A note on foreign bank ownership and monitoring: An international comparison

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Abstract

This paper empirically analyzes the relation between foreign bank ownership and the three pillars of the New Basel Capital Accord (i.e., capital regulatory oversight, supervisory oversight, and market discipline). Using a new database covering 153 countries, we find that countries with greater market discipline have a lower presence of foreign banks operating in their economy. Furthermore, our evidence indicates that capital regulatory oversight and supervisory oversight are not significantly related to foreign bank ownership.
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1. Introduction

A well-functioning financial system is important to promote economic growth and stability, particularly in low and middle-income countries (Levine, 2005; Barth et al., 2006; hereafter BCL). In addition, a growing body of research shows that, in order to provide strong and stable financial markets, better informed management and improved supervisory practices, along with more reliable information, are needed (see Barth et al., 2004; Demirgüç-Kunt et al., 2004; Barth et al., 2007). In particular, recommendations from the industrialized countries that comprise the Basel Committee, labeled the New Basel Financial Accord, or Basel II, provide such guidelines. The Basel II guidelines, which were to be implemented in 2006, are categorized into three pillars: capital regulatory oversight, supervisory oversight, and market discipline. The goal of these risk-based measures is to promote efficient capital allocation by (1) encouraging banks to utilize risk-based capital ratios, (2) increasing the ability of regulatory officials to oversee banks, and (3) improving the quality of information disseminated to the market.

The most complete form of bank regulation is outright ownership. This form of control would be preferred if government-owned banks facilitated the mobilization and allocation of savings toward strategic projects with long-term economic benefits. However, studies show that the concentration of government ownership in a domestic banking system is negatively related to the financial development, performance, and growth of a host economy (BCL; La Porta et al., 2002).

In addition, research has focused on the economic impact of foreign bank ownership. These results are mixed. One view holds that the unfettered entry of banks into a country could result in destabilization of the banking system through the introduction of excessive risk without commensurate returns (see Hellmann et al., 2002, 2000). Alternatively, other research suggests that the presence of foreign banks can improve overall competition and provide greater availability of funds at more favorable rates, ultimately providing a more sound banking system (see Berger and Humphrey, 1997; Claessens et al., 2001; Dopico and Wilcox, 2002). Furthermore, more efficient foreign banks

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provide greater improvements than domestic and government-owned banks for emerging economies (see Berger et al., 2004, 2005).[1]

To date, the literature provides evidence that both foreign bank ownership and the Basel II Accord can improve economic conditions within a country. In general, the original Basel principles and the new Basel II Accord are directed at promoting sound banking and supervision practices and do not, per se, directly address the presence of foreign ownership within a host country. Yet, it is conceivable that the decision of foreign banks to operate within a country is contingent upon a host country's overall competition or policies regarding capital restrictions and regulatory oversight. No study has focused on what influence, if any, the Basel guidelines have on the presence of foreign bank ownership.

This study empirically evaluates the presence of foreign bank ownership within a domestic economy and its association with overall banking soundness, as promoted by the Basel Committee guidelines. If foreign banks self select to operate in an economy, what policy attributes seem to affect their decision? To test this notion, we examine the relation between foreign bank ownership and each of the three pillars of Basel II: capital regulatory oversight, supervisory oversight, and market discipline. We find that the level of market discipline in a country, as measured by the level of monitoring, is negatively related to the presence of foreign ownership. In addition, our findings indicate that capital regulatory oversight and supervisory oversight have no relation to foreign ownership.

2. Data, methodology, and descriptive statistics

We use the country-level dataset from BCL, which represents the most comprehensive, country-level data currently available regarding global banking systems. BCL, in conjunction with the World Bank, gathered responses to 262 questions from central banking authorities in 152 countries.[2] The time period for completion of the survey was 2003 and early 2004. As BCL note, the responses represent the "official" government position. The dataset includes a number of indices, constructed by combining answers to related questions, to measure elements of governance and regulation, such as capital requirements and regulation in a country and the extent to which there are government-imposed limitations to foreign bank entry and ownership. The availability of this data allows for a broader empirical examination of foreign bank ownership than was previously possible.

