Foreign Banks in Poor Countries: Theory and Evidence

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The question

- Lots of reforms in the financial sector in poor countries
  - what is working and what isn't?
- Foreign bank presence is on the increase
  - is this benefiting host countries?

Background

- **Pros**: Global banks have better technology, management, economies of scale, risk-diversification opportunities, supervision, less corruption potential

- **Cons**: Banking (especially lending to SMEs) requires local knowledge, which foreign banks may lack. Foreign banks may become monopolies. Local supervisors have little power over foreign banks.

Background

- **Empirical evidence so far:**
  - <u>Cross-country studies</u>: foreign bank entry leads to lower interest margins and costs for domestic banks; foreign banks are more efficient and profitable than domestic banks
  - <u>Individual country studies</u>: foreign banks tend to lend mostly to large corporations or the government; little intermediation towards SMEs

What we do

- Model:
  - what happens to the *market equilibrium* when there is entry by banks with a comparative advantage in lending to large and transparent firms? Do other borrowers lose out?

- Testable implications:
  - Aggregate data: more foreign bank presence is associated with less credit to the private sector
  - Bank level data: foreign banks have less credit risk

What we find

In a sample of low income and lower-middle income countries

- more foreign bank presence is associated with a decline in credit to the private sector in cross-sectional OLS *and* IV regressions, and within countries in panel regressions

- within any given country, foreign banks have less loan loss provisions than domestic banks after controlling for country/year fixed effects and bank characteristics

What we find: additional results

- Foreign bank presence is also associated with less access to financial services in developing countries

- When we extend the sample to emerging and advanced countries, foreign bank penetration is no longer a significant determinant of private sector credit

Model: Basic features

Standard credit market model with adverse selection and monitoring

- 3 types of borrower:
  - b types have a risky project that yields less than the bank's cost of funds in expected value terms
  - h and s types have similar safe projects that yield more than the bank's cost of funds
  - the bank cannot tell borrowers apart unless it monitors

Model: Basic features

- Two monitoring technologies:
  - monitor hard information (cost=c_h)→identify *h* types
  - monitor soft information (cost=$c_s > c_h$)→identify s types
  - Foreign banks have a lower cost of monitoring hard information than domestic banks

Model : Possible Equilibrium

- Depending on the parameter, four possible equilibrium outcomes:
  - <u>Pooling</u>: banks do not monitor, everybody borrows at the same interest rate, b types default **(Eq. A)**
  - <u>Separating</u>: banks monitor using both technologies. b types do not borrow **(Eq. B)**
  - <u>Semi-pooling 1</u>: banks monitor hard info and lend to h types. s types are pooled with b types and receive credit **(Eq. C)**
  - <u>Semi-pooling 2</u>: banks monitor hard info and lend to h types. s and b types receive no credit **(Eq. D)**

Model: Foreign bank entry

- **Foreign banks are assumed to have a lower cost of monitoring hard information than domestic banks**
  - This makes the pooling outcome less likely
  - If h types were already monitored, they benefit from the better technology and nothing else changes.
  - If h types were not monitored (the pooling eq.), foreign entry may cause a switch to one of the other outcomes: types s have to pay monitoring costs, a higher interest rate, or they may be cut off from credit → they are worse off

Model: Results

- Foreign bank entry gives hard information borrowers a better tool to sort themselves out. This helps them, but hurts soft information borrowers: they end up getting pooled with the bad types, paying higher monitoring costs, or losing access to credit

- The overall welfare impact depends on parameters, but **soft information types are always either indifferent or worse off**

Model: Results

Testable implications of the cream-skimming model:

- In a sample of countries, credit to the private sector declines with the degree of foreign bank penetration
- Within any given country, foreign banks have a safer loan portfolio than domestic banks

Empirical Analysis

- **Country level regressions :** Banking sector depth and foreign bank presence:

    - cross-sectional *OLS* regressions

    - panel regressions

    - cross sectional *Instrumental Variables* regressions

- **Country level regressions :** credit growth and initial foreign bank presence

- **Bank level regressions**: loan loss provisions of foreign banks versus domestic banks

- **Other regressions:** broadening the sample to include high income countries and emerging markets, access to financial services.

