

Opening to Foreign Banks: Issues of Stability, Efficiency, and Growth

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This paper evaluates whether foreign bank activity (i) increases the likelihood of suffering a banking crisis, (ii) improves the efficiency of domestic banks, and (iii) accelerates long-run economic growth. Using bank-level data across a broad cross-section of countries, we find foreign bank participation (1) lowers the probability that a country will experience a banking crisis, (2) lowers overhead costs and profits of domestic banks, and (3) accelerates overall economic growth by boosting domestic banking efficiency.

I. Introduction

Both the steady globalization of financial markets and the sudden crash in East Asia last year motivate an inquiry into the potential benefits, costs, and risks associated with international banking. Foreign banks may create competitive pressures that stimulate efficiency, innovation, and stronger supervision and regulation. Through these channels, liberalizing restrictions on foreign bank activity would improve the quality of financial services, boost economic growth, and reduce financial fragility. On the other hand, foreign banks may facilitate international capital flows, spur excessive borrowing, and overwhelm the capabilities of domestic regulators. In these ways, foreign banks would destabilize domestic markets, without substantially improving domestic banking services or accelerating long-run economic growth. Versions of these polar views have been hotly debated in newspapers, magazines, policy forums, and academic conferences.

In light of existing debates regarding the efficacy of liberalizing restrictions on foreign bank activity, this paper offers empirical evidence on three questions associated with foreign banks:

1. *Do foreign banks increase the likelihood that a country will suffer a banking crisis?*

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2. Do foreign banks improve the efficiency of the domestic banking system?

3. Do foreign banks accelerate long-run economic growth?

If foreign banks increase the probability that a country will experience a severe banking crisis, then this would make policymakers wary of easing entry restrictions on foreign banks. In contrast, if foreign banks do not raise the likelihood of suffering a banking crisis, then this should reduce policymaker concerns about liberalization. Similarly, if foreign banks improve the quality of domestic financial services through competition and the direct importation of modern banking skills and technologies, then this would favor liberalizing impediments to foreign bank entry. Although acutely relevant for pending policy initiatives, there exists surprisingly little rigorous, cross-country empirical evidence on the relationship between foreign bank activity and financial fragility, banking efficiency, and economic performance.

This paper finds very strong evidence regarding the impact of foreign banks on fragility and efficiency and suggestive results on long-run growth. Specially, we find the following:

1. Foreign banks do not increase the likelihood that a country will suffer a banking crisis. Indeed, we find that greater foreign bank participation in the domestic banking system tends to lower the probability that a country will experience a banking crisis.

2. Foreign banks improve the efficiency of the domestic banking system. Countries where foreign banks play a larger role tend to have more efficient domestic banks, that is banks with smaller overhead costs and lower profits. Our case-study of Korea supports this conclusion.

3. Foreign banks accelerate long-run economic growth by boosting domestic banking efficiency. Although foreign banks do not exert a significant direct impact on economic growth, they boost the efficiency of the domestic banking system, and greater efficiency is strongly linked with faster growth. Specifically, we find that countries with more foreign banks have smaller average overhead costs, and these smaller overhead costs are positively and robustly linked with long-run growth.

The paper uses different econometric methods to examine the impact of foreign banks on bank fragility, bank efficiency, and overall economic growth. First, based on the work of Demirguc-Kunt and Detragiache (1998), we use a multivariate logit econometric model to estimate the probability of a banking crisis using a large set of explanatory variables. We focus on the relationship between foreign bank participation and financial fragility. After controlling for characteristics of national banking systems, macroeconomic conditions, and the international environment, we study whether foreign bank entry affects the probability that a country will experience a banking crisis. We use two measures of foreign bank activity. The first measure, FOREIGN ASSETS, equals foreign bank assets as a share of total domestic banking

assets. The second measure, FOREIGN BANKS, equals foreign bank assets divided by the total number of banks. We find that FOREIGN ASSETS is positively correlated with long-run growth, while FOREIGN BANKS is negatively correlated with long-run growth. We find that FOREIGN ASSETS is negatively correlated with banking crises, while FOREIGN BANKS is positively correlated with banking crises. We find that FOREIGN ASSETS is positively correlated with the probability that a country will experience a banking crisis.

This paper also examines whether foreign bank activity affects domestic banking efficiency. We use a panel of data on 100 countries over the period 1988-1998. We find that FOREIGN ASSETS is positively correlated with domestic banking efficiency, while FOREIGN BANKS is negatively correlated with domestic banking efficiency. We find that FOREIGN ASSETS is robustly associated with overhead costs, while FOREIGN BANKS is not. This is consistent with the view that foreign banks improve domestic banking efficiency. Moreover, foreign banks do not have a significant impact on domestic banking efficiency-enhancing competition.

Finally, to examine the relationship between foreign bank activity and economic growth, we use standard panel data on 100 countries, one observation per country. We find a positive connection between foreign bank activity (FOREIGN ASSETS and FOREIGN BANKS) and economic growth. We find that greater foreign bank participation is associated with faster economic growth. Our data suggest — though do not prove — that greater foreign bank activity is robustly linked with faster economic growth. Our data suggest — though do not prove — that foreign banks spur competition and thereby accelerate economic growth.

The remainder of the paper is organized as follows. Section II discusses the econometric relationship between foreign bank activity and economic growth. In Section III, we study the association between foreign bank activity and banking crises. Then, in Section III, we study the association between foreign banks and long-run economic growth. Section IV, while Section V concludes.

assets. The second measure, FOREIGN BANKS, equals the number of foreign banks divided by the total number of banks in the country. We classify a bank as foreign if at least 50 percent of its shares are foreign-owned. We find that FOREIGN ASSETS is negatively, though insignificantly, associated with the probability of suffering a banking crisis. We find that FOREIGN BANKS is negatively and significantly correlated with banking crises. That is, greater foreign bank activity tends to reduce the probability that a country will experience a crisis.

This paper also examines whether foreign bank entry spurs competition and raises domestic banking efficiency. We use balance sheet data of commercial banks for 80 countries over the period 1988-1995. We confirm the findings in Claessens, Demirguc-Kunt, and Huizinga (1997). Although FOREIGN ASSETS is unrelated to domestic banking efficiency, FOREIGN BANKS is negatively, significantly, and robustly associated with overhead expenses and before tax profits. Thus, the evidence is consistent with the view that foreign bank entry spurs competition and efficiency. Moreover, foreign banks do not have to gain substantial market share to initiate this efficiency-enhancing competitive response by domestic banks.

Finally, to examine the relationship between foreign bank activity and long-run economic growth, we use standard cross-country growth regressions using data on 60 countries, one observation per country, over the period 1980-1995. We find no direct connection between foreign bank activity (either FOREIGN ASSETS or FOREIGN BANKS) and economic growth. We do, however, find an indirect link. Foreign bank participation is associated with a drop in bank overhead expenses and lower overhead costs is robustly linked with faster long-run economic growth. Thus, the data suggest — though do not irrevocably establish — a simple, compelling story: foreign banks spur competition and boost domestic bank efficiency and thereby accelerate economic growth.

The remainder of the paper is organized as follows. Section II presents evidence on the econometric relationship between foreign banks and banking crises. In Section III, we study the association between foreign banking and the efficiency of domestic banks. Then, in Section III, we present evidence on the linkages between foreign banks and long-run economic growth. The particular case of Korea is discussed in Section IV, while Section V concludes.

II. Foreign Banks and Bank Fragility

1. Conceptual Issues

Conceptually, foreign banks may influence financial fragility in both positive and harmful ways.¹⁾ In terms of potential harms, foreign banks are often accused of stimulating capital flight. Thus, in stressful times, foreign banks may facilitate capital outflows, currency crises, and financial instability. Second, many analysts fear that foreign banks will flee when faced with problems in local markets or when faced with problems in their home market. This lack of "commitment" would enhance the fragility of the domestic financial system, especially if foreign banks account for a large share of the domestic banking system. A third concern associated with foreign banks involves supervision and regulation. Reduced entry restrictions on foreign banks may accompany broader efforts to deregulate the domestic banking system. The combination may overwhelm domestic banking officials and create a more risky environment.

Countervailing arguments, however, suggest that foreign bank activity may not intensify fragility and may even enhance stability. First, there exists no systematic evidence demonstrating that foreign banks facilitate capital outflows and bank fragility. Second, although there are isolated examples of industrialized-country banks retreating from overseas markets [Peek and Rosengren 1997; Vittas 1995], there exists no systematic cross-country evidence suggesting that foreign banks have less commitment than domestic banks. Third, though foreign activity should not run ahead of the domestic supervisory capabilities, this sequencing concern should not necessarily become a pretext for restricting foreign bank entry. Indeed, Glaessner and Oks (1996) argue that when Mexico made a reciprocal agreement to open to United States banks under NAFTA, this stimulated an improvement in Mexican regulatory, supervisory, and accounting standards. Specifically, to gain access to the United States, Mexican banks must demonstrate to the Federal Reserve that Mexican supervisors adequately supervise its banks and related financial institutions. Thus, once Mexico started to open its doors to U.S. banks and sought entry for its banks in the U.S., there were pressures to harmonize prudential regulations, in areas such as capital adequacy, valuation and accounting principles, related-party transactions, and conflict-of-interest provisions.²⁾ Tough too late to avoid the 1994-5 Mexican banking crisis, liberalizing entry restrictions on foreign banks may set in motion forces that lead to better supervision, regulation, and accounting systems. In sum, though sound conceptual arguments exist for and against foreign bank entry, the major gap is

1) For citations, see Levine (1996).

