentage of assets) than domestic banks. In many developing countries however, foreign banks tend to have higher overhead.

Next, the *tax/ta* variable reflects primarily the corporate income tax in the host country. Differences in this variable between domestic and foreign banks may reflect a different de jure tax treatment, although most countries do not discriminate in this regard. More likely, any tax burden differences reflect differences in the activity mix, and banks' efforts to shift profits worldwide so as to minimize their global tax bill. Prima facie, foreign banks can be expected to have more opportunities to shift taxable income abroad than domestic banks. In any event, banks have an incentive to shift profits out of (into) high-tax (low-tax) jurisdictions. An interesting case is the United States where foreign banks pay about two thirds the taxes paid by domestic banks (*tax/ta* of 0.3 vs. 0.5 percent). Also in some other developed countries, such as in Australia, Austria, Belgium, Canada, France, the Netherlands and Spain, foreign banks pay relatively low taxes. This pattern is not as pervasive in developing countries: counter examples include Colombia,

Costa Rica, and Egypt. An important determinant of actual tax bill is no doubt tax enforcement, which varies from country to country.

Next, the *loan loss provisioning/ta* variable measures provisioning during the accounting year for any previously contracted credits. Differences between domestic and foreign banks here may reflect a difference in customer mix (with foreign banks concentrating on large corporations rather than mortgage or consumer loans). Alternatively, different provisioning ratios may reflect differences in foreign and domestic banks' ability to screen bad credit risks. On net, foreign banks have higher provisioning in Germany, Japan, the United Kingdom and the United States, but lower provisioning in Austria, Canada, and France. Also in developing countries, foreign banks do better or worse than domestic banks in this regard in specific cases.

Finally, the table provides information on differences in net profits over assets, or *net profits/ta*, for domestic and foreign banks. As an accounting residual, this variable is affected by each of the foregoing accounting variables in the table. In addition, the required net profits of foreign banks may be influenced by the tax regime of the bank's parent country. A foreign bank that will benefit from a foreign tax credit, for instance, may accept a relatively low net-of-host-country-tax profitability. At the same time, domestic and foreign banks may accept different net profits to the extent that their cost of capital differs. Foreign banks, specifically, may be able to raise equity capital internationally, and therefore accept a lower net profitability. Foreign banks have lower net profits in most developed countries, whereas they generally have higher net profits in developing

countries. DeYoung and Nolle (1996) have argued that foreign banks in the United States have been relatively less profitable, because they valued growth above profitability.

Table 4 provides average accounting data for banks by different country groupings. Considering the breakdown by income, we see that foreign banks on average obtain lowest interest margins in high-income countries, and they achieve highest margins in lower income countries. At the same time, foreign banks achieve higher (lower) interest margins than domestic banks in low income and lower middle income (high middle income and high income) countries. Overhead expenses, taxes and net profitability of foreign banks in low-income countries similarly tend to be relatively high. Note that banks in low-income countries have higher overhead expenses than banks in high-income countries, despite lower wages in low-income countries. This probably reflects bank overstaffing and difficulties in evaluating loans in low-income countries. Interestingly, for all four income groups foreign banks have higher loan loss provisioning than domestic banks, despite the fact that foreign banks generally provide relatively little risky consumer credit. The reason may be that foreign banks are at an informational disadvantage in identifying good credit risks, or that they have more conservative reserving policies.

Turning to the breakdown by geographical region, we see that foreign banks achieve far better interest margins in Africa than the domestic banks. Generally, for domestic and foreign banks alike the achieved interest margins are highest in Latin America and in the transitional economies. In both cases, high overhead expenses seem to be the driving factor behind the high interest margins. Except in Africa, foreign banks have higher non-interest income to total asset ratios compared to domestic banks since they

tend to engage in nonlending activities to a greater extent. Turning to taxes paid, the taxation of banking appears to be very high in the transitional economies, followed by Africa. Foreign banks pay lower taxes only in transitional and industrialized economies. Finally, only in Africa and in Latin America do foreign banks achieve higher net profitability than the domestic banks.

3. *Empirical estimation*

In previous work, Demirgüç-Kunt and Huizinga (1997) investigate how a variety of bank variables, including ownership, affect banks' net interest income and profitability.[9] Foreign ownership is found to lead to higher net interest margins and profits in developing countries, while this result is reversed in developed countries. As a different issue, this section investigates how foreign bank entry affects the operation of domestic banks. Specifically, we investigate how foreign bank entry affects each of the five variables in the accounting equation (1), including bank profitability.

To start, we will estimate the following equation in first differences[10]

$$(2) \qquad \Delta I_{ijt} = a_o + bDFS_{jt} + b_i DB_{it} + b_j DX_{jt} + e_{ijt}$$

[9] In related work, Barth, Nolle, and Rice (1997) use bank-level accounting data for 1993 to study the impact of bank powers on the return to equity for a set of 19 countries.