OLS cross-sectional regression

Determinants of private credit: OLS regressions

GDP per capita	7.04 [3.50]***	8.16 [3.94]***	9.05 [5.59]***	6.99 [4.57]***	5.65 [3.40]***	5.17 [3.07]***	6.38 [2.84]***	6.56 [2.69]**
Foreign ownership	-6.59 [0.94]	-15.3 [2.20]**	-22.56 [3.31]***	-19.6 [3.37]***	-18.88 [3.09]***	-21.5 [3.35]***	-23.4 [3.42]***	-23.78 [3.48]***
Transition		-14.33 [3.05]***	-8.88 [2.31]**	-6.99 [1.95]*	-5.2 [1.34]	-4.82 [1.17]	-10.02 [2.16]**	-8.92 [1.83]*
Inflation			-7.02 [4.67]***	-5.92 [4.30]***	-5.76 [4.13]***	-5.53 [3.79]***	-4.3 [2.80]***	-4.41 [2.74]***
Lack of corruption				10.54 [2.67]**	8.45 [2.00]*	9.42 [2.21]**	9.84 [1.58]	8.92 [1.42]
Creditor information					1.48 [2.34]**	1.46 [2.24]**	0.8 [1.01]	0.84 [1.03]
Enforcement speed					423.6 [2.78]***	411.41 [2.70]***	367.52 [1.94]*	392.44 [2.11]**
State banks						-5.42 [0.99]	-11.64 [1.39]	-12.76 [1.57]
Concentration							-7.27 [0.99]	-5 [0.57]
Fiscal								0.73 [1.23]
Observations	62	62	61	61	**59**	59	45	45
R-squared	0.21	0.34	0.56	0.61	**0.63**	0.64	0.66	0.67

Robust t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Cross sectional regression

- Significant and negative association between foreign bank presence and bank credit, after controlling for lower level of intermediation in transition countries

- This does not reflect differences in:

  - overall development;

  - macroeconomic factors (inflation, fiscal balance);

  - corruption (governance);

  - enforcement of contracts & information sharing;

  - importance of state banks or market structure

Robustness

The result holds when:

- Using different data for foreign presence;
- Controlling or not for GDP per capita, or past level of GDP per capita;
- Controlling for "deep" determinants of contracting rights (legal origin) and property rights (settler mortality);
- Controlling for banking crisis;
- Dummy for African countries;

Panel Regressions

Panel A: Fixed effects regressions

	(1)	(2)	(3)	(4)
Lagged dependent variable		0.47	0.53	0.5
		[9.90]***	[10.26]***	[9.22]***
Foreign Ownership	-0.68	-0.3	-0.38	-0.42
	[3.55]***	[1.78]*	[2.15]**	[2.35]**
Log(inflation)			-0.1	-0.1
			[5.44]***	[4.84]***
GDP per capita				0.44
				[1.69]*
Observations	422	419	392	392
country fixed effects	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes
R-squared	0.92	0.94	0.94	0.94
Test AR1 (p value)	0.000	0.02	0.44	0.46

Dependent Variable: Log(Credit to the private sector, in percent of GDP)

Absolute value of t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Panel Regressions (2)

Panel B: System GMM regressions

	(1)	(2)	(4)	(4)
Lagged dependent variable	0.87	0.88	0.85	0.87
	[32.09]***	[29.68]***	[22.17]***	[23.69]***
Foreign Ownership	-0.44	-0.24	-0.39	-0.39
	[2.04]**	[1.64]*	[2.06]**	[1.67]*
Log(inflation)	-0.13	-0.12	-0.14	-0.14
	[4.10]***	[3.71]***	[3.89]***	[4.46]***
State Banks			0.07	-0.24
			[0.39]	[1.99]*
GDP per capita		0.05		0.06
		[1.31]		[1.70]*
Observations	392	392	392	392
country fixed effects	yes	yes	yes	yes
year fixed effects	yes	yes	yes	yes
Sargan test (p value)	0.341	0.836	0.693	0.991
Serial correlation test (p value)				
order 1	0.039	0.047	0.036	0.042
order 2	0.616	0.665	0.616	0.75

Dependent Variable: Log(Credit to the private sector, in percent of GDP)
Absolute value of t statistics in brackets
* significant at 10%; ** significant at 5%; *** significant at 1%