Our model defines foreign ownership as a function of variables measuring each of the three pillars of Basel II, as well as controls for the political economy and economic prosperity in each country. The model is of the following form:

$$\text{Foreign ownership} = \alpha + \beta_1 \text{Basel II} + \beta_2 \text{POLITICAL} + \beta_3 \text{ECONOMY} + \varepsilon. \tag{1}$$

The exact definition and source of each variable is given in Table 1. Basel II contains measures for the three pillars. The first pillar, capital regulatory oversight, is measured using the capital regulatory index, which considers several degrees of capital that banks are required to possess, as well as the extent to which that capital is verifiable by banking authorities. The second pillar, supervisory oversight, is estimated using two separate components: supervisory power and supervisory independence. Supervisory power values the extent to which banking authorities have the power necessary to take appropriate action. Supervisory independence indicates whether the banking authority is independent from the government.

The third pillar, market discipline, is estimated using a measure of monitoring that is an equally-weighted index of three elements that control for the reliability and existence of external bank monitoring.[3] The first two elements are the percent of the 10 biggest banks rated by international and domestic credit rating agencies, respectively. These controls capture the level of monitoring outside the control of the bank. The third element is the external governance index (EGI) used by BCL, which includes components pertaining to the effectiveness of external audits, the transparency of financial statements, whether banks use International Accounting Standards (IAS) or US. Generally Accepted Accounting Principles (GAAP), and the evaluations by rating agencies and the incentives for future monitoring by creditors.

In keeping with earlier works, we control for country-specific political variables contained in POLITICAL. One control measure is the influence of democracy on foreign ownership. This captures the degree to which a particular country adheres to the democratic process, resulting in greater transparency in government. We expect the level of democracy to bear a positive relation with the degree of foreign ownership, ceteris paribus. In addition to democracy, the adherence to the rule of law, or corruption index, is of major importance to any entity operating in another country. Our measure of corruption provides a long-term indication of the overall level of government

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[1] See Goldberg et al., 2000; Crystal et al., 2002; Unite and Sullivan, 2003; Bonin et al., 2005a; Bonin et al., 2005b; Megginson, 2005. Alternatively, we acknowledge that other studies show that, in developed countries, foreign banks are not as efficient as domestic private banks (see DeYoung and Nolle, 1996; Chang et al., 1998). For a more detailed and well discussed summary of the foreign bank efficiency literature, see Berger, 2006.

[2] BCL subsequently added data from China in the full sample as the 153rd country.

[3] There is no literature to suggest whether one component in the monitoring index is more important than the others, so we choose to equally weight each component. Our results, however, are qualitatively the same when using other weighting schemes. For composition, we report only the equally-weighted results.