2) White (1995) discusses when harmonization of regulations versus competition will produce the best set of regulations for promoting sound financial systems.

evidence: there is little systematic evidence on the impact of foreign bank entry and domestic financial fragility.

2. Foreign Banks and Bank Fragility

Considering the work of Demirguc-Kunt and Levine (1999), we empirically examine the relationship between foreign bank entry and bank fragility. We first describe the econometric model.

sample/foreign bank data: We have a large array of variables that we use to control for various conditions, macroeconomic stability, and growth on the domestic banking sector, including the BankScope data base, which is the largest data set on the account for about 90 percent of the assets of foreign banks listed in the United States. The shortcomings with these data in terms of comprehensiveness and measurement reasons, we list the data and hope that the impact of foreign banking on the financial system. The data are considered of high quality and are derived from over 7900 individual commercial banks. We look into the impact of foreign bank entry on bank fragility.

Econometric model To identify the relationship between foreign bank entry and bank fragility, we estimate the probability of a banking crisis. The probability that a crisis will occur is modeled as a function of n variables. The variable t takes the value of one when a banking crisis occurs and zero otherwise.³⁾ β is an $n \times 1$ vector of parameters. The cumulative probability function is

$$(1) \text{Ln } L = \sum_{t=1, T} \sum_{i=1, n} (P(i, t) \ln[F(i, t)])$$

To model F , we use the logistic function. The variable F does not indicate the increase in the probability of a crisis. The corresponding explanatory variable X indicates the direction of the change, the magnitude of the change, and the

3) This section relies very heavily on the work of Demirguc-Kunt and Levine (1999).
4) Note, banking crises will likely affect the estimation of the cumulative probability function bias or make the estimation less efficient.

evidence: there is little systematic evidence regarding the connection between foreign bank entry and domestic financial fragility.

2. Foreign Banks and Bank Fragility: Methodology³⁾

Considering the work of Demirguc-Kunt and Detragiache (1997ab, 1998), we empirically examine the relationship between foreign bank entry and banking crisis. We first describe the econometric methodology and then discuss the results.

sample/foreign bank data: We have data on foreign banks, banking crises, and an array of variables that we use to control for cross-country differences in banking sector conditions, macroeconomic stability, and the international environment. The data on the domestic banking sector, including foreign bank participation and size, is from the BankScope data base, which is provided by IBCA. According to IBCA, the data account for about 90 percent of the assets of banks in each country. The data on the share of foreign banks are listed in Table 1. We recognize that there may be shortcomings with these data in terms of defining and measuring foreign banks and in terms of comprehensively measuring each country's banking sector. For these reasons, we list the data and hope that future research develops better measures of the impact of foreign banking on the financial system. Here, we simply note that IBCA data are considered of high quality and are based on income and balance sheet data from over 7900 individual commercial banks. We believe these data provide a useful look into the impact of foreign banks on stability, efficiency, and growth.

Econometric model To identify the impact of foreign banks on financial fragility, we estimate the probability of a banking crisis using a multivariate logit model. The probability that a crisis will occur at a particular time in a particular country is modeled as a function of n variables, $X(i, t)$, including the foreign bank variables. $P(i, t)$ takes the value of one when a banking crisis occurs in country i and time t and a value of zero otherwise.⁴⁾ β is an n -dimensional coefficient vector and $F(\beta'X(i, t))$ is the cumulative probability function. The log-likelihood function is then

$$(1) \ln L = \sum_{t=1, T} \sum_{i=1, n} \{P(i, t) \ln[F(\beta'X(i, t))] + (1-P(i, t)) \ln[1 - F(\beta'X(i, t))]\}$$

To model F , we use the logistic functional form. Thus the estimated coefficients do not indicate the increase in the probability of a crisis given a one-unit increase in the corresponding explanatory variable. Although the sign of the coefficient indicates the direction of the change, the magnitude depends on the slope of the cumulative

3) This section relies very heavily on the description in Demirguc-Kunt and Detragiache (1998).

4) Note, banking crises will likely affect the explanatory variables. Since these feed-back effects could bias or make the estimation less efficient, we eliminate years in which banking crises are occurring.

[Table 1] Share of Foreign Banks in Domestic Banking Systems in 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. * denotes those countries included in the fragility analysis.

	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	0.22	0.13	9	Lithuania	0.10	0.09	7
Australia*	0.31	0.05	26	Luxembourg	0.93	0.79	107
Austria*	0.30	0.50	10	Malaysia*	0.19	0.15	47
Bahrain	0.86	0.97	7	Malta	0.00	0.00	7
Belgium*	0.30	0.06	47	Mexico*	0.05	0.03	19
Bolivia	0.30	0.44	10	Morocco	0.50	0.48	8
Botswana	0.75	0.94	4	Nepal	1.00	1.00	3
Brazil	0.42	0.34	41	Netherlands*	0.45	0.05	20
Canada*	0.64	0.08	69	New Zealand*	0.88	0.92	8
Chile*	0.25	0.20	20	Nicaragua	0.08	0.08	12
China	0.00	0.00	5	Nigeria*	0.22	0.28	9
Colombia*	0.17	0.05	28	Norway*	0.05	0.01	19
Costa Rica	0.23	0.05	22	Oman	0.00	0.00	6
Cyprus*	0.29	0.11	7	Pakistan	0.31	0.16	15
Czech Rep.	0.60	0.51	15	Panama*	0.37	0.39	8
Denmark*	0.04	0.00	56	P. New Guinea	0.40	0.30	5
Dom. Rep.	0.08	0.03	12	Paraguay*	0.40	0.30	20
Ecuador*	0.40	0.50	5	Peru*	0.36	0.28	22
Egypt*	0.10	0.01	9	Philippines*	0.41	0.62	17
El Salvador*	0.25	0.31	4	Poland	0.36	0.16	28
Estonia	0.43	0.35	7	Portugal*	0.17	0.03	34
Finland*	0.00	0.00	11	Qatar	0.00	0.00	3
France*	0.25	0.10	95	Romania	0.14	0.01	7
Germany*	0.36	0.22	80	Russia	0.07	0.00	14
Greece*	0.56	0.84	16	S. Africa*	0.14	0.01	14
Guatemala*	0.00	0.00	24	Saudi Arabia	0.50	0.80	4
Haiti	0.00	0.00	3	Singapore*	0.32	0.62	19
Honduras*	0.33	0.21	3	Spain	0.37	0.39	38
Hong Kong	0.61	0.66	28	Sri Lanka*	0.14	0.14	7
Hungary	0.63	0.65	19	Swaziland*	1.00	1.00	3
India	0.00	0.00	5	Sweden*	0.06	0.00	18
Indonesia*	0.33	0.11	18	Taiwan	0.14	0.06	24
Ireland*	0.42	0.18	12	Thailand*	0.08	0.02	12
Israel*	0.09	0.02	22	Tunisia	0.43	0.45	7
Italy*	0.08	0.01	64	Turkey*	0.07	0.01	29
Jamaica*	0.50	0.50	10	U.K.*	0.26	0.16	70
Japan*	0.08	0.19	73	U.S.*	0.05	0.03	370
Jordan*	0.43	0.94	7	Venezuela*	0.06	0.02	17
Korea*	0.23	0.24	40	Yemen	0.00	0.00	3
Lebanon	0.60	0.68	5	Zambia	0.67	0.38	3

distribution function at $\beta'X(i,t)$. The bank entry does not significantly in factors constant.

banking crisis indicator Follows identify a banking crisis if at least on non-performing assets to total assets cost of the rescue operation was at resulted in a large scale nationalizat emergency measures such as deposit deposit guarantees were enacted by t the crisis episodes is presented in Tab

[Table 2] List of

Country
Finland
Indonesia
Italy
Jordan
Japan
Mexico
Nigeria
Paraguay
Sri Lanka
Sweden
Turkey
Venezuela

control variables The set of con banking crises and data availability macroeconomic and international fa level of GDP per capita, the exten short-term interest rate. The second the banking system, such as vulnera divided by foreign exchange reserves bank cash and reserves to bank ass the ratio of loans to the private sect measure of whether past credit expa we include the number of past crises the last crisis since the probability of

5) For more details on the relationship betw variables, see Demirguc-Kunt and Detrag

Banking Systems in 1995

ership. Figures reported are ratios of bank assets to total bank assets in each fragility analysis.

