

Openness, profit opportunities and foreign banking

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Received 15 July 2001; accepted 7 March 2002

Abstract

Using new data from the World Bank and OCC surveys, we show correlations across a wide range of countries between foreign banking and domestic economic, financial and bank regulatory conditions. Foreign banking tended to be more prevalent in countries that were more open to foreign ownership of their banks, more open to banks' engaging in a wider range of financial activities and more open to international trade. Restrictions on foreign ownership of domestic banks that were in place in the late 1970s reduced the current extent of foreign banking. Foreign banking was negatively correlated with current restrictions on banks' securities, insurance and real estate activities. Countries that had more international trade tended to have more foreign banking. Foreign banking was more pervasive in countries where banking was more profitable and where the domestically-owned banking sector was smaller relative to GDP. © 2002 Elsevier Science B.V. All rights reserved.

Keywords: Foreign banking; Foreign ownership; Openness; Bank profitability; Liberalization

JEL classification: F23; F36; G21

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1. Introduction

Banks play an especially beneficial role in economic development and macroeconomic performance (Levine, 1997). Rousseau and Sylla (2001) investigate 17 countries over the period 1850–1997 and find a robust correlation between financial factors and economic growth that is consistent with finance providing a leading role. They also show that countries with more sophisticated financial systems engage in more trade and appear to be better integrated with other economies. In that context, foreign banking might affect the size, structure, performance, stability and international integration of a country's banking sector. Peek and Rosengren (2000b) suggest, for example, that foreign banks often reduce the shorter-run instability of a country's banking system. Thus, measuring the extent and correlates of foreign banking might shed light on which factors contribute to more foreign banking and perhaps thereby to more longer-term real growth and more shorter-term macroeconomic stability.

Since the 1970s, both developed and developing countries around the world have relaxed restrictions on foreign banking. Even absent prodding from international organizations, more countries now allow more foreign banks to undertake more banking-related activities in their domestic banking markets. In addition, international organizations, such as the IMF, have come to recommend opening domestic banking markets to foreign-owned banks as a desirable reform.

As a result of these liberalizations and of the conditions in domestic markets, foreign-owned banks have recently made some high-profile forays into these markets. Latin America (Peek and Rosengren 2000b; Bounds 2001) and the former Soviet bloc (The Banker, 2001; 525 *Gazet*, 2000) have seen particularly large entry.

The greater presence of foreign banks has had its critics. For example, the *Business Times* (2000) contended, 'It could not have been a coincidence that foreign ownership in emerging banking systems increased 'dramatically' during the second half of the 1990s, a period that saw many emerging economies battling with the direct impact or the contagion of the Asian financial crisis.'

We use newly available data from the World Bank and US Office of the Comptroller of the Currency (OCC) surveys during 1999 of national banking supervisors to measure the extent of foreign banking in over 100 countries. The data reveal enormous variation in the percentages of total bank assets that foreign-owned banks control. The World Bank data also indicate the extent to which each country permits foreign banks to engage in various securities, insurance and real estate activities.

We use these and other banking and economic data to estimate the association between the extent of foreign banking within a country and a number of factors, such as current restrictions on banking activities, past restrictions on foreign ownership of banks, an indicator of the range of activities in which banks are permitted to engage, involvement in international trade, the profitability of host country banking and other banking and economic conditions.

2. Previous studies of the effects and determinants of foreign banking

2.1. *Effects of foreign banking*

Several studies have examined the potential effects of foreign banking on the domestic banking market, on nonfinancial sectors and on the macroeconomy. Peek and Rosengren (2000b) listed a number of benefits and risks that foreign banking might bring to a host country during ‘normal times’ and during times of crisis. Among the likely benefits during normal times, they cited the importation of more skilled banking management and more advanced information systems.

Claessens et al. (2001) found that foreign banks made domestic markets more competitive. Estimation results suggested that an increased presence of foreign banks accompanied a reduction in profitability and margins for domestic banks. Smorszczewski (2001) reported that for the domestic banking markets of emerging economies, such as Poland, foreign entry increased familiarity with and net benefits of advanced information systems. Jordan and Rosengren (2000) argued that foreign banks might indirectly introduce better banking management and practices to domestic banking markets. Coming in contact with foreign banks, the domestic supervisors of emerging economies might learn from the risk management, regulatory and reporting practices used in other countries. Domestic banks are then likely to benefit from this learning. Once there is a foreign banking presence, other similar and common learning processes involve personnel moving across banks and mergers and acquisitions with combinations of foreign and domestic banks as buyer or seller. The presence of foreign banks might also encourage nonfinancial foreign firms to invest in the host country, in the same way that foreign banks follow their customers (Brealey and Kaplanis, 1996).

Peek and Rosengren (2000b) noted that foreign banks might bring even larger benefits during financial crises in the host countries. Foreign banks might (1) provide alternative ‘safe havens’ within the host country that reduce the flight of financial capital; (2) continue lending during and after domestic crises; and (3) recapitalize troubled domestic banks.

During a domestic banking crisis, foreign banks might either lower or raise lending relative to domestic banks. Foreign banks might decide that the domestic market is too risky and withdraw their loans even faster than domestic banks do. Nugent (2001) reported that during the current economic slowdown in the US, while 60% of domestic banks tightened their lending standards, a larger percentage of branches and agencies of foreign banks tightened their standards. Engwall et al. (2001) found that foreign banks lost market share in Sweden during the banking crisis there in the early 1990s.