Table 1
Variable descriptions

Measure of foreign ownership	
Foreign ownership	Percentage of the banking system's assets in banks that are 50% or more foreign owned as of year-end 2001
	Source: Barth et al. (2006)
Measure of capital regulatory oversight	
Capital regulatory index	On a scale from 3 to 10, capital regulatory index measures "both the amount of capital and verifiable sources of capital that a bank is required to possess" (Barth et al., p. 121)
	Source: Barth et al. (2006)
Measures of supervisory oversight	
Supervisory power	On a scale from 4 to 14, Official Supervisory Power measures the extent to which supervisory authorities have the power to take actions to prevent and correct problems
	Source: Barth et al. (2006)
Supervisory independence	On a scale from 0 to 3, Overall Supervisory Authority Independence measures "the degree to which the supervisory authority is independent from the government and legally protected from the banking industry" (Barth et al., p. 350)
	Source: Barth et al. (2006)
Measure of market discipline	
Monitoring index	Monitoring index is an equally-weighted index of the following three items: (1) The percent of the largest 10 banks rated by international credit rating agencies, (2) The percent of the largest ten banks rated by domestic credit rating agencies, and (3) the external governance index (EGI). The EGI is constructed by Barth et al. (2006) as the sum of seven variables measuring the effectiveness of a bank's external audits, the sum of six variables measuring the transparency of a bank's financial statements, a variable measuring whether accounting practices for banks are in accordance with International Accounting Standards or US. Generally Accepted Accounting Standards, where yes = 1 and no = 0, and the sum of five variables measuring "the evaluations by external rating agencies and incentives for creditors of the bank to monitor bank performance" (Barth et al., pg. 357)
	Source: Barth et al. (2006)
Measures of political environment	
Democracy index	On a scale from 0 to 10, Democracy Index is the average democracy score for the period 1970 to 1994. Lower values correspond to less democratic countries.
	Source: La Porta et al. (1999)
Corruption index	On a scale from 0 to 10, Corruption Index is the average of the April and October monthly indices for the period 1982 to 1995. As stated in La Porta et al. (1999), "Low ratings indicate 'high government officials are likely to demand special payments' and 'illegal payments are generally expected though lower levels of government'"
	Source: La Porta et al. (1999)
Government-owned banks	Percentage of the banking system's assets in banks that are 50% or more government owned as of year-end 2001
	Source: Barth et al. (2006)
For. bank limits index	Limitations on foreign bank entry and ownership index is the sum of responses to each of the following three questions, where yes = 0 and no = 1: Are foreign entities prohibited from entering through (1) acquisition, (2) subsidiary, or (3) branch?
	Source: Barth et al. (2006)
Measures of economic environment	
GDP per capita	Level of gross domestic product in US dollars for the most recent year available between 2000 and 2004 divided by population for the most recent year available between 2000 and 2004
	Source: World Bank
Average GDP growth	Average level of GDP growth in US dollars for the years 2000–2004, or for as many of the five years as data is available
	Source: World Bank
Average inflation	Average percentage of annual inflation for the years 2000–2004, or for as many of the recent five years as data is available
	Source: World Bank

The data come from Barth et al. (2006), who gathered responses to 262 questions from central banking authorities from 153 countries in 2003 and early 2004. The responses represent the "official" government position. In addition, annual GDP growth rates and inflation rates for 2000–2004 were collected from the World Bank and the democracy and corruption indices are from La Porta et al. (1999).

Table 2
Descriptive statistics

	Overall sample	Basel member countries	High income	Upper middle-income	Lower middle-income	Low income
Foreign ownership	43.4577	20.2550	20.4668	34.8407	51.1575	62.0433[***]
	(36.5000)	(7.6000)	(10.8000)	(20.7000)	(57.6500)	(65.0000)[***]
Capital regulatory index	6.7152	5.8333	6.0588	6.6875	5.6875	6.2564
	(6.0000)	(6.0000)	(6.0000)	(7.0000)	(6.0000)	(6.0000)
Supervisory power	10.5033	9.8462	9.9706	11.3889	11.2639	9.5888
	(11.0000)	(10.0000)	(10.0000)	(12.0000)	(12.0000)	(10.0000)
Supervisory independence	1.5878	1.5385	1.5833	1.7059	1.5714	1.5116
	(2.0000)	(2.0000)	(2.0000)	(2.0000)	(2.0000)	(2.0000)
Monitoring index	1.3257	1.9434	1.8283	1.4825	1.0217	0.9596[***]
	(1.2318)	(1.7105)	(1.7368)	(1.4816)	(0.7368)	(0.7316)[***]
Democracy index	4.5150	9.6159	7.5636	3.3119	3.7013	2.7864[***]
	(3.3750)	(10.0000)	(9.0000)	(2.1000)	(1.7600)	(0.9600)[***]
Corruption index	6.0350	8.9652	7.6741	5.2011	5.1913	5.1603[***]
	(5.4625)	(9.0476)	(8.4226)	(5.0000)	(5.0000)	(5.0000)[***]
Government-owned banks	16.6719	5.7900	15.9117	22.4927	14.6123	13.9251
	(4.8250)	(0.0000)	(3.9000)	(27.000)	(3.2000)	(1.1000)
For. bank limits index	2.8676	3.0000	2.9143	2.7778	2.7714	2.9777
	(3.0000)	(3.0000)	(3.0000)	(3.0000)	(3.0000)	(3.0000)
GDP per capita	10,978.16	37,639.84	25,192.63	8793.51	6267.43	3449.96[***]
	(3411.98)	(35,485.16)	(24,021.71)	(2891.58)	(2389.60)	(1017.40)[***]
Average GDP growth	3.8992	2.2111	3.1045	4.6721	4.2432	3.5086
	(3.8180)	(2.0920)	(2.6850)	(4.1340)	(4.3420)	(2.8660)
Average inflation	8.1154	1.8923	5.1827	10.2031	10.5684	6.4741
	(4.2620)	(2.1420)	(3.0060)	(6.2500)	(4.4130)	(3.8060)