No. of foreign banks in total	Foreign bank assets in total	Total number of banks
0.10	0.09	7
0.93	0.79	107
0.19	0.15	47
0.00	0.00	7
0.05	0.03	19
0.50	0.48	8
1.00	1.00	3
0.45	0.05	20
0.88	0.92	8
0.08	0.08	12
0.22	0.28	9
0.05	0.01	19
0.00	0.00	6
0.31	0.16	15
0.37	0.39	8
0.40	0.30	5
0.40	0.30	20
0.36	0.28	22
0.41	0.62	17
0.36	0.16	28
0.17	0.03	34
0.00	0.00	3
0.14	0.01	7
0.07	0.00	14
0.14	0.01	14
0.50	0.80	4
0.32	0.62	19
0.37	0.39	38
0.14	0.14	7
1.00	1.00	3
0.06	0.00	18
0.14	0.06	24
0.08	0.02	12
0.43	0.45	7
0.07	0.01	29
0.26	0.16	70
0.05	0.03	370
0.06	0.02	17
0.00	0.00	3
0.67	0.38	3

distribution function at $\beta'X(i,t)$. Thus, we test the null hypothesis that greater foreign bank entry does not significantly increase the probability of a crisis, holding other factors constant.

banking crisis indicator Following Demirguc-Kunt and Detragiache (1998), we identify a banking crisis if at least one of the following conditions applies: the ratio of non-performing assets to total assets in the banking system exceeded 10 percent; the cost of the rescue operation was at least 2 percent of GDP; banking sector problems resulted in a large scale nationalization of banks; extensive bank runs took place or emergency measures such as deposit freezes, prolonged bank holidays, or generalized deposit guarantees were enacted by the government in response to the crisis. A list of the crisis episodes is presented in Table 2.

[Table 2] List of Crisis Episodes 1988-1995

Country	Banking Crisis Dates
Finland	1991-94
Indonesia	1992-94
Italy	1990-94
Jordan	1989-90
Japan	1992-94
Mexico	1994
Nigeria	1991-94
Paraguay	1995
Sri Lanka	1989-93
Sweden	1990-93
Turkey	1991, 1994
Venezuela	1993

control variables The set of control variables is chosen based on the theory of banking crises and data availability.⁵⁾ The first group of control variables captures macroeconomic and international factors, such as the rate of growth of real GDP, the level of GDP per capita, the external terms of trade, the rate of inflation, and real short-term interest rate. The second set of control variables includes characteristics of the banking system, such as vulnerability to sudden capital outflows (measured as M2 divided by foreign exchange reserves, Calvo, 1996), liquidity (measured by the ratio of bank cash and reserves to bank assets), exposure to the private sector (measured by the ratio of loans to the private sector to total loans), and lagged credit growth (as a measure of whether past credit expansion is financing an asset price bubble). Finally, we include the number of past crises, the duration of the last spell, and the time since the last crisis since the probability of a future crisis may depend on past fragility.

5) For more details on the relationship between the theory of banking crises and the choice of control variables, see Demirguc-Kunt and Detragiache (1997).

3. Foreign Banks and Bank Fragility: Results

The data show that foreign banks do not increase the likelihood that a country will suffer a banking crisis. Indeed, the data suggest that foreign banks tend to lower the probability of a banking crisis. The results are summarized in regressions 1-4 of Table 3.

[Table 3] Foreign Bank Entry and Banking Crises

Dependent variable takes the value 1 if there is a crisis and the value 0 if there is no crisis. Observations for the duration of the crises are omitted. Time-series cross-country data are pooled over the 1988-1995 time period. Standard errors are given in paranthesis.

	(1)	(2)	(3)	(4)
Control Variables:				
GROWTH	-.144** (.062)	-.199** (.084)	-.163*** (.064)	-.207*** (.083)
TOT CHANGE	-.175*** (.061)	-.186*** (.061)	-.157*** (.060)	-.171*** (.062)
DEPRECIATION		.048** (.022)		.045** (.021)
RL. INTEREST	.115*** (.040)	.108** (.046)	.116*** (.043)	.108** (.047)
INFLATION	.070*** (.025)	.013 (.038)	.070*** (.025)	.015 (.039)
M2/RESERVES	.014 (.026)	.029 (.024)	.012 (.024)	.025 (.023)
CREDIT GRO _{t-2}	.039** (.019)	.041** (.020)	.043** (.020)	.044** (.021)
BANK/GDP		-.018 (.018)		-.019 (.017)
GDP/CAP	.037 (.064)	.065 (.087)	.031 (.058)	.067 (.076)
Foreign Bank Entry:				
FOREIGN ASSETS	-.016 (.015)	-.020 (.018)		
FOREIGN BANKS			-.041** (.020)	-.040** (.020)
Past Crisis:				
DURATION of last period	.258** (.132)	.290* (.157)	.319** (.150)	.336** (.169)
No. of Crisis	13	13	13	13
No. of Obs.	259	242	259	242
% correct	75	76	78	79
% crisis correct	62	54	69	54
model χ^2	28.42***	37.49***	32.13***	40.03***
AIC	95	88	91	85

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

Regressions 1 and 2 include FOREIGN bank assets in the economy. Regres equals the number of foreign bank economy. FOREIGN ASSETS is nega banking crises. FOREIGN BANKS is likelihood of experiencing a banking banks increase fragility. The data, ins foreign banks is negatively associated These results suggest that foreign ban the economy rather than as foreign ba

III. Foreign Banks and

This section examines whether fo Specifically, we study whether foreign and overhead expenses as in Claessens

1. Concepts and Case-Studies

Easing restrictions on foreign bank availability of banking services in a r bring new and better skills, mana technology, and products to the dome boost efficiency by stimulating com financial markets, which will put d expenses [Terrell 1986]. Furthermore, of ancillary institutions that promot instance, foreign banks may encoura accounting and auditing firms, an information. Similarly, foreign banks banks themselves as foreign banks t comparatively sound financial conditio may stimulate improvements in the s would (tautologically) improve ince improve the quality of bank lending pra

There have been country studies of restrictions. For example, McFadden domestic banks responded aggressiv

likelihood that a country will
foreign banks tend to lower the
in regressions 1-4 of Table 3.

ing Crises

0 if there is no crisis.
cross-country data are pooled over

Regressions 1 and 2 include FOREIGN ASSETS, the ratio of foreign bank assets to total bank assets in the economy. Regression 3 and 4 include FOREIGN BANKS, which equals the number of foreign bank divided by the total number of banks in the economy. FOREIGN ASSETS is negatively, though insignificantly, correlated with banking crises. FOREIGN BANKS is negatively and significantly correlated with the likelihood of experiencing a banking crisis. Thus, there is no indication that foreign banks increase fragility. The data, instead, indicate that an increase in the number of foreign banks is negatively associated with the incidence of banking system fragility. These results suggest that foreign banks reduce domestic bank fragility as they enter the economy rather than as foreign banks gain market share.

III. Foreign Banks and Domestic Bank Efficiency

This section examines whether foreign banks affect domestic bank efficiency. Specifically, we study whether foreign banks influence domestic bank profit margins and overhead expenses as in Claessens, Demirguc-Kunt, and Huizinga (1997).

1. Concepts and Case-Studies

Easing restrictions on foreign bank entry may improve the quality, pricing, and availability of banking services in a number of ways. Foreign banks may directly bring new and better skills, management techniques, training procedures, technology, and products to the domestic market. Also, foreign banks may indirectly boost efficiency by stimulating competition in and contestability of domestic financial markets, which will put downward pressure on profits and overhead expenses [Terrell 1986]. Furthermore, foreign banks may accelerate the development of ancillary institutions that promote the flow of information about firms. For instance, foreign banks may encourage the emergence of better rating agencies, accounting and auditing firms, and credit bureaus that acquire and process information. Similarly, foreign banks may improve information disclosure about banks themselves as foreign banks to attract customers by demonstrating their comparatively sound financial condition. Finally, as noted above, foreign bank entry may stimulate improvements in the supervisory and regulatory framework. This would (tautologically) improve incentives in the banking industry and thereby improve the quality of bank lending practices.

There have been country studies of the effects of liberalizing foreign bank entry restrictions. For example, McFadden (1994) finds that, in the case of Australia, domestic banks responded aggressively to liberalization. They improved their

(3)	(4)
-0.163***	-0.207***
(.064)	(.083)
-0.157***	-0.171***
(.060)	(.062)
	.045**
	(.021)
.116***	.108**
(.043)	(.047)
.070***	.015
(.025)	(.039)
.012	.025
(.024)	(.023)
.043**	.044**
(.020)	(.021)
	-.019
	(.017)
.031	.067
(.058)	(.076)
-.041**	-.040**
(.020)	(.020)
.319**	.336**
(.150)	(.169)
13	13
259	242
78	79
69	54
32.13***	40.03***
91	85

respectively

operations, invested in new technologies, and cut costs, such that foreign banks were less profitable and captured a much smaller share of the domestic market than many analysts expected. Overhead costs fell and individuals enjoyed better services than were available before Australia liberalized foreign bank entry. Bhattacharaya (1993) notes that enhanced foreign bank competition has forced lower commission fees in Turkey, e.g., fees on letters of credit fell from 1.5 percent to 0.5 percent, and fees on letters of guarantee fell from 4 percent to 1 percent following liberalization. Foreign banks can also directly improve banking services. In Spain, foreign banks pioneered the commercial paper market, the swap market, and spurred the boom in credit cards and ATMs. This paper complements these country studies with systematic, cross-country empirical evidence and a case-study of Korea, which is presented in Section IV.