On the other hand, foreign banks might lend more liberally during and after a domestic crisis. A domestic crisis might impair the operation of purely domestic banks to a larger extent than it hindered the operations of foreign banks, whose portfolios are likely to be less exposed to the economy of the host country. Engwall et al. (2001) found that foreign banks increased their market share in Norway during that country’s banking crisis in the early 1990s.

Lastly, Peek and Rosengren (2000b) found evidence that during troubled times in the 1990s, foreign banks actually expanded in several Latin American countries. A case in point was the expansion of control of Argentina's banks by Spanish banks (Guillén and Tschoegl, 2000).

Many countries have restrictions that apply to foreign banks' subsidiaries that operate in the host country. They typically apply fewer restrictions to cross-border or offshore-based lending. Tschoegl (1981), Heinkel and Levi (1992) and Peek and Rosengren (2000b) compared the pros and cons of separately capitalized foreign bank subsidiaries with those of branches of foreign banks. Whereas branches might be easier to set up and might seem to escape some regulation by the host country, subsidiaries typically engage more in deposit-taking and retail operations and appear to be more committed to the domestic market. In addition, subsidiaries are less likely to fail due to problems in the home country of the foreign bank. Peek and Rosengren (2000b) found that during domestic banking crises, lending in host countries by subsidiaries of foreign banks increased, while offshore-based lending into the host countries decreased.

At the same time, one needs to avoid overly broad generalizations about lending by foreign banks during and after times of domestic macroeconomic or financial sector problems. The benefits depend, in part, on whether conditions in the foreign banks' home countries are synchronized in time or magnitude with those of the host countries. The benefits also might depend on whether and which set of banks found its capital position more constraining. If foreign banks hail from an economically diversified group of countries, during a time of macroeconomic or financial sector distress in the host country the average condition of the foreign banks' home countries would typically be better than that of the host country. (The global average economic growth rate will usually exceed that of individual countries in recessions.) The size of this benefit will depend on the amount of effective diversification that the foreign banks' home countries afford.

Among the risks to the host country associated with foreign banking, Peek and Rosengren (2000b) cited (1) the weakening of domestic banks by stiff competition from strong, skilled foreign banks; (2) the diminished ability of domestic authorities to influence total banking; and (3) the importation of adverse foreign shocks to domestic markets via repercussions on foreign banks. The first concern is a variant of the infant industry argument. As Tschoegl (1981) described it, more proficient foreign banks could cause short-term distress to domestic banks, of whom many have operated in protected environments and thus might be less proficient at product selection, risk-management techniques and information technology. Peek and Rosengren (2000b) point out that bankers, bank supervisors and taxpayers in the host country might fear that foreign banks might attract the more creditworthy domestic borrowers, thereby leaving only the riskiest customers for domestic banks.

A second concern to host-country authorities might be that foreign banking would reduce the authorities' ability to use banking to achieve public goals. Tschoegl (1981) noted that historically, governments have used the banking system to implement policy, for instance by allocating lending to preferred sectors such as housing or agriculture. When more of the banking sector is foreign-owned or when

less is government-owned, this may curtail cross-subsidization of one group by others. Consistent with such concern is the evidence of Demirgüç-Kunt and Huizinga (1999), who found that foreign banks paid somewhat lower taxes than domestic banks. That might reflect the ability of foreign banks to shift profits across countries to minimize their global tax bill. It might also reflect their greater ability to sidestep regulations in general compared with that of domestically-owned banks.

Regarding the last of the three risks mentioned above, foreign banks might add to the transmission of foreign shocks to the banking sector or macroeconomy of the host country. For instance, Peek and Rosengren (1997) and Peek and Rosengren (2000a) reported that the Japanese banking crisis shows how problems at home might lead foreign banks to restrict lending abroad.

2.2. *Determinants of foreign banking*

In this sub-section, we review some of the factors that others have proposed as determinants of foreign banking and indicate what variables we included in regressions to capture those factors. Weller and Scher (2001) claimed that the following factors, in addition to many others, determine foreign banks' lending: market size, real economic growth, profit opportunities, the level of development of domestic banking markets and the regulatory environment. We include population and real per capita GDP to test whether aggregate market size or the level of development influenced foreign banking.¹ Including real per capita GDP might also control for the effects of economic and financial market structures across countries that differ systematically by income levels; we do not have a prior on the sign of its coefficient. To test whether the economy-wide real growth rate affected the extent of foreign banking, we include DY9599, a variable for average real economic growth over the late 1990s. To test whether the overall profitability of banking in the host country influenced foreign banking (Claessens et al., 2001), we include the profitability measures ROA and ROE.

We also include in turn, the relative sizes of domestic banking relative to GDP and of total (domestic plus foreign) banking relative to GDP. These variables allow us to see whether smaller domestic banking sectors see more foreign banking.² Steinherr and Huveneers (1994) provided evidence that foreign banking was less common in countries where a smaller number of domestic banks dominated banking. They argued that greater concentration limited the choices available to borrowers, forced domestic firms into relationships with the dominant banks and

¹ Using various alternative combinations of GDP, real per capita GDP and population (both in levels and in logarithms) did not have substantive effects on our estimates.

² Low ratios of bank assets to GDP might not indicate unsophisticated banking markets if financing alternatives, such as stock and bond markets, are highly developed. Alternative measures of financial sophistication, such as ratios of total financial assets (e.g. the sum of assets in banks plus stock markets plus bond markets to GDP) are of limited availability. In practice, variables such as bank assets relative to GDP and GDP per capita might together serve as a proxy for financial depth.

stunted the development of an arms-length lending market. In such a market, even though banking might be profitable, foreign banks might be unable to enter. We test for this by including a three-bank concentration ratio in some of our (unreported) model specifications.³

We include the percentage of bank assets that government-owned banks hold to test the impact of government involvement in the financial sector on foreign bank participation. This variable is a common, even if far from perfect, measure of the degree of government intervention in the financial sector.