The data come from Barth et al. (2006), who gathered responses to 262 questions from central banking authorities from 153 countries in 2003 and early 2004. The responses represent the ''official'' government position. In addition, annual GDP, population, GDP growth rates, and inflation rates for 2000–2004 were collected from the World Bank and the democracy and corruption indices are from La Porta et al. (1999). Income quartiles are based on the most recent year GDP data is available between 2000 and 2004. Medians are presented in parentheses below means. For the Low Income quartile, ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively, for mean and median differences with high income countries.

corruption that may be expected in a given country, where lower levels of corruption are represented by higher index values. Both our democracy index and corruption index come from La Porta et al. (1999).

The presence of foreign banks is likely to be further affected by the proportion of banks owned by the government, as well as any government-imposed limits on foreign bank ownership and entry. We control for the proportion of each country's banking system assets that are majority owned by the government, as well as whether foreign banks are prohibited from entering a country through acquisition, subsidiary, or branch.

Three remaining variables, noted by ECONOMY, are included to control for the overall economic conditions of a country. Using World Bank data, we calculate GDP per capita in US dollars. In addition, we calculate the average GDP growth rate and the average inflation rate.

Table 2 offers descriptive statistics for all variables and indices in the overall sample, for the 13 Basel member countries,[4] and by GDP quartile. The mean (median) percentage of foreign ownership is 43.5% (36.5%) of a coun-

try's banking assets, and increases as income level decreases. The mean and median differences in foreign bank ownership between the low and high income quartiles are significant at the 1% level.

The capital regulatory index does not vary substantially across income levels. Similarly, supervisory power and supervisory independence do not have monotonic relations with GDP. The monitoring index, however, is decreasing with income, suggesting that less affluent countries suffer from lower levels of market discipline. It is these countries that are characterized by higher levels of foreign ownership. The mean and median levels of the monitoring index for high income countries are significantly greater than those for low income countries.

Overall, univariate results suggest an inverse relation exists between monitoring and foreign ownership. However, these measures of capital regulatory oversight, supervisory oversight, monitoring, political environment and economic condition likely do not vary independently. Next, we analyze the determinants of foreign ownership in a multivariate framework.

3. Empirical results

Because foreign ownership is a truncated variable, limited to values between 0% and 100%, we use Tobit models

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[4] The 13 Basel member countries include: Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Table 3
Determinants of foreign ownership

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Intercept	3.8141***	3.4800***	4.3514***	3.6640***	4.3508***	3.9557***
	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0001)	(0.0013)
Capital regulatory index	0.0092			−0.0907	−0.0728	−0.0690
	(0.8506)			(0.2345)	(0.2718)	(0.3373)
Supervisory power		0.0211		0.0685	0.0812	0.0955*
		(0.3707)		(0.1970)	(0.1026)	(0.0664)
Supervisory independence		0.1183		0.0223	−0.0695	−0.0787
		(0.1632)		(0.8715)	(0.6038)	(0.5704)
Monitoring index			−0.3858***	−0.4222***	−0.3097**	−0.3350**
			(0.0011)	(0.0051)	(0.0423)	(0.0351)
Democracy index				−0.1033**	−0.1164***	−0.0978**
				(0.0132)	(0.0055)	(0.0331)
Corruption index				0.1468**	0.1458**	0.1596*
				(0.0356)	(0.0421)	(0.0545)
Government-owned banks					−0.0177***	−0.0187***
					(0.0025)	(0.0026)
For. bank limits index					−0.2143	−0.1004
					(0.4482)	(0.7352)
GDP per capita						−0.0000
						(0.4256)
Average GDP growth						−0.0125
						(0.8350)
Average inflation						−0.0161
						(0.3398)
Number of observations	114	120	82	52	51	50