[10] Eq. (2) is a reduced form equation that relates endogenous banking variables, such a profitability to banking 'inputs' such as bank equity and non-interest earning assets and a set of controls, including the foreign bank share. DeYoung and Nolle (1996), among others, more explicitly derive a profit function that relates profitability to bank inputs and various controls.

where I_{ijt} = is the dependent variable (say, *before tax profits/ta*) for domestic bank *i* in country *j* at time *t*; FS_{jt} is the share of foreign banks in country *j* at time *t* (i.e. number of foreign banks divided by the total number of banks); B_{it} are bank variables for domestic bank *i* at time *t* ; X_{jt} are country variables for country *j* at time *t*. Further, a_o is a constant, and b, b_i, and b_j, are coefficients, while ε_{ijt} is an error term. All regressions include country and time-specific fixed effects. The estimation is by weighted least squares, with the weight being the inverse of the number of domestic banks in a country in a given year to correct for varying numbers of banks across countries. We report heteroscedasticity-corrected standard errors.

The estimation results, in Table 5, indicate that foreign bank entry significantly reduces domestic bank profitability (column 3), and also non-interest income and overall expenses (columns 2 and 4), although these results are less significant. Finally, we do not see a significant impact on net interest margins or loan loss reserves. We interpret these results to mean that foreign bank entry leads to greater efficiency in the domestic banking system. Holding other factors constant, high margins and profits reflect an absence of competition, while high overhead costs may reflect a less efficient management and organizational structure. Foreign bank entry may enable domestic banks to cut costs as they assimilate any superior banking techniques and practices of foreign entrants. Alternatively, foreign bank entry may force domestic bank managers to give up their sheltered 'quiet life' and to exert greater effort to reach cost efficiency.[11]

[11] Berger (1998) estimates that the efficiency costs related to market power as explained by the 'quiet life' hypothesis are substantial.

Turning to control variables, we see that inflation and real interest rate variables are positively related to the net interest margin, before tax profits, and overheads. These results are consistent with the belief that high interest rate and high inflation lead to higher bank margins and profits although cost of operating in those environments is also higher. Increases in *overhead/ta* is also associated with relatively higher interest and non-interest income and lower profits. The first difference of per capital income, or *Gdp/cap*, interestingly is associated with reduced costs as well as loan loss provisioning. Perhaps banks can more easily reduce costly employment when incomes are growing.

As an alternative definition of the foreign bank share, we can take it to be the ratio of foreign bank assets to total bank assets. After substituting for the foreign bank share, we find this variable enters all five (unreported) regressions as in Table 5 with a negative but insignificant coefficient. From this, we infer that the number of foreign players rather than their size determines competitive conditions in national banking markets.[12]

In estimating equation (2) we implicitly assume that foreign bank entry is exogenous to the contemporaneous change in domestic banking variables. This assumption is correct if the foreign bank presence at time *t* is determined by entry incentives as of period *t-1*. This assumption also underlies the work of Amel and Liang (1997) who investigate the determinants of entry and profits in local banking markets in

[12] One possible explanation is that domestic banks already change their competitive behavior upon the entry of foreign banks before these banks have gained their long-run market share. Even in the long run, however, the number of foreign competitors may be related to, say, domestic banking profits, even if their lending market share (as proxied by relative asset size) does not. This can be illustrated by a simple Cournot model of competition between *n* domestic banks and *n** foreign banks. It is then possible that a change in *n** affects the profits of each domestic bank without affecting the relative market share of all foreign banks together.

the United States. Specifically, these authors estimate two equations, one explaining the entry decision, and the other explaining the impact of entry on contemporaneous local banking profits. For the case of foreign bank entry, we can analogously specify a system of two equations for the presence of foreign banks and for domestic bank profitability (and other domestic banking variables) as follows

$$(3) \qquad FS_{jt} = \alpha_o + \delta I_{t-1} + \beta_j B_{jt-1} + \gamma_j X_{jt-1} + \varepsilon_{jt}$$

$$(4) \qquad \Delta I_{jt} = \alpha_o + \phi FS_{jt} + \psi_j B_{jt} + \psi_j X_{jt} + u_{jt}$$

Equation (3) explains the foreign bank share in country j at time t by averaged domestic bank variable I_{t-1} for country j, averaged bank control variables B_{jt-1} for country j, country variables X_{jt-1}, and a random error. Equation (4) explains the change in average domestic banking variable I_{jt} by the foreign bank share FS_{jt} in market j, and again bank control variables, country variables, and a random error. The stochastic terms ε_{jt} and u_{jt} are assumed to be uncorrelated. The foreign bank share is only endogenous to lagged bank variables in equation (3). Therefore, the above system is recursive, and the two equations can be estimated separately using cross-country time-series data.

