Foreign bank ownership and risk-taking Evidence from emerging economies

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The 7th Conference on Emerging Market Finance December 15-17, 2016

Objective:

- This paper addresses the impact of foreign ownership on banks' risk-taking behavior in emerging economies.
- We use the bank-level panel data of more than 1,300 commercial banks in 32 emerging economies from Central and Eastern Europe, Latin America and Asia during 2000-2013,
- We further examine several factors that may potentially contribute to foreign banks' differentiated riskiness from various perspectives.

The Economic Times,

March 23, 2016 [Banking News in India]

- Barclays, Deutsche Bank, HSBC and Standard Chartered have shrunk their business in India.
- UBS, ING, Morgan Stanley and Goldman Sachs have given away their banking licenses.
- European banks are replaced by new multinational banks from Asia.
- As of December 2014, **43 foreign banks** from 26 countries operating as branches a total of 334, and 46 banks from 22 countries as representative offices in India.
- RBI policy towards presence of foreign banks in India is based upon two cardinal principles viz. reciprocity and single mode of presence. (branches or subsidiaries)

Main findings / contributions:

- We find that foreign owned banks take on more risk than their domestic counterparts.
- The contributing factors include:
 - foreign banks' informational disadvantages,
 - agency problems,
 - the contagious effect of parent banks' financial conditions and
 - the disparity between home and host markets.
- We find supportive evidence that these factors play a significant role in affecting foreign banks' risk-taking.

Contributions:

- Focus on banks' risk-taking
- Our research combines two strands of growing literature, i.e.,
 - the economic impacts of foreign bank penetration and
 - the determinants of bank risk.
- We use **bank-level data** and distinguish foreign banks by manually identifying the year-by-year domestic/foreign ownership of more than 1,300 commercial banks in 32 emerging markets.
- We control for a range of risk determinants based on a careful review of extant research, including
 - Individual banks' characteristics,
 - financial regulations,
 - macroeconomic conditions,
 - market structure and some others.
- We identify the factors that may contribute to the different level of riskiness of foreign banks from that of domestic counterparts
- Derive useful policy implications

Figure 1. The average level of foreign bank penetration in emerging economies (bank assets base, 2000-2014)



Figure 1. Foreign bank penetration in emerging economies: The share of foreign bank assets to the banking sector total assets (in percent)



Foreign bank penetration in Europe Asset base, 2000-2014



Foreign bank penetration in Latin America Asset base, 2000-2014



Foreign bank penetration in Asia Asset base, 2000-2014



Foreign bank penetration in Asia (except HK) Asset base, 2000-2014



Foreign bank penetration in Asia Asset base, 2000-2014

year	China	Hong Kong	India	Indonesia	Korea	M alay sia	Pakistan	Philippines	Singapore	Vietnam
2000	0.001	0.907	0.027	0.052	0.044	0.23	0.048	0.026	0.049	0.021
2002	0.001	0.912	0.036	0.064	0.045	0.198	0.065	0.02	0.056	0.021
2004	0.001	0.922	0.052	0.2	0.182	0.217	0.394	0.017	0.032	0.019
2006	0.005	0.917	0.062	0.237	0.196	0.206	0.411	0.017	0.048	0.017
2008	0.019	0.93	0.073	0.267	0.199	0.232	0.512	0.011	0.056	0.018
2010	0.018	0.93	0.057	0.257	0.188	0.211	0.488	0.018	0.086	0.047
2012	0.016	0.929	0.05	0.264	0.108	0.207	0.491	0.012	0.076	0.05
2014	0.015	0.936	0.039	0.266	0.103	0.198	0.485		0.07	0.05

Average loan growth rates of domestic and foreign banks in 7 emerging Asian countries (year-on-year, in %, our sample data), 2000-2009



The role of global banking in financial crises: A case of Banco Santander, SA 10/21/2011, WSJ

10/21/2011, 1

Ties That Bind

Santander moves funds among it's units, counter to what the bank has said.



Santander's defence vs. UK regulators (FSA)' concern

- **Santander** has repeatedly emphasized its units' independence.
 - The bank's 2010 annual report says Santander's subsidiary-based business model avoids "any complex interconnections."
 - A senior Santander spokesman said, "Santander U.K. does not fund any other group units."
- The U.K., Financial Services Authority officials expressed concerns to Santander U.K. about its funding relationship with the parent.
 - The regulators want to ensure that if the Spanish parent encounters trouble, it won't drag down the British subsidiary as well.
 - Regulators worry about global banks taking funds out of their foreign subsidiaries, deteriorated liquidity ratio, and non-transparent funding activities.

Research on internal capital markets in global banking??

International Capital flows via multinational banking: Cross-border risk spillovers in financial crises



Contagion links: funding shock, liquidity shock, cash flow shock,...

[The host country]

[The home country]

Internal Borrowing by U.S.-Chartered Banks from Related Foreign Offices



Source: Board of Governors of the Federal Reserve System, Assets and Liabilities of Commercial Banks in the United States, H.8 release. The series shown is the net amount of borrowing by U.S.-chartered banks from their related foreign offices ("net due to" series).