The data come from Barth et al. (2006), who gathered responses to 262 questions from central banks from 153 countries in 2003 and early 2004. The responses represent the "official" government position. In addition, annual GDP, population, GDP growth rates, and inflation rates for 2000–2004 were collected from the World Bank and the democracy and corruption indices are from La Porta et al. (1999). GDP and income quartiles are based on the most recent year GDP data is available between 2000 and 2004. Coefficients from Tobit estimations are presented, with *p*-values in parentheses. The dependent variable is the percentage of a country's banking assets at least majority owned by a foreign bank. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively.

to explain the cross-sectional determinants. First, we present our results for the relation between foreign ownership, the Basel II measures, and country-specific control variables. We then demonstrate their robustness.

3.1. The three pillars of Basel II

The first three models in Table 3 show the relations between foreign bank ownership and the variables that measure each of the three Basel II recommendations.[5] There is no significant relation between foreign bank ownership and capital regulatory oversight, as measured by the capital regulatory index. Likewise, there is no significant relation between foreign ownership and the two measures of supervisory oversight: official supervisory power and supervisory independence.[6] However, market discipline through effective monitoring is significantly related to foreign bank ownership. Decreases in the level of monitoring for a country are associated with increases in foreign bank

ownership. This result is consistent with prior literature suggesting that foreign banks self select to markets where they have a comparative advantage.[7]

Next, we examine the impact of democracy and corruption. In model 4, we find an inverse relation between the level of democracy and the percent of foreign bank ownership. Consistent with BCL, greater levels of democracy provide for more open and competitive banking systems and, hence, less advantage for foreign banks. In addition, more corrupt countries, as measured by lower values of the corruption index, have fewer foreign banks operating in their markets. These relations suggest that foreign banks are taking ownership positions in countries where they have a comparative advantage and will not be exploited by public officials. Of the three recommendations of Basel II, market discipline through monitoring remains the only significant influence of foreign ownership.

Model 5 controls for the extent to which banks are owned by the government, as well as other government limits to foreign bank entry and ownership. We find that

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[5] Although the data encompass 153 countries, data are not available for all variables in all countries.

[6] The coefficients of the two independent variables in model 2 are qualitatively the same if they are separated into two individual Tobit estimations.

[7] These results of models 1–3 also hold when all four variables are included in one model, with one exception. Official supervisory power becomes significant at the 10% level (*p*-value = 0.0916).

government ownership is significantly and negatively related to foreign bank ownership. However, government-imposed limits to bank entry and ownership by foreign entities do not significantly explain foreign ownership when controlling for levels of monitoring and rule of law. Further, limits to foreign bank entry and ownership remain insignificant when the level of government ownership is removed (not shown in the table). The corruption index remains significant, consistent with prior research showing that greater levels of government ownership are associated with less efficient and open countries.[8] The monitoring index continues to be negative and significant.

The effects of economic development, as measured by GDP per capita, average GDP growth, and inflation, are presented in model 6. Our results suggest that levels of wealth creation and inflation do not significantly explain the percentage of foreign bank ownership. In addition, though not shown in Table 3, average GDP growth and inflation remain insignificant even in the absence of controls for monitoring, rule of law, and government ownership of banks. While supervisory power becomes significant at the 10% level, market discipline through monitoring remains the most significant pillar of Basel II in explaining foreign bank ownership.