The results of estimating the entry equation (3) are in Table 6. Five specifications are given, each with a different choice for the banking variable I_{t-1} from the accounting equation (1). Regression includes country and time fixed effects. White (1980) heteroskedasticity-consistent covariance matrices are computed to correct for possible heteroskedasticity. The table indicates that low overhead cost is an important determinant

of foreign bank presence. Low cost environments are directly attractive to foreign banks, but indirectly low banking costs may also be an indicator of a competitive banking environment including entry possibilities for foreign banks. We also see that lower non-interest margins are associated with greater foreign bank presence although these result is not very significant. Interestingly, we do not see a significant relationship between past profits and current foreign bank presence either. Looking at control variables, we see that foreign banks are attracted to banking markets with low taxes and high level of per capita income. Finally, in some specifications, higher concentration of the banking system is also significant with a negative sign, indicating a reduced foreign bank presence.

Regression results of equation 4 are presented in Table 7. Consistent with the results in Table 5, the foreign bank share variable enters the profitability equation negatively (column 3), indicating that foreign bank entry negatively affects the profitability of domestic banks. Similarly, Amel and Liang (1997) find that entry reduces profits in local banking markets in the U.S. Interestingly, the foreign bank share variable has a positive impact on the level of loan loss provisioning of domestic banks (column 5). Foreign bank entry may leave domestic banks to cater to relatively less creditworthy customers, or alternatively foreign bank entry triggers a strenghtening of provisioning regulations affecting all banks, thus leading to larger reported provisioning for bad debts by domestic banks.

4. *Conclusion*

Banking markets are becoming increasingly international on account of financial

liberalization and overall economic integration. This paper presents evidence on the scale of foreign participation in national banking markets in 80 countries. Also, it provides some evidence on how foreign banks operate differently from domestic banks. These differences can reflect a different customer base, different bank procedures as well as different relevant regulatory and tax regimes. A main finding is that foreign banks tend to have higher interest margins, profitability, and tax payments than domestic banks in developing countries, while the opposite is true in developed countries.

In the literature on foreign banking, it is frequently asserted that foreign bank entry can render national banking markets more competitive, and thereby can force domestic banks to start operating more efficiently. This paper provides empirical evidence that a larger foreign ownership share of banks indeed reduces the profitability and the overall expenses of domestically owned banks. These results suggest that foreign bank entry improves the functioning of national banking markets, with positive welfare implications for banking customers. The relaxation of restrictions on foreign bank entry may similarly reduce domestic banking profits, but with positive overall welfare implications for the domestic economy. An interesting finding is that the number of entrants matters rather than their market share. This indicates that foreign banks affect local bank competition upon entry rather than after they have gained substantial market share.

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Table 1. Share of Foreign Banks in Domestic Banking Systems: 1988-1995

A foreign bank is defined to have at least 50 percent foreign ownership. Figures reported are ratios of number of foreign banks to total number of banks and foreign bank assets to total bank assets in each country, respectively, averaged over the 1988-1995 period. Total number of banks is for 1995.

	No. of foreign banks in total	Foreign bank assets in total	Total number of banks		No. of foreign banks in total	Foreign bank assets in total	Total number of banks
Argentina	0.37	0.10	9	Lithuania	0.10	0.09	7
Australia	0.37	0.05	26	Luxembourg	0.89	0.80	107
Austria	0.29	0.31	10	Malaysia	0.09	0.06	47
Bahrain	0.81	0.97	7	Malta	0.00	0.00	7
Belgium	0.29	0.05	47	Mexico	0.04	0.02	19
Bolivia	0.29	0.36	10	Morocco	0.33	0.21	8
Botswana	0.75	0.94	4	Nepal	1.00	1.00	3
Brazil	0.37	0.30	41	Netherlands	0.48	0.10	20
Canada	0.64	0.07	69	New Zealand	0.85	0.91	8
Chile	0.32	0.25	20	Nicaragua	0.17	0.20	12
China	0.13	0.00	5	Nigeria	0.30	0.51	9
Colombia	0.23	0.05	28	Norway	0.12	0.01	19
Costa Rica	0.24	0.05	22	Oman	0.00	0.00	6
Cyprus	0.25	0.11	7	Pakistan	0.30	0.12	15
Czech Rep.	0.54	0.51	15	Panama	0.35	0.39	8
Denmark	0.02	0.00	56	P. New Guinea	0.50	0.34	5
Dom. Rep.	0.08	0.03	12	Paraguay	0.43	0.39	20
Ecuador	0.46	0.52	5	Peru	0.43	0.35	22
Egypt	0.10	0.01	9	Philippines	0.46	0.57	17
El Salvador	0.20	0.28	4	Poland	0.30	0.14	28
Estonia	0.43	0.35	7	Portugal	0.18	0.04	34
Finland	0.00	0.00	11	Qatar	0.00	0.00	3
France	0.24	0.08	95	Romania	0.17	0.01	7
Germany	0.37	0.25	80	Russia	0.08	0.06	14
Greece	0.58	0.77	16	S. Africa	0.22	0.02	14
Guatemala	0.00	0.00	24	Saudi Arabia	0.34	0.43	4
Haiti	0.00	0.00	3	Singapore	0.29	0.62	19
Honduras	0.29	0.23	3	Spain	0.36	0.31	38
Hong Kong	0.60	0.69	28	Sri Lanka	0.14	0.08	7
Hungary	0.61	0.61	19	Swaziland	1.00	1.00	3
India	0.00	0.00	5	Sweden	0.07	0.00	18
Indonesia	0.35	0.16	18	Taiwan	0.14	0.09	24
Ireland	0.42	0.11	12	Thailand	0.08	0.02	12
Israel	0.09	0.02	22	Tunisia	0.39	0.35	7
Italy	0.09	0.01	64	Turkey	0.13	0.01	29
Jamaica	0.50	0.48	10	U.K.	0.24	0.19	70
Japan	0.09	0.21	73	U.S.	0.04	0.03	370
Jordan	0.43	0.95	7	Venezuela	0.07	0.02	17
Korea	0.23	0.23	40	Yemen	0.00	0.00	3
Lebanon	0.49	0.57	5	Zambia	0.71	0.46	3