2. Foreign Banks and Domestic Banking Efficiency: Cross-Country Evidence

To investigate the connection between bank efficiency and the presence of foreign banks, we use bank-level accounting data from 80 countries over the period 1988-1995. The income statement and balance sheet data of about 7900 individual commercial banks in 80 countries are from the BankScope data base, which is described more fully in Claessens, Demirguc-Kunt, and Huizinga (1997). The data cover approximately 90 percent of bank assets in each country. The countries and the share of foreign banks in the domestic banking system are listed in Table 1. We use two variables to measure banking efficiency:

Before tax profits/ta = a bank's profits (before taxes) divided by total assets;⁶⁾

Overhead/ta = a bank's entire overhead costs divided by total assets.

We interpret higher values of these measures as representing lower levels of efficiency. Holding other factors constant, high profits may reflect an absence of rigorous competition, large overhead costs may reflect a less efficient management and organizational system. These efficiency measure may also be influenced by cross-country differences in accounting standards. While recognizing that differences in accounting procedures may create "noise," we do not believe this biases the results in one direction or another.⁷⁾

We now examine how foreign bank penetration influences domestic bank net interest margins, before tax profits, and overhead expenditures. Regressions 1-2 in Table 4 and 5 summarize the findings. The dependent variables are respectively:

6) Before tax profits equals net interest income + non-interest income - overhead costs - loan loss provisioning.

7) Low profitability may also reflect direct government interventions that reduce profits, but do not necessarily reflect low efficiency.

[Table 4] Domestic Banking

The regression is estimated using weighted data for the 1988-95 time period. Only domestic data for the 1988-95 time period is used to weight the observations which are not reported. In column (1) the dependent variable is before tax profits/ta. In column (2) overhead costs/ta. In column (3) overhead expenses and other non-interest expenses/ta. In column (4) foreign banks to total number of banks.

Foreign bank share

Equity/ta_{it}

Non-interest earning assets/ta

Customer & short term funding/ta

Overhead/ta

GDP/CAP

Growth

Inflation

Real interest

Adj. R²

N. of obs.

*, ** and *** indicate significance at the 10, 5, and 1 percent level, respectively.

Source: Claessens, S. A. Demirguc-Kunt, and Ross Levine, "The Impact of Foreign Banks on Domestic Banking Markets," *Journal of International Money and Finance*, 1999, 18, 1-15.

before tax profits/ta and overhead costs/ta. In column (3) the dependent variable is the ratio of non-interest earning assets to total assets. In column (4) the dependent variable is the ratio of short term funding to total assets. In column (5) the dependent variable is the real interest rate.⁸⁾ Table 3 estimates the regressions using differenced data.

efficiency changes with alterations in the level of foreign bank penetration.

FOREIGN BANKS enters the regressions significantly in both the levels and differenced fragility regressions, FOREIGN BANKS

8) Customer and short-term funding to total assets.

s, such that foreign banks were
 e domestic market than many
 ls enjoyed better services than
 k entry. Bhattacharaya (1993)
 rced lower commission fees in
 ent to 0.5 percent, and fees on
 llowing liberalization. Foreign
 Spain, foreign banks pioneered
 ourred the boom in credit cards
 studies with systematic, cross-
 which is presented in Section IV.

Efficiency: Cross-Country

ncy and the presence of foreign
 ountries over the period 1988-
 ata of about 7900 individual
 ankScope data base, which is
 nd Huizinga (1997). The data
 country. The countries and the
 m are listed in Table 1. We use

s) divided by total assets;⁶⁾

sts divided by total assets.

is representing lower levels of
 ofits may reflect an absence of
 ect a less efficient management
 may also be influenced by cross-
 recognizing that differences in
 believe this biases the results in

l influences domestic bank net
 expenditures. Regressions 1-2 in
 ndent variables are respectively:

t income - overhead costs - loan loss

ntions that reduce profits, but do not

[Table 4] Domestic Bank Performance and Foreign Bank Share

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 before tax profits over total assets (Before tax profits/ta). In column (2) overhead/ta is the dependent variable which is defined as personnel expenses and other non-interest expenses over total assets. Foreign bank share is the number of foreign banks to total number of banks. Standard errors are given in parantheses.

	(2) Before tax profits/ta	(3) Overhead/ta
Foreign bank share	-.027*** (.011)	-.034*** (.008)
Equity/ta _{t-1}	.077*** (.007)	.079*** (.005)
Non-interest earning assets/ta	-.061*** (.008)	.050*** (.006)
Customer & short term funding/ta	.006* (.004)	.002 (.003)
Overhead/ta	-.293*** (.019)	
GDP/CAP	.010*** (.001)	-.003*** (.001)
Growth	.018* (.011)	.033*** (.008)
Inflation	.030*** (.008)	.036*** (.006)
Real interest	.025*** (.008)	.022*** (.006)
Adj. R ²	.19	.48
N. of obs.	4618	4618

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

Source: Claessens, S. A. Demirguc-Kunt and H. Huizinga, 1997, "How Does Foreign Entry Affect the Domestic Banking Market?" World Bank mimeo.

before tax profits/ta and overhead/ta. As noted earlier, we control for a variety of financial and macroeconomic factors, including the lagged value of the equity-asset ratio, the ratio of non-interest earning assets to total assets, the ratio of customer and short term funding to total assets, GDP per capita, output growth, inflation, and the real interest rate.⁸⁾ Table 3 estimates the equations in levels. Table 4 presents the results using differenced data. Differencing the data captures how domestic bank efficiency changes with alterations in foreign bank participation.

FOREIGN BANKS enters the before tax profits/ta and overhead/ta negatively and significantly in both the levels and differenced equations (Tables 4 and 5). As in the fragility regressions, FOREIGN ASSETS enters all the regressions negatively, though

8) Customer and short-term funding equals demand, savings, and time deposits.

[Table 5] Foreign Bank Entry and Change in Domestic Bank Performance

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 the one period change in before tax profits over total assets (Before tax profits/ta). In column (2) it is the one period change in overhead/ta variable which is defined as personnel expenses and other non-interest expenses over 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. Standard errors are given in parantheses.

	(2) Before tax profits/ta	(3) Overhead/ta
Foreign bank share	-.028*** (.010)	-.015*** (.005)
Equity/ta _{t-1}	-.002 (.012)	.060*** (.006)
Non-interest earning assets/ta	-.014 (.010)	.061*** (.005)
Customer & short term funding/ta	.026*** (.007)	-.023*** (.004)
Overhead/ta	-.597*** (.027)	
GDP/CAP	.001 (.002)	-.002** (.001)
Growth	.006 (.009)	.016*** (.005)
Inflation	.013** (.007)	.016*** (.004)
Real interest	.016*** (.007)	.015*** (.004)
Adj. R ²	.15	.12
N. of obs.	4592	4592

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

Source: Claessens, S. A. Demirguc-Kunt and H. Huizinga, 1997, "How Does Foreign Entry Affect the Domestic Banking Market?" World Bank mimeo.

insignificantly. The data indicate that foreign bank entry — not the share of foreign bank assets in total banking assets — tends to spur competition and render national banking markets more efficient. Increased foreign entry forces domestic banks to eliminate excess overhead and accept lower profits. The major link between efficiency and foreign banks is associated with the number of foreign entrants, not with market share. This suggests that entry, per se, increases competition and efficiency.⁹⁾

9) There may be simultaneity issues associated with these regressions. These are likely to bias the results against our conclusions. Specifically, countries where domestic banks have big overhead expenditures and bloated profits are likely to attract foreign banks. This reverse causality would imply a positive relationship between foreign bank entry and domestic profits and overhead. Rather, we find a negative relationship; this suggests that the interpretation that foreign entry boost competition and domestic bank efficiency is most appropriate.

IV. Foreign banks

1. Concepts

Foreign banks may influence long-run growth by bringing additional capital, energy, and expertise, exerting corporate control, and facilitating financial flows that directly boost capital accumulation and productivity that accelerate long-run growth. Foreign banks intensify competition. By contesting market power, foreign banks raise the overall level of banking efficiency. Foreign banks provide better services, encourage savings, energetically seeking profit, exerting control, and easing risk management.

2. Evidence: Direct Link

To examine whether foreign banks have a causal effect on a pure cross-sectional analysis using a variety of methodological, statistical, and econometric approaches, cross-country growth regressions as well as panel data. In this exploratory investigation, we do not control for this. Nonetheless, we use this methodology.

The basic regression takes the form

$$(2) \text{ GROWTH} = \alpha + \beta \text{ FOREIGN} + \epsilon$$

where the dependent variable, GROWTH, is the annual growth rate of the period 1980-1995, FOREIGN is a vector of variables, and X represents a matrix of conditioning information associated with economic growth.

To examine the sensitivity of the results to conditioning information sets.

We find no evidence that foreign bank entry is associated with long-run growth. Specifically, FOREIGN ASSETS is not associated with long-run growth. We control for conditioning information and control for a variety of measures of foreign bank participation.

10) For work on the causal links between foreign bank entry and Beck, Levine, and Loayza (1998).