Aliber (1984) and Hultman and McGee (1989) noted that a host country's regulatory environment affect foreign banking. We include variables named RESTRICT and PRIVMON (which we describe in detail in Appendix B) to test whether restrictions on the range of permissible banking activities or whether the ability of the private sector to monitor the banking industry affected foreign banking. We also test whether the independence and power of banking supervisory authorities affect foreign banking. We do not include the results of these additional tests because we generally did not find them to be significant.

Tschoegl (1987) considered additional determinants of foreign banking. He cited uncompetitive host markets, management, the cost of capital and government support of banks as determinants of foreign banking. To estimate and control for inefficient host country banking markets, we include measures of overhead costs and nonperforming loans.

We also include an equity-to-assets ratio to test whether the cost of capital played a role in determining foreign bank presence. To the extent that differing regulation and supervision across countries drive this ratio, it reflects differing costs of capital. We hypothesize that countries where regulators required banks to hold larger amounts of capital were less attractive to foreign banks. We include the variable OPENNESS to test whether past restrictions on foreign banking affect current foreign banking.

Lastly, Brealey and Kaplanis (1996) suggested that in large part patterns of foreign trade and investment drive foreign banking. However, Nolle and Seth (1996) pointed out that the connections between foreign trade and investment and foreign banking were looser than often thought. Thus, we include measures of the extent of international trade to test whether this affects foreign banking presence.

3. Data

Recently, the World Bank and the US Office of the Comptroller of the Currency (OCC) directly surveyed the national banking supervisors of over 100 countries.

³ We do not show any results that include this variable. Its estimated coefficient was consistent with the hypothesis that greater concentration was associated negatively with foreign banking. However, the coefficient was only significant at levels $> 10\%$. The presence of profitability measures or variables that measured the size of the domestically-owned banking sector did not greatly reduce the estimated effects of concentration.

The World Bank survey gathered information from 107 countries in 1999 (Barth et al., 2001). It concentrated on bank regulation and supervisory practices, but also asked about banking market structure. The OCC survey gathered annual information from 110 countries for the years 1996–1999. It focused on banking market structure and performance. Combining the results from these two surveys enables us to increase the number of countries in our final dataset to 133. Although the two surveys had 84 countries in common, we could use each of the two datasets to close gaps in the other dataset when both surveys collected the same variable, such as the percentage of total bank assets in foreign banks, but for different countries. We supplement the data from these two surveys with the index of a country's openness to foreign banking in 1979 across countries (OPENNESS) that Tschoegl (1981) constructed.

Appendix A contains the mnemonics and descriptions of the variables that we use. Unless we note otherwise, the data that we use all pertained to 1999. The absence of any dataset of this breadth prior to 1999 restricts us to cross-sectional estimates.

3.1. Measuring foreign banking

Survey responses provide us with data for various measures of foreign banking:

1. Percentage of a country's bank assets that were held in foreign-owned banks,
2. Percentage of banks that were foreign-owned,
3. Percentage of banks that were new foreign banks (i.e. < 5-years-old) and
4. Percentage of foreign bank entry applications that were denied.

A 1997 OCC survey had also collected data for many of these same countries on:

1. Presence of limits on foreign ownership of domestic banks
2. Presence of limits on foreign bank entry.

Because foreign banking can take several forms, one can measure its extent in various ways. As a result of the banks' own choices or of government restrictions, foreign banks might enter domestic banking markets: (1) through branch offices that are integral parts of their parent banks; (2) through fully owned and separately capitalized subsidiaries; (3) through minority stakes in locally-incorporated subsidiaries; or (4) by lending directly from offices located abroad, including by lending through a separately incorporated subsidiary located in an offshore financial center such as the Cayman Islands. These options, the associated restrictions and individual banks' choices mean that countries with similar percentages of their total bank assets on the balance sheets of foreign-owned banks might have very different amounts of foreign banking. For example, many international banks have closed Panamanian subsidiaries that they had used to access Latin American markets, as countries in the region opened their markets to direct foreign entry (Bounds, 2001).

Even settling on one simple definition does not remove all ambiguity. For instance, if a country responded to the survey that it considered as foreign-owned only those of its banks that were majority foreign-owned, the result may be an underestimation of the degree of foreign banking if foreign banks control banks in which they hold only minority ownership. For instance, Saudi Arabia reported that

it had no foreign-owned banks. However, several foreign banks have management contracts in Saudi banks in which they are minority (30–40%) shareholders.

Table 1 shows the extent of foreign banking in 1999 for 124 countries, using our preferred indicator of foreign banking, FOREIGN, which is the percentage of total bank assets in a country in foreign-owned banks. FOREIGN ranges from 0 to 100% and is quite uniformly distributed across countries.

4. Patterns of foreign banking and its correlates

4.1. Statistics

Table 2 shows data for banking across different groups of countries. For 99 countries, we had data on all the variables in Table 2. Column 5 of row 1 shows that FOREIGN, the percentage of a country's total assets in foreign-owned banks, averaged 30% over these 99 countries. Column 6 shows that the mean percentage of the number of banks in each country that were foreign-owned, FORBANK, was 41%.