Table 2. Share of Foreign Banks in Domestic Banking Systems: Aggregates by Income Group and Regions

A foreign bank is defined to have at least 50 percent foreign ownership. Figures reported are number of foreign banks to total number of banks and foreign bank assets to total bank assets in each income group or region averaged over the 1988-1995 period. Income and region classifications follow World Bank definitions as published in the World Development Report (1996).

	No of foreign banks in total	Foreign bank assets in total
Income Groups		
Low income	0.23	0.18
Lower middle income	0.26	0.23
Upper middle income	0.30	0.29
High income	0.25	0.16
Regions		
Africa	0.31	0.27
Asia	0.28	0.30
Latin America	0.25	0.28
Middle East and North Africa	0.26	0.19
Transitional Economies	0.54	0.52
Industrial Economies	0.25	0.15

Table 3. Bank Spreads and Profitability : Domestic vs. Foreign Banks 1988-1995

Ownership is a dummy variable that takes the value one if the bank is a foreign bank and zero otherwise. A foreign bank is defined to have at least 50 percent foreign ownership. Net margin/ta is defined as net interest income over total assets. Non-interest income/ta is net non-interest income over total assets. Overhead/ta is overhead divided by total assets. Tax/ta is taxes paid over total assets. Loan loss provisions/ta is loan loss provisions over total assets. Net profit/ta is net profits divided by total assets. Ratios are calculated for each bank in each country and then averaged for domestic and foreign banks separately over the country's sample period. All ratios are in percentages. Data are from BankScope data base of the IBCA. Detailed variable definitions and sources are given in the appendix.

	Ownership	Net margin/ ta	Non-int. income/ta	Overhead/ta	Tax/ta	Loan loss prov./ta	Net profit/ta
Argentina	0	5.8	5.2	7.5	0.4	1.5	1.7
	1	9.9	8.1	12.6	0.4	2.4	2.5
Australia	0	3.4	1.2	3.0	0.4	0.6	0.6
	1	1.5	2.0	2.4	0.0	0.7	0.4
Austria	0	2.6	0.7	2.2	0.1	0.5	0.4
	1	1.4	0.8	1.7	0.0	0.3	0.2
Bahrain	0	2.6	0.9	1.3	0.0	0.6	1.6
	1	2.1	0.7	1.4	0.1	0.5	0.7
Belgium	0	1.9	1.0	2.0	0.2	0.4	0.4
	1	2.4	0.6	2.1	0.1	0.5	0.3
Bolivia	0	1.7	2.1	5.0	0.6	0.5	-2.2
	1	4.0	1.8	3.6	0.5	0.9	0.7
Botswana	1	6.1	2.3	4.9	0.9	0.1	2.4
Brazil	0	10.1	5.3	12.0	1.2	1.4	0.8
	1	6.6	3.9	6.7	1.1	1.1	1.7
Canada	0	3.0	1.2	2.6	0.4	0.6	0.6
	1	1.0	0.4	0.8	0.3	0.2	0.3
Chile	0	4.5	-0.1	3.1	0.1	0.7	0.5
	1	3.9	-0.1	2.8	0.0	0.5	0.4
Colombia	0	6.2	5.2	8.0	0.5	1.0	2.0
	1	7.6	2.2	6.9	0.7	0.7	1.6
Costa Rica	0	12.5	1.3	6.7	0.3	5.7	1.1
	1	23.4	11.2	14.0	2.9	5.3	12.3
Cyprus	0	1.8	0.8	1.7	0.2	0.3	0.5
Czech Rep.	0	3.2	1.2	1.7	0.4	2.6	-0.3
	1	3.7	1.7	2.2	0.9	1.2	1.1
Denmark	0	4.8	1.0	3.6	0.2	1.7	0.3
	1	6.5	1.5	5.0	0.6	1.1	1.2
Dominican Rep.	0	6.1	3.4	6.5	0.6	0.5	2.0
	1	7.0	3.1	5.1	1.2	0.6	3.1
Ecuador	0	9.3	2.7	8.6	0.4	1.1	1.8
	1	5.6	5.2	8.2	0.1	0.8	1.7
Egypt	0	1.3	2.5	1.4	0.3	0.7	1.4
	1	1.9	2.1	1.9	0.5	0.5	1.1
El Salvador	0	3.1	1.6	2.8	0.0	0.4	1.5
	1	3.8	1.6	2.9	0.2	0.7	1.7
Finland	0	1.8	1.3	2.6	0.1	2.5	-2.1
France	0	2.7	1.5	2.8	0.2	1.1	0.1
	1	2.0	1.6	2.6	0.1	0.8	0.1