Domestic Bank Performance

g bank level data across 80 countries were used. Number of banks in each des country and time dummy variables he the one period change in before tax is the one period change in ad other non-interest expenses over n banks to total number of banks. All e given in parantheses.

(2)	(3)
x profits/ta	Overhead/ta
28***	-.015***
010)	(.005)
002	.060***
012)	(.006)
014	.061***
010)	(.005)
26***	-.023***
007)	(.004)
97***	
027)	
001	-.002**
002)	(.001)
006	.016***
009)	(.005)
13**	.016***
007)	(.004)
16***	.015***
007)	(.004)
15	.12
592	4592

ent respectively.
997, "How Does Foreign Entry Affect
eo.

entry — not the share of foreign competition and render national entry forces domestic banks to The major link between efficiency foreign entrants, not with market petition and efficiency.⁹⁾

gressions. These are likely to bias the ere domestic banks have big overhead n banks. This reverse causality would y and domestic profits and overhead. t the interpretation that foreign entry rropriate.

IV. Foreign banks and economic growth

1. Concepts

Foreign banks may influence long-run economic growth directly and indirectly. By bringing additional capital, energetically seeking profitable uses for these funds, exerting corporate control, and facilitating risk management, foreign banks may directly boost capital accumulation and the efficiency of resource allocation in ways that accelerate long-run growth. Foreign banks may also spur growth indirectly by intensifying competition. By contesting markets and sharpening competition, foreign banks raise the overall level of banking sector efficiency as demonstrated above. Thus, domestic banks provide better services; domestic banks become better at mobilizing savings, energetically seeking profitable uses for these savings, exerting corporate control, and easing risk management in ways that accelerate long-run growth.

2. Evidence: Direct Link

To examine whether foreign banks directly affect economic growth, we conducted a pure cross-sectional analysis using one observation per country. There are many methodological, statistical, and conceptual shortcoming associated with interpreting cross-country growth regressions as discussed in Levine and Zervos (1993). Also, in this exploratory investigation, we do attempt to control for issues of endogeneity.¹⁰⁾ Nonetheless, we use this methodology to provide some suggestive evidence.

The basic regression takes the form:

$$(2) \text{ GROWTH} = \alpha + \beta \text{ FOREIGN} + \gamma X + \epsilon,$$

where the dependent variable, GROWTH, equals real per capita GDP growth over the period 1980-1995, FOREIGN equals either FOREIGN ASSETS or FOREIGN BANKS, and X represents a matrix of conditioning information that controls for other factors associated with economic growth.

To examine the sensitivity of the results, we experiment with different conditioning information sets.

We find no evidence that foreign banks directly influence long-run economic growth. Specifically, FOREIGN ASSETS and FOREIGN BANKS are not significantly associated with long-run growth. We experimented with various combinations of the conditioning information and could not find a significant, direct link between these measures of foreign bank participation and long-run growth.

10) For work on the causal links between finance and growth, see Levine, Loayza, and Beck (1998) and Beck, Levine, and Loayza (1998).

3. Evidence: Indirect Link

Next, we examine whether foreign banks might indirectly affect long-run growth. Since foreign bank entry influences the efficiency of the domestic banking system, we examine whether the efficiency of the domestic banking system is positively associated with long growth. Thus, we run the following pure cross-section regressions:

$$(3) \text{ GROWTH} = a + b\text{EFFICIENCY} + cX + e,$$

where the dependent variable, GROWTH, equals real per capita GDP growth over the period 1980-1995, EFFICIENCY equals either the overhead/ta or before tax profits/ta measure of banking efficiency, and X is the same matrix of conditioning information discussed above. We seek to reduce the chances that equation (3) either omits an important variable or includes a select group of regressors that yields a favored result. We report the results with two conditioning information sets. The simple conditioning information set includes a constant, the logarithm of initial per capita GDP and initial level of educational attainment. The initial income variable is

[Table 6] **Bank Efficiency and Economic Growth: 1980-1995**
Dependent variable: Real Per Capita GDP Growth, 1980-95

Regression Set #1: simple conditioning information set

Explanatory Variable	coefficient	standard error	t-statistic	P-value	Number of Observations	R-square
Overhead/ta	-0.697	0.146	-4.789	0.000	60	0.345
Before tax profits/ta	-0.019	0.272	-0.070	0.944	60	0.052

Regression Set #2: full conditioning information set

Explanatory Variable	coefficient	standard error	t-statistic	P-value	Number of Observations	R-square
Overhead/ta	-0.543	0.115	-4.742	0.000	53	0.599
Before tax profits/ta	-0.363	0.276	-1.313	0.196	53	0.465

Simple conditioning information set: logarithm of initial income per capita and schooling.

Full conditioning information set: simple set, plus indicators of revolutions and coups, civil liberties, political assassinations, size of government, inflation, black market premium, and openness to trade.

Overhead/ta - personnel expenses and other non-interest expenses divided by total assets.

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

used to capture the convergence investment in human capital accounts includes the simple conditioning inflation, the black market exchange stability (the number of revolutions per thousand, and an index of civil liberties (1997).

The results of these regressions show a strong relationship between growth and a robust negative link between overhead costs and growth. This link remains between domestic bank inefficiency and growth when controlling for many other factors. Although we do not investigate the precise mechanism with the view that forces - such as inflation and overhead costs - have a strong positive effect on growth.

The coefficients also suggest a strong relationship between growth and standard deviation fall in bank overhead costs. This implies that real per capita GDP growth is 0.8 percentage points faster for each standard deviation (1.94*0.54). Similarly, if Mexico had grown 0.8 percentage points faster instead of its own realized value, it would have grown 0.8 percentage points faster. This should be taken literally, since the cross-section estimates of exploitable elasticities are not statistically significant. This illustrates that the relationship between bank efficiency and growth is meaningful. In sum, while we need further investigation, the results suggest a strong link between bank efficiency and growth, and a negative link between overhead costs and efficiency.

IV. 7

Korea has importantly lowered overhead costs by opening to foreign banks, especially since its experience with the liberalization of the financial sector. Its primary concern is whether Korea's growth is primarily driven by the analyses presented above. We focus on the efficiency of Korean banks and the efficiency of Korean banks.

directly affect long-run growth. The domestic banking system, we banking system is positively following pure cross-section

real per capita GDP growth over the overhead/ta or before tax the same matrix of conditioning chances that equation (3) either group of regressors that yields a conditioning information sets. The ant, the logarithm of initial per t. The initial income variable is

Growth: 1980-1995

GDP Growth, 1980-95

P-value	Number of Observations	R-square
0.000	60	0.345
0.944	60	0.052

P-value	Number of Observations	R-square
0.000	53	0.599
0.196	53	0.465

per capita and schooling. revolutions and coups, civil liberties, market premium, and openness to

ses divided by total assets.

used to capture the convergence effect and school attainment is used to control for investment in human capital accumulation. The full conditioning information set includes the simple conditioning information set plus measures of government size, inflation, the black market exchange rate premium, openness to trade, political stability (the number of revolutions and coups, the number of assassinations per thousand, and an index of civil liberties), and ethnic diversity (Easterly and Levine 1997).

The results of these regressions are presented in Table 6. Although there is not a strong relationship between growth and before tax profits/ta, the results demonstrate a robust negative link between overhead/ta and economic growth. This negative link between domestic bank inefficiency and growth remains strong and significant even when controlling for many other factors associated with economic performance. Although we do not investigate potential endogeneity issues, the data are consistent with the view that forces - such as foreign bank participation - that reduce bank overhead costs have a strong positive impact on economic growth.

The coefficients also suggest an economically large impact. For instance, a one standard deviation fall in bank overhead expenses as a share of total bank assets (1.94) implies that real per capita GDP growth would have been one percentage point faster (1.94*0.54). Similarly, if Mexico had the sample mean value of overhead/ta (3.5) instead of its own realized value (4.9), the results suggest that Mexico would have grown 0.8 percentage points faster over the last 15 years. These examples should not be taken literally, since the cross-country growth methodology does not yield estimates of exploitable elasticities. Instead, these examples are simply meant to illustrate that the relationship between domestic bank efficiency is economically meaningful. In sum, while we view the growth results as purely suggestive and in need of further investigation, the data imply a strong positive link between domestic bank efficiency and growth, and foreign entry tends to boost domestic bank efficiency.

IV. The Case of Korea

Korea has importantly lowered entry barriers and restrictions on the operations of foreign banks, especially since the mid-1980s. This section reviews the Korea's experience with the liberalization of impediments to foreign bank activities. Our primary concern is whether Korea's experience conforms with the cross-country analyses presented above. We focus on the relationship between foreign bank entry and the efficiency of Korean banks.

1. History of Deregulation of Foreign Bank Operations in Korea

Table 7 summarizes changes in the laws governing foreign bank entry and operations in Korea since 1984. These changes reflect both a reduction of preferential treatment of foreign banks in some areas as well as a reduction of barriers to foreign bank activities in other areas. For instance, Korea requires banks to provide a certain percentage of credit to small and medium size enterprises. Initially, these requirements were less binding for foreign banks. Over the last 20 years, there has been an equalization of treatment. Similarly, initially foreign banks were provided with swap facilities with guaranteed yields, while domestic banks did not enjoy these benefits. This preferential treatment was gradually eliminated starting in 1986. Also, over this period, impediments to foreign banks were liberalized. Foreign banks have been granted access to the central bank rediscount window, restrictions on capital were eased, and foreign banks were allowed to establish multiple branches under the same conditions as domestic banks.