Rows 2a–d show data for countries grouped by 1999 real, per capita income. Across income groups, FOREIGN followed an inverted-U shape—first rising and then falling as we move from lower to higher income countries.⁴ That contrasts with the number of banks per capita, the ratio of total bank assets relative to GDP and the percentage of aggregate bank assets, each of which rises monotonically as we move from lower to higher income countries.

Offshore centers (Row 3) tended to have relatively more banks, more bank assets, more foreign-bank assets and more foreign banks than other countries, even those with similar real, per capita GDP. Transition countries (Row 4) tended to have fewer banks, bank assets, foreign-bank assets and foreign banks than other countries. Row 5 shows the data for the 69 non-offshore-financial-center, non-transition countries in this sample of 99 countries. These countries held 99% of the bank assets in this sample. Although they tended to have more bank assets than average, they also tend to have less foreign banking than average and even had less foreign banking than transition countries had.

Table 3 presents descriptive statistics for the sample of non-offshore financial center and non-transition countries that we used for our statistical analysis for FOREIGN and other variables. Missing data reduced the sample for which we had nearly all of these variables to 51 or 55 countries. Nonetheless, the resulting dataset contains countries that come from various continents and have wide variation in their real per capita incomes and other features.

Row 1 shows that FOREIGN's median was 24%, close to its mean of 21% and that its S.D. was 28%. Column 8 shows the values of the W/S statistic, which is a measure of dispersion. The W/S statistic was calculated as the ratio of the difference

⁴ Regression tests for a U-shaped relation between foreign banking and income, however, uncovered no statistically significant quadratic income term.

Table 1
Percentage of total bank assets in foreign-owned banks, 1999

Country	Foreign	Country	Foreign	Country	Foreign
Botswana	100	St. Kitts and Nevis	48	Jordan	9
British Virgin Islands	100	Montserrat	47	Salvador, El	9
Gambia	100	Chile	46	Australia	9
Gibraltar	100	Anguilla	44	Malawi	8
Guernsey	100	Romania	44	India	8
Jersey	100	Jamaica	43	Trinidad and Tobago	8
Swaziland	100	Croatia	40	Turkey	8
New Zealand	99	Grenada	40	Switzerland	7
Cayman Islands	98	Peru	40	Bolivia	7
Luxembourg	93	Tonga	39	Thailand	7
Samoa (Western)	93	Belize	38	Indonesia	7
Macedonia	93	Lithuania	37	Bangladesh	6
Vanuatu	91	Nepal	35	Italy	6
Macau	91	Sierra Leone	34	Canada	6
Turks and Caicos Islands	90	Puerto Rico	31	Liechtenstein	6
Solomon Islands	90	Bahrain	30	Sweden	6
Estonia	90	Kenya	29	Austria	5
Aruba	84	Czech Republic	28	Spain	5
Paraguay	78	Lebanon	27	Slovenia	5
Barbados	77	Mauritius	26	Egypt	4
Hong Kong	75	Belgium	24	Netherlands	4
Latvia	74	Brazil	24	Denmark	4
Argentina	71	Malaysia	23	Germany	4
Cambodia	71	Suriname	21	Guatemala	3
Zambia	64	US	20	Honduras	2
St. Vincent and the Grenadines	62	Bhutan	20	Belarus	2
Hungary	62	Morocco	20	Greece	1
Seychelles	62	Norway	19	Japan	1
Panama	60	Qatar	15	Tajikistan	1
Dominica	59	Philippines	14	South Africa	1
Maldives	59	Nicaragua	14	Nigeria	0
Ghana	57	Tunisia	14	Finland	0
Uruguay	56	Korea	13	Mexico	0
Antigua and Barbuda	56	Albania	13	Bermuda	0
St. Lucia	55	Portugal	13	Burundi	0
Bahamas	55	Moldova	12	Iceland	0
UK	53	France	12	Kuwait	0
Malta	52	Cyprus	11	Mozambique	0
Singapore	50	Oman	11	Rwanda	0
Poland	49	Israel	11	Saudi Arabia	0
Lesotho	49	Russia	11		
Guyana	48	Venezuela	10		

Table 2
Assets and numbers of total and foreign-owned banks, 1999

Country group	Number of countries (1)	Share of all countries' bank assets (%) (2)	Bank assets/GDP (%) (3)	Banks/million residents (4)	Foreign-owned banks' share	
					Bank assets (%) (5)	Banks (%) (6)
1. All	99	100	158	24	30	41
2. By income						
a. High	33	93	325	47	25	40
b. Upper middle	26	5	99	24	38	50
c. Lower middle	26	1	68	7	34	43
d. Low	14	1	44	2	22	23
3. Offshore financial center	17	0	169	47	47	57
4. Transition	13	1	46	6	31	33
5. Non-offshore, non-transition	69	99	177	22	26	38

'All countries' refers to the 99 countries for which we had values for all of the variables we use in this table. We based the classification of countries' 1999 real, per capita GDP as being high, upper middle, lower middle, or low on the World Bank's categories. Low: \$755 or less; Lower middle: \$756–\$2995; Upper middle: \$2966–9265; High: \$9266 or more. Transition countries are countries that are undergoing transformation from communist or central-command economies to market-based economies. Most of them are in East Europe and the former USSR.