Table 3. Continued

	Ownership	Net margin/ ta	Non-int. income/ta	Overhead/ta	Tax/ta	Loan loss prov./ta	Net profit/ta
Germany	0	2.2	1.0	2.0	0.3	0.5	0.3
	1	2.0	1.2	2.1	0.3	0.7	0.2
Greece	0	3.6	2.2	3.9	0.3	0.5	1.1
	1	2.7	2.4	2.9	0.4	0.6	1.1
Haiti	0	2.8	2.8	4.2	0.2	0.4	0.8
Hong Kong	0	2.6	1.4	1.6	0.2	0.1	2.1
	1	2.9	1.1	1.3	0.3	0.2	2.2
Hungary	0	4.8	2.3	3.7	0.8	2.6	0.0
	1	4.3	3.4	3.5	0.6	2.1	1.5
India	0	4.0	1.6	2.0	0.6	0.7	2.3
Indonesia	0	3.5	1.2	2.7	0.4	0.7	0.9
	1	4.1	1.5	3.5	0.4	0.7	1.1
Ireland	0	3.6	0.9	2.9	0.3	0.5	0.8
Israel	0	2.8	1.9	3.2	0.4	0.6	0.4
	1	3.7	1.5	3.4	0.6	0.7	0.4
Italy	0	3.4	1.3	3.3	0.5	0.5	0.4
	1	3.4	1.8	3.8	0.5	0.5	0.5
Jamaica	1	10.8	2.7	6.4	2.2	0.3	4.6
Japan	0	1.6	0.2	1.3	0.2	0.1	0.2
	1	1.4	0.3	1.1	0.2	0.2	0.2
Jordan	0	2.2	1.5	2.5	0.2	0.7	0.4
	1	2.1	1.2	1.8	0.3	0.3	0.9
Korea	0	1.8	1.6	2.0	0.2	0.6	0.6
	1	2.2	1.3	2.3	0.2	0.4	0.6
Lebanon	0	3.4	0.9	2.2	0.3	0.8	0.9
	1	2.3	0.7	2.1	0.2	0.1	0.7
Lithuania	0	11.4	4.5	7.4	2.1	5.3	1.0
	1	6.4	7.2	7.2	1.7	8.0	-3.3
Luxembourg	0	0.7	1.1	0.9	0.2	0.5	0.2
	1	0.8	0.9	0.9	0.2	0.3	0.3
Malaysia	0	2.7	0.8	1.9	0.4	0.4	0.7
	1	2.6	0.9	1.3	0.7	0.3	1.2
Malta	0	2.4	1.2	2.1	0.5	0.1	0.9
Mexico	0	4.6	1.9	4.1	0.3	1.1	1.0
	1	3.1	1.3	4.2	0.1	1.1	-0.9
Morocco	0	4.1	0.7	4.6	0.1	0.0	0.1
	1	2.7	1.5	4.2	0.2	0.0	-0.1
Nepal	1	3.6	2.1	2.4	1.0	0.5	1.8
Netherlands	0	1.8	1.5	2.3	0.2	0.3	0.5
	1	1.0	0.5	0.9	0.1	0.3	0.2
Nicaragua	0	4.5	3.0	7.0	0.2	1.0	-0.6
	1	4.8	3.1	6.4	0.3	0.6	0.7
Nigeria	0	5.0	6.1	6.9	0.8	1.3	2.1
	1	6.2	4.9	7.3	0.4	2.6	0.9
Norway	0	3.3	1.0	2.9	0.1	1.5	-0.2
	1	2.5	2.1	2.0	0.4	0.7	1.6