2. Principal Components of Foreign and Domestic Bank Balance Sheets

Table 8 presents information on the balance sheets of both domestic and foreign banks. From table 8, we can see that total assets of foreign banks have been increasing at an annual real growth rate of 3.2 percent for the period while total capital of foreign banks operating in Korea has been increasing at an annual real growth rate of 13.6 percent, increasing more than four times during the last eight years. This higher real growth rate of capital can be explained by sound reinvestment of earnings and capital by the foreign banks (Kim, 1997).

Foreign banks' most important source of funds was the inter-office account¹¹⁾ and this accounted for about 58 percent of the total liabilities in 1996. Total liabilities of foreign banks have been increasing by 8.7 percent per year during this period and most of the increase in total liabilities was financed by foreign liabilities (the share of foreign liabilities to total liabilities was 65 percent in 1996). For the whole period, the annual growth rate of foreign liabilities was 16.8 percent and this was higher in the later period (22 percent for 1991 - 1996)¹²⁾. This reflects the increased liquidity in

11) For domestic banks, annual growth rate of total liabilities was 18.0 percent (1988-1996) and most of the increase in total liabilities was financed by borrowings in foreign currency. While foreign banks annual growth rate of borrowings in foreign currency decreased from 33.4 percent (1988-1990) to 26.8 percent (1991-1996) that of domestic banks increased from 12.7 percent to 27.5 percent for the corresponding period. This resulted in increased foreign exchange risk exposure of domestic banks.

12) Thailand, also, recorded high growth rate of foreign liabilities of deposit money banks during this period. The annual growth rate of foreign liabilities was 33.3 percent (1988-1990) and then it increased to 58.8 percent (1991-1996).regulated.

[Table 7] Major Deregulation

date	Major Deregulation
1. Entry	<input type="checkbox"/> Approval of Monetary Board required 37-7 of the General Banking Law of the country of origin has entry barrier
2. 1984	<input type="checkbox"/> Allowed to join the Korean Federation
3. 1985	<input type="checkbox"/> Monetary Board determined that Permitted to engage in trust business term export financing
4. 1986	<input type="checkbox"/> SME basket ratio was increased to central banks rediscount facilities <input type="checkbox"/> Granted access to the central bank banks and permitted to issue negotiable transactions and swap transactions
5. 1988	<input type="checkbox"/> Citibank and Chase Manhattan Bank have been able to borrow funds from settlement funds.
6. 1989	<input type="checkbox"/> Upper limit on their Capital A fund was
7. 1991	<input type="checkbox"/> Restriction on multiple branching multiple branches under the same bank branch was removed. <input type="checkbox"/> Upper limit on Capital A fund was <input type="checkbox"/> Impartial brokerage system in call
8. 1996	<input type="checkbox"/> Lowered ceilings on swap facilities

Source, BOK, Banking Supervision in Korea

international capital markets since contributed to the significant increase (Min, 1998). In contrast, deposits total liabilities in 1996 and they operations through the sales of foreign of Korea under swap agreements.

The major difference in usage

Operations in Korea

erning foreign bank entry and t both a reduction of preferential a reduction of barriers to foreign quires banks to provide a certain e enterprises. Initially, these Over the last 20 years, there has lly foreign banks were provided nestic banks did not enjoy these iminated starting in 1986. Also, liberalized. Foreign banks have window, restrictions on capital ish multiple branches under the

Domestic Bank Balance Sheets

ts of both domestic and foreign eign banks have been increasing ne period while total capital of at an annual real growth rate of the last eight years. This higher d reinvestment of earnings and

as the inter-office account¹¹⁾ and lities in 1996. Total liabilities of per year during this period and y foreign liabilities (the share of 1996). For the whole period, the rcent and this was higher in the flects the increased liquidity in

as 18.0 percent (1988-1996) and most gs in foreign currency. While foreign cy decreased from 33.4 percent (1988- s increased from 12.7 percent to 27.5 ased foreign exchange risk exposure of

es of deposit money banks during this 33.3 percent (1988-1990) and then it

[Table 7] Major Deregulation on Foreign Banks in Korea

date	Regulation and Deregulation
1. Entry	<input type="checkbox"/> Approval of Monetary Board recommended by the Superintendent of Banks (Article 37-2 to 37-7 of the General Banking govern the legal status of foreign banks branches in Korea) unless the country of origin has entry barriers for Korean banks.
2. 1984	<input type="checkbox"/> Allowed to join the Korean Federation of Banks
3. 1985	<input type="checkbox"/> Monetary Board determined that foreign banks are subject to the SME basket ratio of 25 % Permitted to engage in trust business and make use of the rediscount facilities at BOK for short-term export financing
4. 1986	<input type="checkbox"/> SME basket ratio was increased to 35 % for foreign banks branches that make use of the central banks rediscount facilities for commercial bills <input type="checkbox"/> Granted access to the central bank rediscount window on the same condition as domestic banks and permitted to issue negotiable CD <input type="checkbox"/> Gradually reduced foreign banks swap facilities and lowered their guaranteed yield on swap transactions and swap transactions were forbidden to foreign branches established 1988
5. 1988	<input type="checkbox"/> Citibank and Chase Manhattan Bank joined Clearing House and Foreign banks branches have been able to borrow funds from the BOK to finance shortage of reserve requirement or settlement funds.
6. 1989	<input type="checkbox"/> Upper limit on their Capital A fund was raised to 12 billion won
7. 1991	<input type="checkbox"/> Restriction on multiple branching of foreign banks was abolished and they could establish multiple branches under the same conditions of domestic banks and class A fund of foreign bank branch was removed. <input type="checkbox"/> Upper limit on Capital A fund was abolished. <input type="checkbox"/> Impartial brokerage system in call market
8. 1996	<input type="checkbox"/> Lowered ceilings on swap facilities by further 10 % compared with that of the end of 1995

Source, BOK, Banking Supervision in Korea, 1996

international capital markets since 1991 (IMF, 1996: CrossBorder Capital, 1997) and it contributed to the significant increase in the ratio of short-term debt¹³⁾ to total debt (Min, 1998). In contrast, deposits in won currency constituted only 2.1 percent of total liabilities in 1996 and they could acquire additional domestic funds for their operations through the sales of foreign currency, within stipulated limits, to the bank of Korea under swap agreements.

The major difference in usage of funds between foreign banks and deposit money

[Table 8] Principal Accounts of Foreign and Deposit Money Banks

YEAR	1988	1990	1992	1994	1995	1996
ASSETS						
Deposit Money Banks						
(1) Domestic Asset	98840	151616	201073	260540	308694	365381
(1-1) Securities	8465	14393	21718	35052	45089	56023
(1-2) L & D	48805	74029	102797	138560	152478	177184
(1-3) = (1-2)/(3)	39.1	40.1	41	42.9	40	39.3
(1-4) Loans in for. cur	5698	8278	10305	13522	17654	23009
(2) Foreign Assets	5824	6829	10174	16514	21542	28626
(2-1) For. Cur. & Bills	3818	5124	7517	11460	15268	20090
(3) Total Assets	124708	184553	251321	322956	379517	451180
Foreign Banks						
(4) Domestic Assets	6071	7333	10437	11865	13829	18139
(4-1) Securities	287	238	482	931	1479	1888
(4-2) L & D	2711	3114	4012	3367	3131	3431
(4-3) = (4-2)/(6)	23.1	20.8	23.7	20.3	16.1	13.9
(4-4) Loans in for. cu	1945	1816	2268	2605	2300	4839
(5) Foreign Assets	593	863	1108	1406	1876	2305
(5-1) For. Cur. & Bills	545	786	932	1260	1649	1978
(6) Total Assets	11745	14980	16924	16541	19425	24694
(7) = (6)/(3)*100	9.41	8.12	6.73	5.12	5.12	5.47
LIABILITIES and CAPITAL						
Deposit Money Banks						
(8) Domestic Liabilities	91332	138031	183825	239642	282960	332230
(9) Foreign Liabilities	7092	7305	11572	16756	24513	36672
(10) Total Liabilities	118469	171444	235471	302300	356754	426075
(11) Total Capital	6239	13109	15851	20656	22762	25105
Foreign Banks						
(12) Domestic Liabilities	1905	2915	3913	2937	3082	3231
(12-1) Deposits	542	828	616	346	304	457
(13) Foreign Liabilities	4036	4172	6073	8377	10059	13955
(13-1) Borrowings in for. cur.	206	367	422	1033	1154	1382
(13-2) Interoffice	3749	3749	4707	5525	8726	12318
(14) Total Liabilities	11020	13870	15659	12860	16861	21436
(15) Total Capital	723	1109	1302	1750	2564	3258

Source: Bank of Korea, Monthly Bulletin, various issues

Unit: line (1-3), (4-3) and (7) are in percent, all other figures are in billion Korean won.

banks lies in the share of loans & discounts out of total assets. The share for deposit money banks as a whole was some 40 percent throughout the period while that of foreign banks accounted for some 20 percent. This difference can be explained by the increased share of foreign banks in loans in foreign currency and customer's liabilities on acceptance & guarantees reflecting their competitiveness in these businesses.