Table 3
Descriptive statistics for variables

Variable mnemonic	Unit (1)	Number of countries (2)	Mean (3)	Median (4)	S.D. (5)	Minimum (6)	Maximum (7)	W/S statistic (8)	Correlation with variable 'FOREIGN' (9)
1. FOREIGN	Percent	55	21	24	28	0	100	3.6	
2. FORBANK	Percent	54	35	44	28	0	100	3.6	0.77
3. NFORBAN	Percent	48	10	50	13	0	47	3.6	0.17
4. POP	Million	55	55	5.4	141	0.3	1001	7.2	0.13
5. GDPCAP	US\$1000	55	11.0	3.6	11.8	0.1	40.9	3.5	-0.07
6. DY9599	Percent	55	3.3	3.3	2.3	-2.3	15	7.5	0.11
7. M	Percent	55	37	36	21	8.7	107	4.7	0.30
8. BAGDP	Percent	55	180	80	458	6	3423	7.4	0.33
9. DOMBAGDP	Percent	55	99	57	92	0	499	5.4	-0.22
10. GOVT	Percent	55	18	11	22	0	81	3.7	-0.07
11. OPENNESS	1-5	55	3.7	3	1.2	1	5	3.3	0.15
12. RESTRICT	5-20	55	11.4	12	2.7	5	16	4.1	-0.16
13. EQUITY	Percent	55	6.9	7.6	3.3	-4.1	14.7	5.7	-0.13
14. PRIVMON	0-11	55	7.0	7.0	1.6	3	11	5.0	0.03
15. ROA	Percent	55	1.0	1.1	1.8	-6.1	7.2	7.4	0.26
16. ROE	Percent	55	14	14	29	-111	123	8.0	0.36
17. OVERHEAD	Percent	54	3.3	3.1	2.6	0.5	15.8	5.9	0.07
18. NPL	Percent	52	9.2	8.4	9.4	0.4	38.5	4.1	-0.14
19. FORDENY	Percent	35	16	0	28	0	100	3.6	0.25
20. FOWRLIM	0 or 1	43	0.28	0	0.45	0	1	2.2	-0.27
21. FORENLIM	0 or 1	43	0.19	0	0.39	0	1	2.6	-0.21

between the maximum and minimum observations to the S.D. of each variable. Examples of observations that produced greater dispersion and thus values of W/S are India's population (1 billion), average economic growth during 1995–1999 in Burundi (–2.3%) and in Rwanda (15.4%), the size of the total banking sector of Luxembourg and the ROEs of Thailand (–87%) and Indonesia (–111%).

Judging how to handle outlier observations can be problematic. In some cases, the data are reasonably accurately measures, such as the population of India. In the case of the population variable, using alternative functional forms, such as levels or logarithms, made little difference to our estimates. In the face of business or financial data that were outliers, one option would have been to exclude countries, such as Indonesia and Thailand, from our sample. Such a decision could be justified by the argument that those observations were dominated by transitory conditions, such as those associated with the immediate aftermath of economic or financial crises. Observations pertaining to crisis periods often do not closely approximate the longer-term averages for those variables in those countries. The southeast Asian banking data are examples of that. Excluding such observations, however, presumably removes relevant information. We chose to retain outlier observations. Decision-makers likely were aware that financial crises had occurred and were still possible in many of the countries in our sample. Retaining the countries that had outlier data means that our sample at least partly reflected the susceptibility of various groups of nations to extreme events.

Column 9 shows the simple correlation coefficients between FOREIGN and each of the other variables. Row 2 shows that the cross-country correlation between the percentages of assets that were in foreign-owned banks and the percentages of banks that were foreign-owned was high—nearly 0.8. Thus, one can probably glean considerable information about foreign banking by using data for the numbers of foreign-owned banks, which for some countries and time periods is likely to be more readily available than asset data. Notable are the weak correlations of FOREIGN with POP, GDPCAP and the strong correlations of FOREIGN with DOMBAGDP, RESTRICT, OPENNESS and ROA. As one might well expect from our dataset, multiple regression estimates produced partial correlations that followed a very similar pattern of insignificance and significance.

Table 4 reports the simple correlations of seven variables that pertain directly to foreign banking. Column 1 shows moderately strong correlations between FOREIGN and foreign applications denied (FORDENY), foreign ownership limits (FOROWLIM) and limits on foreign entry (FORENLIM). Many of the remaining correlation coefficients shown in Table 4 are quite small. Of some interest, however, is that the Tschoegl (1981) measure of openness in 1979 to foreign banking correlates quite strongly and negatively (–0.40) with the measure of restrictions on foreign ownership of domestic banks in 1997. That is, countries that were more restrictive than average in 1979 tended to still be more restrictive than average in 1997. Of course, this is the correlation between the rankings of restrictiveness at each time and does not reflect the trend toward greater openness that swept around the world since the late 1970s.

Table 4
Correlation between alternative measures of foreign banking

Variable mnemonic	FOREIGN (1)	FORBANK (2)	NFORBAN (3)	OPENNESS fl(4)	FORDENY (5)	FOROWLIM (6)
(2) FORBANK	0.77	1				
(3) NFORBAN	0.17	0.30	1			
(4) OPENNESS	0.15	0.06	-0.13	1		
(5) FORDENY	0.25	0.12	-0.10	-0.09	1	
(6) FOROWLIM	-0.27	-0.02	0.17	-0.40	0.09	1
(7) FORENLLIM	-0.21	-0.10	0.03	-0.20	0.28	0.50

4.2. Regressions

Causality might run in either direction (or both) between foreign banking and several of the factors that we analyze. For example, the regulation of all banks in a host country might affect and be affected by foreign banking. It could be that foreign banks choose in what countries to operate based partly on the host countries' regulations. Alternatively, foreign banks might be able to affect domestic regulations. Since we had only cross-section data, we could not rely on lead-lag relations to help us sort out the direction of causality. The large foreign bank presence in otherwise sparsely populated, offshore centers strongly suggested that the main direction of causality was from less regulation and thus more openness, to foreign banking. Nevertheless, the correlations and regression estimates need to be interpreted in light of the potential for simultaneity bias.