Table 3. Continued

	Ownership	Net margin/ ta	Non-int. income/ta	Overhead/ta	Tax/ta	Loan loss prov./ta	Net profit/ta
Oman	0	4.1	1.4	3.3	0.2	0.6	1.4
Panama	0	2.2	1.5	2.1	0.1	0.4	1.2
	1	1.6	0.6	1.3	0.0	0.4	0.4
Papua New Guinea	0	4.5	3.7	5.9	0.3	0.9	1.1
	1	1.6	5.1	4.3	0.5	1.0	1.0
Paraguay	0	5.4	2.2	5.1	0.3	0.6	1.6
	1	6.7	2.3	6.1	0.5	0.8	1.6
Peru	0	6.6	5.8	9.0	0.8	1.8	0.8
	1	5.7	5.1	7.1	0.7	1.6	1.4
Philippines	0	3.6	2.9	3.9	0.3	0.2	2.1
	1	4.2	2.8	4.2	0.2	0.6	1.9
Poland	0	5.8	2.3	3.2	1.7	1.4	1.7
	1	6.7	3.2	4.0	1.8	1.2	2.9
Portugal	0	3.4	1.0	2.5	0.2	1.1	0.6
	1	3.3	1.4	2.4	0.6	0.4	1.3
Qatar	0	1.7	1.3	1.4	0.0	0.2	1.4
Romania	0	10.5	1.9	2.9	1.8	3.7	4.0
Russia	0	5.8	11.0	8.1	1.8	3.4	3.4
Singapore	1	1.4	0.8	0.7	0.3	0.1	1.0
South Africa	0	4.3	2.4	4.6	0.6	0.6	1.0
	1	4.4	0.7	2.2	0.5	0.9	1.5
Spain	0	4.1	1.1	3.2	0.5	0.6	0.9
	1	2.9	1.5	3.2	0.2	0.6	0.3
Sri Lanka	0	4.1	2.2	2.7	0.7	0.4	2.5
Swaziland	1	5.5	2.6	5.4	0.9	0.2	1.6
Sweden	0	3.3	1.5	2.5	0.1	1.9	0.3
	1	0.9	0.9	1.0	0.0	0.8	0.1
Taiwan	0	2.0	0.9	1.5	0.2	0.2	0.9
	1	2.1	0.8	1.5	0.2	0.3	1.0
Tunisia	0	2.0	2.3	2.2	0.2	1.1	0.8
Turkey	0	6.3	4.2	5.5	0.8	0.8	3.5
	1	1.7	3.9	5.4	0.1	2.0	-1.9
U.K.	0	2.6	2.4	3.2	0.4	0.6	0.8
	1	2.5	1.5	2.5	0.3	2.6	-1.4
U.S.	0	3.9	1.8	3.6	0.5	0.7	1.0
	1	3.3	1.2	3.0	0.3	0.7	0.5
Venezuela	0	6.7	2.7	6.3	0.2	1.1	1.9
	1	13.7	3.9	7.2	0.4	0.4	9.7
Yemen	0	4.0	-0.5	1.4	0.6	0.1	1.4
Zambia	0	-4.7	9.5	0.4	0.3	2.4	1.7

Country averages for China, Estonia, Guatemala, Honduras, New Zealand, Pakistan, Saudi Arabia and Thailand are not reported due to incomplete income statements.

Table 4. Bank Spreads and Profitability - Domestic vs. Foreign Banks
Selected Aggregates 1988-1995.

Net margin/ta is defined as net interest income over total assets. A foreign bank is defined to have more than 50 percent foreign ownership. Non-interest income/ta is net non-interest income over total assets. Overhead/ta is overhead divided by total assets. Tax/ta is taxes paid over total assets. Loan loss provisions/ta is loan loss provisions over total assets. Net profit/ta is net profits divided by total assets. Ratios are calculated for each bank in each country and then averaged for domestic and foreign banks separately over the country's sample period. All ratios are in percentages. Data are from Bankscope data base of the IBCA. Detailed variable definitions and sources are given in the appendix.