Our results illustrate the statistical significance between monitoring and foreign bank ownership, yet we cannot easily interpret the Tobit estimate of beta for the monitoring index due to the censored nature of the data. To explain the economic significance of our model, we perform the McDonald and Moffitt (1980) decomposition.[9] For interpretation, we use model 6 and find that 94% of the countries in model 6 had nonzero foreign ownership. Evaluating the data at this point, we can say that 77% of the total change in foreign ownership resulting from a change in the independent variables is generated by marginal changes in the value of the monitoring index. This means that 23% is generated by changes in the probability of any monitoring at all.

We have explored the determinants of foreign bank ownership, controlling for capital requirements, supervisory power and independence, monitoring, the level of democracy and corruption, the extent to which governments own banks or limit foreign ownership, and the economic well-being of countries. We find that the level of market discipline, as measured by the level of monitoring in a country, is always inversely related to the presence of foreign ownership in that country. In light of the Barth et al. (2006) result that shows monitoring increases overall market efficiency, our results are consistent with the notion that foreign banks may self select to economies where they have the greatest economic benefit, or comparative advantage.

3.2. Robustness

To check the robustness of our results, we run four additional specifications. These results are presented in Table 4. One possible explanation of our results is that they may be driven by offshore financial centers. These countries, such as the Cayman Islands, are likely to have substantially lower monitoring and higher foreign ownership. Model 1 of Table 4 reports the results of a Tobit estimation that excludes all countries with populations less than one million.[10] With this specification, the monitoring index and democracy index remain negative, but are no longer significant. GDP per capita becomes significant and negatively related to foreign bank ownership. Although not reported in a table, the monitoring index remains significant (*p*-value less than 10%) when models 3–5 in Table 3 are replicated excluding populations less than one million.

An alternative definition of offshore financial centers, as described by BCL, is countries with excessive foreign ownership. In model 2 of Table 4, we employ this definition by excluding all countries with foreign bank ownership exceeding 95%.[11] The monitoring index and democracy index are negative and significant.

Another possibility is that our findings are due to a subset of countries with high concentrations of external monitoring. In model 3, we exclude those countries where 100% of the largest 10 banks have either domestic or international credit ratings. We find that when there exists less external scrutiny, the statistical significance of monitoring increases and the relation between foreign bank ownership and monitoring is strengthened.

To address a timing issue, model 4 uses only the independent variables collected from BCL. This allows us to estimate our model using only data collected from a single source over a single period, while increasing the power of our tests through an increased number of observations. Again, we find similar results. The monitoring index is significant, as is supervisory power and the proportion of government-owned banks.

In a final note, there exists a potential endogeneity issue between foreign bank ownership and monitoring. It could be the case, for example, that foreign bank presence leads to fewer and less active domestic credit rating agencies. That is, in markets where there is a high concentration of foreign bank ownership, domestic agencies may feel their services are not needed or as valuable to the market, and thus, cease operations. Moreover, the decisions of domestic agencies to stop operating today could be a function of their expectations of future increases in foreign ownership, suggesting a lagged endogeneity problem. To address this issue, one would need a time-series of data to analyze. Unfortunately, the data do not exist at this time. At best,

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[8] See, for example, BCL, and La Porta et al. (2002).
[9] We thank an anonymous referee for this suggestion.

[10] Population of 1,000,000 is between the 17th and 18th percentile of our sample.
[11] Foreign bank ownership of 95% is between the 90th and 91st percentile of our sample.