Instrumental variables strategy

- Global banks more likely to enter countries with closer cultural and economic ties
- Proxies for cultural and economic distance from global banks:
  - share of assets of top 100 international banks located in former colonizer country
  - share of population speaking a European language

Foreign Bank Penetration: Instrumental Variable Results

Second Stage	(1)	(2)	(3)	(4)	(2)	(3)
Foreign Ownership	**-23.29**	**-24.43**	**-31.13**	**-25.01**	**-27.6**	**-32.67**
	[1.75]*	**[2.16]****	**[2.50]****	**[2.26]****	**[2.74]*****	**[2.46]****
Transition	-5.9	-7.57	-9.74	-8.53		-4.73
	[1.40]	[2.08]**	[2.60]***	[2.24]**		[1.22]
GDP per capita	5.99	7.19	9.23	7.45	8.2	4.87
	[3.77]***	[4.54]***	[5.77]***	[4.63]***	[3.49]***	[2.84]***
Inflation	-5.98	-6.19	-7.37	-6.37	-7.84	-6.48
	[4.20]***	[4.19]***	[4.76]***	[4.29]***	[4.17]***	[5.03]***
Lack of corruption	7.64	9.9		9.6		6.55
	[1.81]*	[2.44]**		[2.49]**		[1.71]*
Enforcement speed	418.38					42.64
	[2.79]***					[0.21]
Creditor information	1.47					1.48
	[2.32]**					[2.09]**
FDI Liabilities						24.54
						[2.49]**
Portfolio Equity Liabilities						180.73
						[1.77]*
Settler mortality					-4.17	
					[1.73]*	
French legal origin				-1.55	0.23	
				[0.56]	[0.07]	
Observations	58	60	60	60	40	56
R-squared	0.63	0.61	0.55	0.61	0.62	0.66
Hansen J stat	0.82	0.08	0.02	0.01	0.01	0.46
P-val	0.36	0.78	0.88	0.93	0.93	0.50
90 percent confidence interval	[-25.8, -21.4]	[-26.5, -22.4]	[-33.2, -29.1]	[-33.8, -29.7]	[-20.0, -15.3]	[-24.6, -19.9]

First stage of IV regressions

First Stage						
Banks from colonizer	2.59	2.69	2.76	2.69	3.06	2.62
	[6.96]***	[8.25]***	[12.27]***	[6.49]***	[8.47]***	[5.57]***
Official European language	0.16	0.16	0.16	0.16	0.15	0.17
	[2.8]***	[3.12]***	[3.09]***	[3.1]***	[2.92]***	[2.81]***
Partial R-squared	0.19	0.21	0.22	0.20	0.28	0.21
F statistic (excluded instruments)	37.68	46.21	107.08	30.59	48.07	24.19
p-value of F test	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Robust z statistics in brackets						
* significant at 10%; ** significant at 5%; *** significant at 1%						

Credit Growth and Foreign Bank Penetration

controls: initial credit/GDP, inflation, share of state banks

Foreign ownership	**-0.55**	**-0.56**	**-0.68**	**-0.52**	**-0.58**	**-0.54**
	[2.29]**	**[2.42]****	**[2.77]*****	**[2.05]****	**[2.12]****	**[2.33]****
Lack of corruption		0.3	0.33	0.34	0.32	0.29
		[2.44]**	[2.69]***	[2.87]***	[2.01]*	[2.37]**
Banking crisis 1990-93			-0.16	-0.15		
			[1.16]	[1.07]		
Banking crisis 1994-2002			0.16	0.13		
			[2.01]**	[1.52]		
Sub-Saharan Africa				-0.2		
				[1.76]*		
Change in mortality					-0.01	
					[0.06]	
Hyperinflation						0.2
						[0.88]
Observations	59	59	59	59	50	59
R-squared	0.23	0.29	0.34	0.38	0.29	0.3