	Net margin/ta	Non-int. income/ta	Overhead/ta	Tax/ta	Loan loss prov./ta	Net profit/ta
Income Groups						
Low income						
domestic	2.63	3.39	3.23	0.46	0.86	1.46
foreign	4.12	3.07	4.49	0.53	1.04	1.12
Lower middle income						
domestic	5.59	2.99	5.06	0.62	1.46	1.44
foreign	6.06	3.26	5.27	0.75	1.21	2.09
Upper middle income						
domestic	4.19	2.03	3.94	0.42	1.02	0.83
foreign	4.12	2.22	3.82	0.46	1.03	1.03
High income						
domestic	2.70	1.22	2.45	0.25	0.74	0.48
foreign	2.35	1.16	2.12	0.27	0.60	0.51
Regions						
Africa						
domestic	1.51	6.00	3.94	0.56	1.43	1.59
foreign	5.53	2.65	4.96	0.67	0.94	1.61
Asia						
domestic	3.19	1.80	2.69	0.38	0.46	1.47
foreign	2.75	1.83	2.39	0.42	0.45	1.31
Latin America						
domestic	5.76	2.92	6.12	0.38	1.20	0.98
foreign	7.39	3.50	6.34	0.71	1.14	2.70
Middle East and North Africa						
domestic	3.15	1.55	2.63	0.28	0.57	1.21
foreign	2.34	1.67	2.89	0.28	0.59	0.25
Transitional economies						
domestic	6.89	3.87	4.51	1.43	3.17	1.64
foreign	5.25	3.88	4.22	1.25	3.13	0.53
Industrial economies						
domestic	2.80	1.24	2.60	0.27	0.78	0.40
foreign	2.32	1.25	2.25	0.25	0.67	0.40

Table 5. Change in Domestic Bank Profitability and Foreign Bank Entry

The regression is estimated using weighted least squares pooling bank level data across 80 countries for the 1988-95 time period. Only domestic bank observations were used. Number of banks in each period is used to weight the observations. Regression also includes country and time dummy variables which are not reported. In column (1) dependent variable is the one period change in net margin/ta defined as interest income minus interest expense over total assets. In column (2) it is the one period change in net non-interest income/ta. In column (3) it is the change in before tax profits over total assets (Before tax profits/ta). In column (4) one period change in overhead/ta is the dependent variable which is defined as personnel expenses and other non-interest expenses over total assets. In column (5) the dependent variable is the change in loan loss provisions divided by total assets. Foreign bank share is the ratio of number of foreign banks to total number of banks. All independent variables are in first differences. Detailed variable definitions and data sources are given in the appendix. Heteroscedasticity-corrected standard errors are given in parantheses.

	(1) ΔNet margin/ta	(2) ΔNon-int. income/ta	(3) ΔBefore tax profits/ta	(4) ΔOverhead /ta	(5) ΔLoan loss prov./ta
ΔForeign bank share	-.001	-.023*	-.028**	-.015*	-.009
	(.012)	(.013)	(.014)	(.009)	(.012)
ΔEquity/ta	.017	.040	-.002	.060	.085
	(.033)	(.085)	(.138)	(.040)	(.110)
ΔNon-int. assets/ta	-.000	.032	-.014	.061***	.071
	(.016)	(.027)	(.048)	(.018)	(.056)
ΔCust& short term funding/ta	-.008	.044	.026***	-.023*	-.005
	(.015)	(.033)	(.028)	(.014)	(.014)
ΔOverhead/ta	.408***	.411***	-.597**		.482*
	(.147)	(.125)	(.279)		(.265)
ΔGdp/cap	-.002*	-.001	.001	-.002**	-.003***
	(.001)	(.001)	(.002)	(.001)	(.001)
ΔGrowth	.018***	-.024**	.006	.016***	-.006
	(.007)	(.010)	(.008)	(.005)	(.008)
ΔInflation	.019***	-.009	.013**	.016***	-.002
	(.007)	(.006)	(.007)	(.005)	(.006)
ΔReal interest	.025***	-.013**	.016*	.015***	-.004
	(.008)	(.006)	(.009)	(.005)	(.009)
Adj. R^2	.19	.12	.15	.12	.22
N. of obs.	4592	3904	4592	4592	3993

*, ** and *** indicate significance levels of 10, 5 and 1 percent respectively.

Table 6. Determinants of Foreign Bank Entry

The regression is estimated using least squares pooling cross-country time-series data. Bank level data are averaged for each country, each year. Only domestic bank observations are used in calculating these averages. Regression also includes country and time dummy variables which are not reported. Dependent variable is the foreign bank share at time t, defined as the ratio of number of foreign banks to total number of banks. All independent variables are are lagged one period. Detailed variable definitions and data sources are given in the appendix. Heteroscedasticity-corrected standard errors are given in parantheses.