3. Foreign Bank Penetration

Foreign banks first arrived in Korea in 1962. Table 9 shows the change in the number of branches over the last 30 years. The number of branches has increased rapidly reflecting their relative growth compared to domestic commercial banks. By 1996, there were 47 and 23 offices from 19 countries and 23 offices from 19 countries. The number of branches changed little in the 1990s. With the entry into developed markets, banks from other countries have increased their presence in Korea. Foreign bank penetration reached the end of 1997 (52 foreign banks out of 100 banks).

Foreign banks penetration in total assets. Unlike the share of banks measured by deposits, penetration has been decreasing over the period. At the end of 1996, Foreign banks' share of total assets was smaller than the estimate (6 percent) based on the end of the non-dominance of foreign banks. This is consistent with Levine (1996).

[Table 9] Number of Foreign Banks

year	65-75	76-80	81-90
Branches			
Opened	9	24	44
Closed	0	0	8
Total (A)	9	24	36
Offices			
Opened	9	17	40
Upgraded	2	5	28
Closed	0	0	7
Total (B)	7	12	5
Total (A+B)	16	36	41

Source: Bank Supervisory Office, Statistics

4. Foreign and Domestic

Table 10 presents evidence on the performance of performing loans over the period 1988-1996.

14) This figure is different than that of domestic banks.

Deposit Money Banks

1994	1995	1996
260540	308694	365381
35052	45089	56023
138560	152478	177184
42.9	40	39.3
13522	17654	23009
16514	21542	28626
11460	15268	20090
322956	379517	451180
11865	13829	18139
931	1479	1888
3367	3131	3431
20.3	16.1	13.9
2605	2300	4839
1406	1876	2305
1260	1649	1978
16541	19425	24694
5.12	5.12	5.47
239642	282960	332230
16756	24513	36672
302300	356754	426075
20656	22762	25105
2937	3082	3231
346	304	457
8377	10059	13955
1033	1154	1382
5525	8726	12318
12860	16861	21436
1750	2564	3258

in billion Korean won.

total assets. The share for deposit throughout the period while that of difference can be explained by the currency and customer's liabilities unevenness in these businesses.

3. Foreign Bank Penetration

Foreign banks first arrived in Korea in 1967 when Chase Manhattan opened its first branch. Table 9 shows the change in number of foreign bank branches and offices over the last 30 years. The number of branches and volume of business expanded rapidly reflecting their relatively advantageous business circumstances vis-a-vis domestic commercial banks. By the end of January 1998, 68 foreign banks branches and 23 offices from 19 countries had a business presence in Korea and this figure changed little in the 1990s. With the expansion of business outside their traditional developed markets, banks from Australia, Canada and Pakistan have increased their presence in Korea. Foreign bank penetration as a share of total banks was 0.63 at the end of 1997 (52 foreign banks out of 82 deposit money banks).¹⁴⁾

Foreign banks penetration in terms of total assets is reported in Line (7) of Table 8. Unlike the share of banks measure, according to the total assets criterion, foreign bank penetration has been decreasing from 9.4 percent in 1988 to 5.0 percent level by the end of 1996. Foreign banks' share of domestic assets was 5.0 percent in 1996, a figure smaller than the estimate (6 percent) of Gelb and Sagari (1990), yet further indication of the non-dominance of foreign banks in domestic financial market. This is also consistent with Levine (1996).

[Table 9] Number of Foreign Branches and Offices in Korea

year	65-75	76-80	81-90	1991	1992	1993	1994	1995	1996	1997	Total
Branches											
Opened	9	24	44	6	5	2	1	0	0	5	96
Closed	0	0	8	5	2	1	3	1	4	4	28
Total (A)	9	24	36	1	3	1	-2	-1	-4	1	68
Offices											
Opened	9	17	40	5	2	4	0	2	1	3	83
Upgraded	2	5	28	3	1	1	1	0	0	3	44
Closed	0	0	7	3	1	2	0	0	2	1	16
Total (B)	7	12	5	-1	0	1	-1	2	-1	-1	23
Total (A+B)	16	36	41	0	3	2	-3	1	-5	0	91

Source: Bank Supervisory Office, Statistics on Bank Management, 1997

4. Foreign and Domestic Banking Efficiency During Liberalization

Table 10 presents evidence on bank profitability, productivity, and non-performing loans over the period 1987-1996. Foreign banks clearly enjoy an

14) This figure is different than that in Table 1 since BankScope data base only covers the largest banks.

advantage. Foreign banks achieve much higher return-on-assets (ROA) and return-on-equity (ROE), which may partially reflect the fact that foreign banks (1) make more loans per employee and earn bigger profits per employee than domestic banks, and (2) have few non-performing loans as a share of total loans. The huge gaps between domestic and foreign banks suggest that Korea's economy will importantly benefit from improvements in its banking system, which may be spurred by foreign bank entry.

Indeed, domestic banks in the 1990s seem to be responding positively to these competitive pressures. Specifically, non-performing loans as a share of total loans fell by 85 percent over the period 1987-1996, and loans per employee rose by 235 percent. Although the recent crisis in Korea reveal deep problems, recent experience also suggests that liberalization and competition offer great opportunities for Korea to improve the functioning of its domestic banking system and thereby promote further expansion during the coming decades. Nonetheless, the current weak state of Korea's domestic banking system suggests that now may not be the time for additional liberalization since greater foreign bank entry would put even greater pressures on domestic banks.

[Table 10] Efficiency Indicators of Foreign Banks and Domestic Banks

DOMESTIC BANKS										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
ROA ¹⁾	0.23	0.43	0.71	0.77	0.73	0.72	0.62	0.62	0.38	0.32
ROE ²⁾	4.33	6.13	6.65	6.28	6.58	6.69	5.9	6.09	4.19	3.8
PPE ³⁾	1.6	3.7	6.6	8.7	8.8	10.4	10.5	11.8	7.9	7.4
LPE ⁴⁾	491	513	569	677	758	928	1054	1250	1414	1635
EXPE ⁵⁾	12.9	14.5	16.6	19.1	22.1	26.8	30.1	35.5	41.9	48.8
NPL ⁶⁾	5.4	5	3.1	2.1	1.8	1.7	1.8	1	0.9	0.8
FOREIGN BANKS										
	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
ROA ¹⁾	NA ⁷⁾	NA	1.82	1.38	1.51	1.47	1.21	1.39	1.24	1.61
ROE ²⁾	NA	NA	15.56	12.26	13.26	13.33	9.55	10.96	10.28	12.51
PPE ³⁾	NA	NA	53	47	65	75	62	78	88	142
LPE ⁴⁾	NA	NA	1720	1683	2208	2528	2142	2181	2346	2734
EXPE ⁵⁾	NA	NA	44	50	54	56	64	75	73	86
NPL ⁶⁾	NA	NA	NA	NA	NA	0.87	0.81	0.5	0.2	0.08

Source: Bank Supervisory Office, Statistics on Bank Management, various issues.

Note: 1) Return on Assets: Trust account excluded

2) Return on Equity

3) Profit per Employee in million Korean won.

4) Loans per employee in million Korean won.

5) Expenses per Employee in million Korean won.

6) Ratio of non-performing loans to total loans.

7) NA: not available.

Recent instability in world financial markets has led to a relaxation of liberalization restrictions on foreign bank entry. This paper empirically addresses policy matters that arise from the fact that greater foreign bank entry tends to reduce the efficiency of the domestic banking system. Specifically, greater foreign bank entry tends to reduce the efficiency of the domestic banking system. Specifically, greater foreign bank entry tends to reduce the efficiency of the domestic banking system. Specifically, greater foreign bank entry tends to reduce the efficiency of the domestic banking system.

We also examine the competitive pressures on domestic banks. The data indicate that greater foreign bank entry and the efficiency of domestic banks. The data indicate that greater foreign bank entry and the efficiency of domestic banks. The data indicate that greater foreign bank entry and the efficiency of domestic banks. The data indicate that greater foreign bank entry and the efficiency of domestic banks. The data indicate that greater foreign bank entry and the efficiency of domestic banks.

Bank of Korea, *Monthly Statistical*

Bank of Korea, Office of Bank Supervision, Bank of Korea).

_____, (in Korean) (1996), Bank of Korea).

Beck, Thorsten; Levine, Ross; and Laeven, Luc. (1996) "Banking Deregulation and Growth," World Bank Working Paper No. 150.

Calvo, G. A. (1996) "Capital Flows and the Real Estate Market in Mexico," *Lessons International Journal of Finance and Economics*, 1(1), 1-16.

Caprio, G., and Klingebiel, D. (1996) "Banking Deregulation: A Cross-Country Experience," Washington, D.C., Peterson Institute for International Economics.