Table 4
Alternative specifications

	Model 1	Model 2	Model 3	Model 4
Intercept	3.4079***	3.5137***	0.8203	3.8332***
	(0.0050)	(0.0025)	(0.5413)	(0.0001)
Capital regulatory index	−0.0933	0.0258	0.0644	−0.0632
	(0.1530)	(0.7257)	(0.4222)	(0.2125)
Supervisory power	0.0857*	0.1510***	0.2259***	0.0737**
	(0.0739)	(0.0069)	(0.0001)	(0.0415)
Supervisory independence	0.0546	−0.2411*	−0.1464	−0.0372
	(0.6953)	(0.0934)	(0.3410)	(0.6890)
Monitoring index	−0.1816	−0.2655*	−1.1530***	−0.2471**
	(0.2766)	(0.0818)	(0.0001)	(0.0414)
Democracy index	−0.0570	−0.1694***	−0.1002***	
	(0.1815)	(0.0001)	(0.0050)	
Corruption index	0.1561*	0.0908	−0.0212	
	(0.0634)	(0.2116)	(0.8344)	
Government-owned banks	−0.0207***	−0.0159***	−0.0271***	−0.0225***
	(0.0007)	(0.0054)	(0.0001)	(0.0001)
For. bank limits index	0.0963	−0.1496	0.6660*	0.1048
	(0.7204)	(0.5892)	(0.0628)	(0.6229)
GDP per capita	−0.0000***	0.0000	0.0000	
	(0.0006)	(0.5323)	(0.1426)	
Average GDP growth	−0.0010	−0.0581	0.1339*	
	(0.9868)	(0.4189)	(0.0553)	
Average inflation	−0.0232	0.0004	−0.0124	
	(0.1090)	(0.9811)	(0.2293)	
Number of Observations	48	47	29	73

The data come from Barth et al. (2006), who gathered responses to 262 questions from central banks from 153 countries in 2003 and early 2004. The responses represent the ''official'' government position. In addition, annual GDP, population, GDP growth rates, and inflation rates for 2000–2004 were collected from the World Bank and the democracy and corruption indices are from La Porta et al. (1999). Income quartiles are based on the most recent year GDP data is available between 2000 and 2004. Coefficients from Tobit estimations are presented, with *p*-values in parentheses. The dependent variable is the percentage of a country's banking assets at least majority owned by a foreign bank. ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. Model 1 excludes countries with populations of less than one million and model 2 excludes countries with foreign bank ownership exceeding 95% (offshore financial centers). Model 3 excludes countries where 100% of the 10 largest banks have either domestic or international credit ratings. Model 4 includes just Barth et al. (2006) variables.

to address this potential problem, we re-estimate model 6 in Table 3 using an altered monitoring index that excludes domestic credit ratings. We use only the percent of the top 10 largest banks rated by international credit rating agencies combined with the external governance index. If this reverse causation exists between foreign bank ownership and domestic credit rating agencies, dropping this variable from the index should change our results. Our results, however, are robust. In short, we acknowledge that a potential endogeneity problem exists and the results in our analysis should be interpreted as an interesting relation between foreign bank ownership and the level of monitoring in a host country.

4. Conclusions and implications

It is widely recognized that well-functioning banking systems are vital to providing an economic environment that promotes growth and stability. It is also well documented that the degree of government bank ownership acts as a deterrent to sound and efficient banking systems and also has contributed, at least in part, to financial crises around the globe. In contrast, some studies show that for-

eign bank ownership promotes better banking practices. To date, however, there is no evidence on how regulatory guidelines and policy correlate with the degree of foreign bank ownership.

In light of the financial crises over the past two decades, an emerging consensus between policymakers and industry participants is that a new and insightful approach to supervision and regulation needs to be applied. In response to this need, the Basel Committee has provided risk-based guidelines addressing capital regulatory oversight, supervisory oversight, and market discipline.

Using survey data from the central banking authorities of 153 countries, we measure the relation between foreign bank ownership and each of the three pillars of Basel II. We find that capital regulatory oversight and supervisory oversight have seemingly no relation to foreign ownership. However, we find that the degree of market discipline in a country, as measured by the level of monitoring, is inversely related to the level of foreign ownership, suggesting that the degree of foreign bank ownership is greater in countries with greater information asymmetry and, presumably, less competitive markets. This would imply that countries which have low levels of information disclosure

and high levels of foreign ownership could potentially improve their overall economy by enacting policies that promote greater information disclosure.

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