Table 5 presents regression results. For each variable we show the OLS-estimated coefficient, its t -statistic in parentheses underneath the coefficient and its standardized (β) coefficient in brackets below the t -statistic. The first two columns include a large number of regressors, regardless of their statistical significance. Column 3 omits the several variables that tended to be economically (and statistically) insignificant when we include them in various combinations in various specifications. The specification in Column 4 differs by substituting ROE for ROA. Column 5 then omits EQUITY from the column 4 specification. Because of the relatively low correlations between the regressors in Table 5, omitting some of them changed the estimates and significance of the remaining regressors by only modest amounts.

The dependent variable (FOREIGN) is the same and the (adjusted) R^2 turned out to be quite similar across columns in Table 5. As a consequence, the β coefficients (indicators of economic significance) and the t -statistics (indicators of statistical significance) are highly correlated within and across columns. Thus, except for the possible exception of the OVERHEAD and PRIVMON results, variables that were economically significant were statistically significant and vice versa. Although we might not expect such a result to hold generally, we can speak interchangeably about economic and statistical significance when referring to Table 5. For example, if we were to adopt the guideline that a value of a standardized coefficient of 0.25 (in absolute value) constituted the borderline between economic significance and insignificance and a t -statistic of 1.96 was the dividing line between statistical significance and insignificance, we would have very similar lists of economically significant and statistically significant effects.

Row 2 shows that fewer prohibitions against foreign ownership of banks, and thus larger values for OPENNESS, allowed for significantly increased foreign banking. Row 3 shows that more current restrictions on banks' activities, RESTRICT, separately reduced foreign banking. Row 4 shows that countries that had more imports tended to have more foreign banking. Thus, countries that were more economically liberal as measured (1) by their openness to foreign banking in the

Table 5
 Estimated effects on foreign banking dependent variable = FOREIGN

Independent variable mnemonic	(1)	(2)	(3)	(4)	(5)
1. Constant	41 (1.3)	55 (1.6)	56 (2.9)	49(2.5)	31 (1.6)
2. Openness	7.8 (2.8) [0.32]	5.7 (2.0) [0.24]	7.2 (2.7) [0.30]	7.4 (2.9) [0.31]	6.4 (2.3) [0.27]
3. Restrict	-3.8 (-2.9)	-2.3 (-1.7)	-3.4 (-2.8)	-3.3 (-2.8)	-3.5 (-2.7)
4. M	-0.35]	[0.21]	[0.34]	[0.33]	[0.34]
5. DOMBAGDP	0.59 (3.2) [0.39]	0.05 (0.22) [0.03]	0.43 (2.9) [0.32]	0.43 (3.0) [0.32]	0.48 (3.2) [0.36]
6. BAGDP	-0.18 (-3.3)	-	-0.18 (-4.6)	-0.18 (-4.7)	-0.15 (-3.8)
7. ROA	[0.52]	[0.41]	[0.61]	[0.61]	[0.61]
8. ROE	-	0.02 (2.6) [0.41]	-	-	-
9. Equity	6.6 (2.6) [0.35]	9.1 (3.4) [0.49]	5.5 (2.7) [0.35]	-	-
10. NPL	-	-	-	0.33 (3.2) [0.35]	0.26 (2.4) [0.27]
11. Overhead	-7.0 (-4.1)	-7.0 (-4.0)	-3.7 (-3.3) [-0.43]	-2.8 (-3.0) [-0.33]	-
12. PRIMON	[0.70]	[0.71]	-	-	-
13. GOVT	-0.11 (-0.21)	-0.15 (-0.29)	-	-	-
14. GDPCAP	[0.03]	[0.05]	-	-	-
15. POP	3.0 (1.9) [0.28]	3.2 (1.9) [0.30]	-	-	-
16. DY9599	4.8 (1.7) [0.27]	3.0 (1.1) [0.17]	-	-	-
Observations	0.05 (0.27)	-0.13 (-0.61)	-	-	-
Standard error of residual	[0.03]	[0.10]	-	-	-
Adjusted R-square	-0.33 (-0.78)	-1.4 (-3.1)	-	-	-
	[0.13]	[0.57]	-	-	-
	0.00 (0.21) [0.02]	0.01 (0.27) [0.04]	-	-	-
	-1.7 (-1.0)	-2.0 (-1.1)	-	-	-
	[0.15]	[0.17]	-	-	-
	51	51	55	55	55
	21.4	22.3	21.4	20.8	22.4
	0.44	0.39	0.42	0.44	0.36

Standardized regression (β) coefficients are shown in brackets below t -statistics, which are in parentheses.

past; (2) by their currently permitting banks to undertake more activities; and (3) by their involvement in international trade—tended to have more foreign banking.⁵

The estimated negative coefficients on DOMBAGDP (Row 5) were significant: countries that had smaller domestic banking sectors (relative to their own GDP) tended to have more foreign banking. In fact, the paucity of domestic banking proved to have had the (economically) strongest positive effect on foreign banking: DOMBAGDP had standardized coefficients over one-half in each specification reported in Table 5. The estimates indicate that (again, cross-sectionally) for every \$1 less in domestically-owned banks there was about \$0.20 more in a foreign bank.