	(1)	(2)	(3)	(4)	(5)
Net margin/ta $_{t-1}$	-.047				
	(.183)				
Non-int income/ta $_{t-1}$		-.470*			
		(.273)			
Before tax profits/ta $_{t-1}$			.195		
			(.233)		
Overhead/ta $_{t-1}$				-1.099***	
Loan loss prov./ta $_{t-1}$					-.056
					(.246)
Equity/ta $_{t-1}$	-.125	-.112	-.101	-.034	-.123
	(.131)	(.129)	(.133)	(.125)	(.135)
Cust& short term	.043	.055	.063	.026	.038
funding/ta $_{t-1}$	(.096)	(.086)	(.087)	(.088)	(.096)
Tax rate $_{t-1}$	-.062**	-.057*	-.071**	-.070***	-.066**
	(.031)	(.035)	(.033)	(.028)	(.033)
Reserves $_{t-1}$	-.067	-.011	-.064	-.021	-.069
	(.086)	(.081)	(.081)	(.075)	(.083)
Concentration $_{t-1}$	-.048	-.046	-.051*	-.070**	-.057
	(.033)	(.036)	(.032)	(.032)	(.048)
Gdp/cap $_{t-1}$	.017**	.016**	.017**	.012*	.016*
	(.008)	(.008)	(.008)	(.008)	(.009)
Growth $_{t-1}$	.014	-.017	.006	.037	.014
	(.081)	(.101)	(.077)	(.079)	(.079)
Inflation $_{t-1}$	.002	-.019	-.005	.046	.001
	(.040)	(.039)	(.039)	(.040)	(.041)
Real interest $_{t-1}$	.001	-.020	-.008	.030	.001
	(.045)	(.045)	(.043)	(.043)	(.043)
Adj. R^2	.96	.95	.96	.96	.96
N. of obs.	237	216	237	237	226

*, ** and *** indicate significance levels of 10, 5 and 1 percent respectively.

Table 7. Determinants of Bank Profitability

The regression is estimated using least squares pooling cross-country time-series data. Bank level data are averaged for each country, each year. Only domestic bank observations are used in calculating these averages. Regression also includes country and time dummy variables which are not reported. Dependent variable is the one period change in relevant variable. Foreign bank share is the ratio of number of foreign banks to total number of banks. Detailed variable definitions and data sources are given in the appendix. Heteroscedasticity-corrected standard errors are given in parantheses.

	(1) ΔNet margin/ta	(2) ΔNon-int. income/ta	(3) ΔBefore tax profits/ta	(4) ΔOverhead /ta	(5) ΔLoan loss prov./ta
Foreign bank share$_t$	.021	-.011	-.030**	-.004	.029**
	(.014)	(.014)	(.013)	(.010)	(.013)
Equity/ta$_t$	-.030	.140**	-.042	.086**	.176*
	(.063)	(.054)	(.066)	(.036)	(.092)
Non-int. assets/ta$_t$	.027	-.038	-.021	.038	.001
	(.033)	(.030)	(.031)	(.020)	(.034)
Cust& short term funding/ta$_t$	-.041	.068**	.017	-.028	.032
	(.043)	(.033)	(.041)	(.019)	(.042)
Overhead/ta$_t$	.106	.044	-.263**		.028
	(.138)	(.152)	(.113)		(.213)
Tax rate$_t$	-.009	-.008	.021	-.021***	-.024
	(.008)	(.007)	(.019)	(.007)	(.015)
Reserves$_t$	-.013	.107***	.048*	.024	.031
	(.057)	(.033)	(.026)	(.024)	(.026)
Concentration$_t$	.004	-.004	-.017**	.007	.006
	(.010)	(.010)	(.008)	(.009)	(.014)
Gdp/cap$_t$	.000	.001	.006**	-.001	-.004**
	(.001)	(.001)	(.003)	(.001)	(.002)
Growth$_t$	.026**	-.006	.009	.005	.004
	(.012)	(.013)	(.012)	(.008)	(.016)
Inflation$_t$	.019*	.003	.012	.010	.010
	(.012)	(.006)	(.010)	(.011)	(.012)
Real interest$_t$	.023**	-.005	.007	.011	.009
	(.011)	(.011)	(.008)	(.011)	(.009)
Adj. R^2	.16	.02	.36	.24	.08
N. of obs.	225	201	225	225	211

*, ** and *** indicate significance levels of 10, 5 and 1 percent respectively.

Appendix

Variable Definitions and Sources

Net margin/ta - interest income minus interest expense over total assets.

Before tax profits/ta - before tax profits over total assets.

Equity/ta - book value of equity (assets minus liabilities) over total assets

Non-interest earning assets/ta - cash, non-interest earning deposits at other banks, and other non-interest earning assets over total assets

Customer & short term funding/ta - all short term and long term deposits plus other non-deposit short term funding over total assets

Overhead/ta - personnel expenses and other non-interest expenses over total assets

Foreign bank share - Foreign bank share is the number of foreign banks to total number of banks. A bank is defined to be a foreign bank if it has at least 50 percent foreign ownership.

All bank level variables are obtained from BankScope data base of IBCA.

Gdp/cap - real GDP per capita in US$.

Growth - annual growth rate in real GDP.

Inflation - the annual inflation of the GDP deflator.

Real interest - the nominal interest rate minus rate of inflation. Where available, nominal rate is the rate on short term government securities. Otherwise, a rate changed by the Central Bank to domestic banks such as the discount rate is used. If that is not available, then the commercial bank deposit interest rate is used.

Interest rate data are from the IMF, International Financial Statistics. Other macro data are from World Bank National Accounts.