Caprio, G., and L. Summers, (1996) "Banking Deregulation: A Cross-Country Experience," Policy Research Working Paper No. 150.

return-on-assets (ROA) and return-
fact that foreign banks (1) make
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Korea's economy will importantly
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be responding positively to these
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Foreign Banks and Domestic Banks

1992	1993	1994	1995	1996
0.72	0.62	0.62	0.38	0.32
6.69	5.9	6.09	4.19	3.8
10.4	10.5	11.8	7.9	7.4
928	1054	1250	1414	1635
26.8	30.1	35.5	41.9	48.8
1.7	1.8	1	0.9	0.8
1992	1993	1994	1995	1996
1.47	1.21	1.39	1.24	1.61
3.33	9.55	10.96	10.28	12.51
75	62	78	88	142
2528	2142	2181	2346	2734
56	64	75	73	86
0.87	0.81	0.5	0.2	0.08

ment, various issues.

V. Conclusions

Recent instability in world financial markets may make policymakers reluctant to ease liberalization restrictions on the entry and activities of foreign banks. This paper empirically addressed policymaker concerns regarding foreign banks. The data show that greater foreign bank entry does not increase the fragility of the domestic banking system. Specifically, greater foreign bank activity does not increase the probability that a country will experience a banking crisis. Moreover, our analysis indicates that foreign bank entry tends to reduce the chances that a country will experience a crisis; foreign bank entry tends to boost financial stability.

We also examine the connections between foreign banks and domestic bank performance. The data indicate a strong positive association between foreign bank entry and the efficiency of domestic banks. We also find that this improvement in domestic bank efficiency translates into faster long-run economic growth. Thus, the data are consistent with the story that as barriers to foreign bank entry fall, the more competitive atmosphere spurs rapid improvements in domestic bank efficiency that positively influence economic performance. The particular case of Korea supports this conclusion. As restrictions on foreign banks fell, Korean banks responded by boosting the quality of their loan portfolios and raising productivity. While foreign banks are still much more efficient than Korean banks, the aggressive response by Korean banks suggests that the beneficial effects of competition will be felt in Korea in coming years.

References

- Bank of Korea, *Monthly Statistical Bulletin*, various issues (Seoul, Bank of Korea).
- Bank of Korea, Office of Bank Supervision (1996) *Banking Supervision in Korea* (Seoul, Bank of Korea).
- _____, (in Korean) (1997) *Statistics on Bank Management* (Seoul, Bank of Korea).
- Beck, Thorsten; Levine, Ross; and Loayza, Norman (1998) "Finance and the Sources of Growth," World Bank mimeo.
- Calvo, G. A. (1996) "Capital Flows and Macroeconomic Management: Tequila Lessons" *International Journal of Finance & Economics*, 1, pp. 207-224.
- Caprio, G., and Klingebiel, D. (1996) "Dealing with Bank Insolvencies: Cross Country Experience", Washington, D.C., The World Bank.
- Caprio, G., and L. Summers, (1993) "Finance and its Reform: Beyond Laissez-Faire" Policy Research Working Paper No. 1171, The World Bank.

- Chari, V.V., and Jagannathan, R. (1988) "Banking Panics, Information, and Rational Expectations Equilibrium", *Journal of Finance*, 43; pp. 749-761.
- Cho, Y.J. and Khatkhate, J. "Lessons of Financial Liberalization in Asia," World Bank: Discussion Paper No. 50, 1989.
- Claessens, S., Demirguc-Kunt, A., and Huizinga, H. "How Does Foreign Entry Affect the Domestic Banking Market?" Washington, D.C.: World Bank mimeo, 1997.
- CrossBorder Capital, (1997) *CrossBorder Capital: Global Asset Allocation*, June (London, CrossBorder Capital).
- Demirguc-Kunt, A. and Detragiache, E. "Banking Crises Around the World: Are There Any Common Threads?" World Bank mimeo, October 1997.
- Demirguc-Kunt, A. and Detragiache, E. "The Determinants of Banking Crises: Evidence from Developing and Developed Countries," IMF Working Paper No. 106, Washington, D.C., 1997.
- Demirguc-Kunt, A. and Detragiache, E. "Financial Liberalization and Financial Fragility," Paper presented at the World Bank's Annual Bank Conference on Development Economics, April 1998.
- Easterly, William and Levine, Ross. "Africa's Growth Tragedy: Policies and Ethnic Divisions," *Quarterly Journal of Economics*, November 1997.
- Euh, Y.D. and Baker, J. *The Korean Banking System and Foreign Influence*, London: Routledge, 1990.
- Gelb, Alan and Silvia Sagari (1990) "Banking," in P. Messerlin and K. Sanvant, eds, *The Uruguay Round: Services in the World economy*, Washington, D.C.: The World Bank and UN Center on Transnational Corporations.
- Glaessner, T. and Oks, D. "NAFTA, Capital Mobility, and Mexico's Financial System," World Bank, Mimeo, 1994.
- International Monetary Fund (1996) *International Capital Markets*, September 1996.
- Kim, Jong Tae (1997) "Foreign Banks Making Inroads - And Money- in Korea," *Business Korea*, January, 58-60.
- Levine, Ross "Foreign Banks, Financial Development, and Economic Growth," in Claude E. Barfield, Ed., *International Financial Markets: Harmonization versus Competition*, Washington, D.C: AEI Press, 1996, pp. 224-254.
- Levine, Ross "Financial Development and Economic Growth: Views and Agenda," *Journal of Economic Literature*, June 1997a, 35(2), pp. 688-726.
- Levine, Ross "The Legal Environment, Banks, and Long-Run Economic Growth," *Journal of Money, Credit, and Banking*, August 1998.
- Levine, Ross; Loayza, Norman; Beck, Thorsten. "Financial Intermediation and Growth: Causality and Causes," University of Virginia, mimeo, 1998.
- Levine, Ross and Zervos, Sara. "Stock Markets, Banks, and Economic Growth," *American Economic Review*, June 1988.
- Lindgren, C.J., Garcia, G., and ...
Policy, IMF, Washington D
- Min, Hong G. (1998) "Determina
Fundamentals Matter?", V
- McFadden, Catherine "Foreign B
- Peek, Joe and Rosengren, Eric S
Estate Collapse on Credit
Federal Reserve Bank of B
- Peek, Joe and Rosengren, Eric S.
The Case of Japan," *Ameri*
505.
- Reserve Bank of Australia, *Campb*
- Terrell, H.S. "The Role of Foreign
ed., *Financial Policy and R*
Books, 1986.
- Vittas, Dimitri, "Free Trade Issu
1995.
- White, Lawrence J. "Compe
International Regulation
International Financial Ma
D.C: AEI Press, 1996, pp.

panics, Information, and Rational
 43; pp. 749-761.
 eralization in Asia," World Bank:
 "How Does Foreign Entry Affect
 D.C.: World Bank mimeo, 1997.
al Asset Allocation, June (London,
 ses Around the World: Are There
 , October 1997.
 eterminants of Banking Crises:
 ountries," IMF Working Paper No.
 al Liberalization and Financial
 k's Annual Bank Conference on
 rth Tragedy: Policies and Ethnic
 umber 1997.
 n and Foreign Influence, London:
 P. Messerlin and K. Sanvant, eds,
conomy, Washington, D.C.: The
 Corporations.
 and Mexico's Financial System,"
pital Markets, September 1996.
 roads - And Money- in Korea,"
 ent, and Economic Growth," in
al Markets: Harmonization versus
 6, pp. 224-254.
 ic Growth: Views and Agenda,"
), pp. 688-726.
 l Long-Run Economic Growth,"
 1998.
 "Financial Intermediation and
 Virginia, mimeo, 1998.
 Banks, and Economic Growth,"

Lindgren, C.J., Garcia, G., and M. Saal (1996) *Bank Soundness and Macroeconomic Policy*, IMF, Washington DC.
 Min, Hong G. (1998) "Determinants of Emerging Market Bond Spreads: Do Economic Fundamentals Matter?", World Bank Policy Research Working Paper, No.1899.
 McFadden, Catherine "Foreign Banks in Australia," World Bank, mimeo, 1994.
 Peek, Joe and Rosengren, Eric S. "Collateral Damage: Effects of the Japanese Real Estate Collapse on Credit Availability and Real Activity in the United States," Federal Reserve Bank of Boston, Working paper No. 97-5.
 Peek, Joe and Rosengren, Eric S. "The International Transmission of Financial Shocks: The Case of Japan," *American Economic Review*, September 1997, 87(4), pp. 495-505.
 Reserve Bank of Australia, *Campbell Report*, Sydney, Australia, 1983.
 Terrell, H.S. "The Role of Foreign Banks in Domestic Banking Markets," in H. Cheng, ed., *Financial Policy and Reform in Pacific-Basin Countries*, Lexington: Lexington Books, 1986.
 Vittas, Dimitri, "Free Trade Issues in Banking and Insurance." World Bank, mimeo, 1995.
 White, Lawrence J. "Competition versus harmonization: An Overview of International Regulation of Financial Services," in Claude E. Barfield, Ed., *International Financial Markets: Harmonization versus Competition*, Washington, D.C: AEI Press, 1996, pp. 5-48