The estimated coefficient on BAGDP, shown in row 6, was positive and statistically significant. Since BAGDP included foreign banks' assets, we expected that BAGDP would have a more positive, but perhaps not very meaningful, estimate than the coefficient on DOMBAGDP. It might also be that more foreign banking reduced the size of the domestic banking sector. Weller (2000a,b) reported that foreign banking entry has temporarily adverse effects on the total size of the banking sector, particularly in transition and developing economies. Thus, simultaneity bias may be having some effect on the estimates of BAGDP or DOMBAGDP.

Rows 7 and 8 show that profitability, whether we measure it by ROA or ROE, was positively correlated with foreign banking. The estimated negative coefficient on the bank equity-to-assets ratio, EQUITY, comports with the Peek and Rosengren (2000b) view that foreign banks might soften the impacts of adverse domestic shocks by growing during crises. Taken together rows 5 through 9 suggest that foreign banks were willing to enter and grow in markets that offered profitable opportunities.

Although the estimates in the remaining rows were generally insignificant, the point estimates often coincided with our priors. Across countries, the smaller the volume of nonperforming loans outstanding (NPL), the larger overhead costs (OVERHEAD), or the more extensive the ability of the private sector to monitor banks (PRIVMON), the more foreign banking a country tended to have. Though again not significant, the lower a country's income, the lower its population or the lower its recent real GDP growth rate (DY9599), the more foreign banking it tended to have. Somewhat surprisingly, the extent of direct government ownership of banking did not much affect the extent of foreign banking.

We examined the (absolute values of standardized) residuals from our regressions to see for which countries our estimated models left the most to be accounted for. Countries with the largest unexplained amounts of foreign banking included Luxembourg, Gambia, Honduras and New Zealand. As was to be expected, these countries tended to have either very high or very low shares of foreign banking. At the same time, many countries that had either very high or very low ownership by

⁵ Alternatively, one could gauge the openness of an economy to international trade by the ratio of imports to GDP, the ratio of exports relative to GDP or the ratio of exports plus imports relative to GDP. We performed regressions using all three options and found results that were virtually indistinguishable.

foreign banks had very small standardized residuals. Thus, by that measure, their amounts of foreign banking were very well accounted for by the estimated models. Elsewhere in this issue, To and Tripe (2001) focus on New Zealand, the rare case of a high-income country with an almost exclusively-foreign-owned banking system.

All in all, and not surprisingly, our estimates suggest that foreign banks entered countries where they were welcomed, could operate more freely and could prosper. These general patterns showed up in the estimates for several variables and held up across various specifications.

5. Foreign banking in transition countries

The former Soviet bloc countries are in various stages of their transitions toward various steady states. Thus, there are limits on how conclusive our results on foreign banking can be. Nonetheless, we show the current state of these variables for transition countries in order to convey how different they are currently from other countries. Table 6 highlights the differences between banking in transition countries and in other countries by comparing the means of our variables for 13 transition countries with the means for the non-offshore financial center, non-transition countries. We also compare them with the means for a group of 13 non-offshore financial center, non-transition countries that had real per capita GDPs that were similar to those of the transition countries.

Relative to the countries in column 2, transition countries had smaller domestic banking systems, more government-owned banking, less scope for private monitoring, lower profitability and less foreign banking. They had more imports and higher overhead costs in banking. They also had higher (reported) capital ratios, but also higher ratios of non-performing to total loans.

The incomes of transition countries averaged less than one-third that of the column 2 countries. Relative to the non-offshore financial center, non-transition countries with similar incomes, in general column 5 shows that transition countries differ from the peer group only in their past openness to foreign banking. Thus, at this time transition countries' banking-related magnitudes seemed reasonably close to those of countries with similar incomes. Indeed, apart from openness to foreign banking in the late 1970s, none of the variables' means were statistically significantly different when assessed by the pairwise *t*-statistics shown in column 7. If anything, given their histories, it is surprising that the means were not more decisively different.

6. Conclusions

Foreign banks offer the potential to enhance the average levels and volatility of bank capital, the diversification, the technology and the human skills of a

Table 6
Transition and non-transition, non-offshore financial center countries: comparisons of means

Variable mnemonic	Unit (1)	Mean for non-transition, non-offshore countries (2)	Difference of means: (3) = (4) – (2), (3) countries (4)	Mean for transition countries (4)	Difference of means: (5) = (4) – (6), (5) countries (6)	Mean for GDP-based peers of transitions countries (6)	Pairwise comparison of transition countries with peers ($\text{Prob} > t $), (7)
1. FOREIGN	Percent	26	5.4	31	-1.4	32	0.91
2. FORBANK	Percent	38	-4.7	34	-12	45	0.31
3. NFORBAN	Percent	48	-6.5	42	0.1	42	0.59
4. POP	Million	45	-2.5	20	-1.1	21	0.95
5. GDPCAP	US\$1000	11	-7.4*	3.2	-0.09	3.3	0.21
6. DY9599	Percent	3.2	-1.2	2.1	-1.8	3.9	0.25
7. M	Percent	38	9.7	47	12	36	0.11
8. BAGDP	Percent	177	-131	46	-30	76	0.07
9. DOMBAGDP	Percent	97	-67*	29	-27	56	0.06
10. GOVT	Percent	20	11	31	8.6	22	0.35
11. OPENNESS	1–5	3.8	-2.7*	1.1	-2.3*	3.4	<0.0001
12. RESTRICT	5–20	11	-1.0	10	-1.4	12	0.24
13. EQUITY	Percent	7.3	4.9*	12	4.1	8.1	0.20
14. PRIVMON	0–11	7.0	-1.3*	5.8	-0.8	6.5	0.62
15. ROA	Percent	1.3	-0.4	1.0	-0.7	1.7	0.33
16. ROE	Percent	14	-5.0	9.0	-13	22	0.23
17. OVERHEAD	Percent	3.5	1.2	4.7	0.5	4.2	0.58
18. NPL	Percent	9.8	6.6*	16	4.5	12	0.29
19. FORDENY	Percent	18	0.14	18	-3.0	21	0.53
20. FOWOLIM	0 or 1	0.28	-0.18	0.1	-0.2	0.3	0.60
21. FORENLIM	0 or 1	0.17	0.03	0.2	0.2	0.0	0.17