Results of bank level regressions

		(1)	(2)	(3)	(4)	(5)
Table 9. Panel regressions--Loan Loss Provisions						
Foreign		**-0.24**	**-0.27**	**-0.28**	**-0.26**	**-0.27**
		[3.03]*	**[3.32]***	**[3.38]***	**[3.17]***	**[3.43]***
Loans /assets		0.54	0.54	0.54	0.51	0.50
		[6.42]***	[6.48]***	[6.38]***	[6.17]***	[6.09]***
Size			0.07	0.07	0.00	0.07
			[2.75]***	[2.78]***	[0.06]	[2.06]**
State-owned				-0.10	-0.07	-0.22
				[0.72]	[0.49]	[1.70]*
Capitalization					-0.33	-0.19
					[4.15]***	[2.14]**
Profitability						-0.25
						[3.76]***
Observations		1876	1864	1864	1864	1714
R-squared		0.3	0.31	0.31	0.32	0.37
Number of banks		872	866	866	866	812
Country-year fixed effects		**yes**	**yes**	**yes**	**yes**	**yes**
Bank clusters		yes	yes	yes	yes	yes

Broadening the sample …

Private credit and foreign bank presence

	Low Income and Lower Middle Income	All Countries	High Income
GDP per capita	5.65	5.84	22.33
	[3.40]***	[2.32]**	[1.49]
Foreign ownership	**-18.88**	**-3.98**	**24.46**
	[3.09]*	**[0.32]**	**[0.76]**
Transition	-5.2	-4.8	1.65
	[1.34]	[1.04]	[0.14]
Inflation	-5.76	-5.56	-3.94
	[4.13]***	[2.30]**	[0.57]
Lack of corruption	8.45	12.23	5.45
	[2.00]*	[2.50]**	[0.60]
Creditor information	1.48	1.96	3.79
	[2.34]**	[1.58]	[1.14]
Enforcement speed	423.6	724.48	351.28
	[2.78]***	[1.65]	[0.31]
State banks			
Observations	59	102	43
R-squared	0.63	0.71	0.55

Foreign banks and access to financial services

Panel A - Foreign Banks and branch penetration

	Demographic branch penetration	Demographic branch penetration	Demographic branch penetration	Geographic branch penetration	Geographic branch penetration	Geographic branch penetration
GDP per capita	2.33	2.13	-1.28	-0.77	-0.17	-1.28
	[4.72]***	[4.89]***	[0.70]	[0.52]	[0.13]	[0.70]
Population density	0	0	0.02	0.02	0.02	0.02
	[1.45]	[1.92]*	[1.22]	[1.22]	[1.08]	[1.22]
Foreign ownership	**-5.34**	**-4.6**	**-13.34**	**-12.99**	**-15.14**	**-13.34**
	[3.10]*	**[2.92]***	**[2.38]**	**[2.50]**	**[2.52]**	**[2.38]**
Inflation		0.67			-1.95	
		[1.16]			[1.73]*	
Corruption			2.88			2.88
			[1.13]			[1.13]
Observations	39	39	39	39	39	39
R-squared	0.47	0.49	0.44	0.42	0.46	0.44

Foreign banks and access to financial services

Panel B - Foreign Banks and accounts

	Loan accounts per capita	Loan accounts per capita	Loan accounts per capita	Deposit accounts per capita	Deposit accounts per capita	Deposit accounts per capita
GDP per capita	30.42	18.33	28.08	337.85	252.12	359.53
	[1.91]*	[1.43]	[2.00]*	[4.06]***	[2.96]***	[3.01]***
Population density	0.02	0	0.03	-0.24	0	-0.24
	[0.59]	[0.06]	[0.90]	[1.38]	[0.02]	[1.35]
Foreign ownership	**-91.42**	**-143.35**	**-77.83**	**-926.77**	**-601**	**-892.7**
	[1.42]	**[1.68]**	**[1.38]**	**[3.12]*****	**[2.52]****	**[3.23]*****
Inflation			7.56		193.54	
			[0.52]		[2.35]**	
Corruption		57.67				-106.8
		[1.44]				[0.41]
Observations	18	18	18	24	24	24
R-squared	0.32	0.41	0.33	0.58	0.68	0.58

Conclusions

- Evidence consistent with the hypothesis that foreign bank entry in poor countries leads to cream-skimming…

- …which is good for large, more established firms, but could hurt smaller, more opaque businesses

- Foreign bank entry in poor countries may have some non-negligible costs