We calculated the *t*-test statistics that we reported in column 7 as follows: first, for each of the 13 transition countries, we chose as a peer country the non-transition, non-offshore country in our sample whose 1999 real, per capita GDP was closest. Second, we calculated a pairwise *t*-statistic for each variable based on the null hypothesis that the values were the same for the transition and the peer countries.

* Denotes mean differences that were statistically significantly different from zero at the 0.05% level.

country's banking system. They might also increase the competition that domestic banks face. This paper uses a large, new dataset to measure and assess the determinants of foreign banking for a wide range of countries. Our estimates support a mainstream explanation for the variation across countries in the extent of foreign banking. Consistently, foreign banks tended to have significantly larger presence, *ceteris paribus*, in countries that were more open to foreign ownership of banks and had more international trade. Foreign banking was correlated positively with the range of financial activities that banks were allowed to conduct. Thus, foreign banking had greater presence in countries that were generally more open to economic interaction with the rest of the world and more open to letting banks engage in wider ranges of activities. Similarly, the extent of foreign banking correlated positively with more direct measures of banking profitability. Countries that had smaller or more profitable domestically-owned banking sectors tended also to have more foreign banking.

Acknowledgements

We thank James R. Barth, Daniel E. Nolle, Adrian Tschoegl and an anonymous referee for their comments and helpful suggestions. Any remaining errors are ours alone.

Appendix A. Data

Variable mnemonic	Variable description	Source
1. FOREIGN	Percentage of total bank assets in foreign-owned banks	WB & OCC
2. FORBANK	Foreign-owned banks/total banks	WB & OCC
3. NFORBAN	New foreign banks/total foreign banks	WB
4. POP	Population	WB
5. GDPCAP	1999 real, per capita GDP	WB
6. DY9599	Average real GDP growth rate (1995–1999)	IMF
7. M	Imports/GDP	WB
8. BAGDP	Total bank assets/GDP	OCC
9. DOMBAGDP	Domestic-owned banks' total assets/GDP	WB & OCC

10.	GOVT	Government-owned banks' total assets/total bank assets	WB & OCC
11.	OPENNESS	Indicator of openness to foreign banking in 1979	(Tschoegl, 1981)
12.	RESTRICT	Indicator of current restrictions on bank activities	WB
13.	EQUITY	Total bank equity/total bank assets	OCC
14.	PRIVMON	Indicator of private sector ability to monitor banks	WB
15.	ROA	Total net income/total bank assets	OCC
16.	ROE	Total net income/total bank equity	OCC
17.	OVERHEAD	Total banks' overhead costs/total bank assets	OCC
18.	NPL	Total non-performing loans/total bank assets	OCC
19.	FORDENY	Percentage of foreign-banks' entry applications denied	WB
20.	FOROWLIM	Indicator of restrictions on foreign banks' owning of domestic banks	OCC
21.	FORENLIM	Indicator of restrictions on foreign banks' entry	OCC

Appendix B. Data

Here we describe the construction of the variables RESTRICT and PRIVMON. 1. RESTRICT measures the extent to which banks are restricted from engaging in a variety of activities beyond traditional lending and deposit-taking. Based on answers to the World Bank survey, Barth et al. (2001) rated the regulatory environment of each country along five dimensions:

1. Securities Activities: the ability of banks to engage in the business of securities underwriting, brokering, dealing and all aspects of the mutual fund industry.
2. Insurance Activities: the ability of banks to engage in insurance underwriting and selling.
3. Real Estate Activities: the ability of banks to engage in real estate investment, development and management.
4. Banks Owning Nonfinancial Firms: the ability of banks to own and control nonfinancial firms.
5. Nonfinancial Firms Owning Banks: the ability of nonfinancial firms to own and control banks.

They assigned a rating of 1 if the activity is unrestricted; a rating of 2 if the activity is permitted, for instance in a separate subsidiary; a rating of 3 if the activity is restricted, for instance to a maximum percentage of capital, assets, etc. and a rating of 4 if the activity is prohibited.

2. PRIVMON measures the degree to which the private sector might desire or be able to monitor banks. It is the sum of 11 dummy variables for each country. Each dummy variable takes the value of 1 when there is more ability to monitor banks and zero otherwise.

1. Whether financial statements issued by a bank require an external audit. Such an audit would presumably indicate the presence of an independent assessment of the accuracy of financial information released to the public.
2. Whether licensed or certified auditors perform a required audit.
3. Whether international rating agencies rate each of the ten largest banks.
4. Whether there is an explicit deposit insurance scheme.
5. Whether depositors were not fully compensated following the last prior bank failure.
6. Whether bank income statements do not include accrued but unpaid interest or principal on nonperforming loans.
7. Whether banks must provide consolidated accounts.
8. Whether bank directors are legally liable if the information their bank discloses is erroneous or misleading.
9. Whether banks disclose off-balance sheet items publicly.
10. Whether banks must disclose to the public their procedures for managing risk.
11. Whether subordinated debt is allowable (required) as a part of regulatory capital.

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