Source: Cetorelli and Goldberg (2012)

The World Financial Market Power Structure

2008, during the 2007-9 global financial crises... [\$187 tril.]

The web of cross-border investments weakened slightly in 2008



¹ Includes total value of cross-border investments in equity and debt securities, lending and deposits, and foreign direct investment.

SOURCE: McKinsey Global Institute Cross-Border Investments database

International capital inflows to emerging economies in crisis (in \$bil.), 2006-2009



Source: Milesi-Ferretti and Tille (2010); IMF, Balance of Payments Statistics; and BIS, International locational banking statistics

Cross-border bank flows by region (US\$ in bil.)



Source: BIS International locational banking statistics, own calculations

An increasing role of foreign banks in the provision of foreign currency

loans in Korea, 2000Q1-2016Q2, in %/100 FBFCLOANRATIO



Monetary policy interest rates in the U.S., the Euro area, and Korea, 2000Q1-2016Q2





Bank loans by domestic banks and foreign banks in Korea, 2000Q1-2012Q4



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The related literature on the role of foreign banks

- The proponents of foreign bank entry argue that
 - foreign banks enhance competition in domestic banking markets,
 - improve the efficiency of domestic bank operations,
 - provide financial services with lower costs, and
 - play a positive role in economic growth by boosting the efficiency of resource allocation.
- Foreign banks play a **favorable role** in enhancing the host banking market stability.
 - (e.g., Clasessens et al. (2001), Crystal et al. (2002), Clasessens and Laven (2005), Claessens and van Horen (2009), Wu et al. (2010), and Jeon et al. (2011)).
 - Levine, 1996, 2001; Lensink and Hermes, 2004; Goldberg, 2007; Kouretas and Tsoumas, 2016

The related Literature (2)

- The <u>opponents</u> of the growing role of foreign banks are concerned that:
 - foreign banks lack hard information on the creditworthiness of smallersize borrowers in local markets, (Gormley, 2014)
 - tend to have higher interest margins and profitability than domestic banks in developing countries, ("competition-fragility" hypothesis, Beck et al., 2006; Berger et al., 2009),
 - lead domestic banking markets to lower competition.
 - They are also concerned about a sudden stop or reversal of capital and credits during difficult times, especially when the parent banks in home countries suffer from the credit crunch or capital loss.
 - They present evidence that foreign banks are a major channel of the financial shock transmission or contagion, and pose a significant challenge to the effectiveness of monetary policy in host economies (see, for example, Jeon et al. (2012) and Cetorelli and Goldberg (2012a, 2012b)).

The related Literature (3)

- However, extant literature reports only scarce (and even mixed) empirical evidence on the impact of foreign banks on the risk spillovers to domestic banking sector in host emerging economies.
 - Arena et al. (2007)
 - Wu et al. (2011)
 - Vogel and Winkler (2011), Allen et al. (2011),
 - Cetorelli and Goldberg (2010, 2011, 2012b)
 - and Giannetti and Laeven (2012)
 - Bruno and Hauswald (2014)

The measurements of bank risks and data

- the time-varying Z-score
 - Laeven and Levine, 2009; Houston et al., 2010; Demirgüç-Kunt and Huizinga, 2010, and many others),

$$Z_{it} = \frac{ROA_{it} + EA_{it}}{\sigma(ROA)_{it}}$$

- where ROA_{it} denotes the return on assets of bank *i* in year *t*, EA_{it} represents the ratio of equity over total assets, and $\sigma(ROA)_{it}$ is the standard deviation of return on assets.
- A higher value of the *Z*-score suggests a higher stability of the bank
- a lower reading of the *Z*-score implies the bank's higher exposure to insolvency risk.

The measurements of bank risks and data (2)

• Normalize *Z*-scores for each country

$$Z_n_{ijt} = \frac{Z_{ijt} - min(Z_j)}{max(Z_j) - min(Z_j)}$$

- For country j = 1, 2, ...
- where $min(Z_j)$ and $max(Z_j)$, respectively, denote the minimum and maximum value of *Z*-scores for banks in country *j* over the sample period.
- lie in the rage of [0, 1],

The measurements of bank risks and data (3)

• the X-efficiency of banks' financial stability

 $\mathcal{E}_{it} = u_{it} - V_{it}$

applying the stochastic frontier approach (SFA) to the following production function:

$$\ln(\frac{Z}{w_{3}})_{it} = c + \frac{1}{2} \sum_{h=1}^{3} \alpha_{h} \ln(y_{h})_{it} + \frac{1}{2} \sum_{h=1}^{3} \sum_{k=1}^{3} \alpha_{hk} \ln(y_{a_{h}})_{it} \ln(y_{a_{h}})_{it} + \sum_{m=1}^{2} \beta_{m} \ln(\frac{w_{m}}{w_{3}})_{it} + \frac{1}{2} \sum_{m=1}^{2} \sum_{n=1}^{2} \beta_{mn} \ln(\frac{w_{m}}{w_{3}})_{it} \ln(\frac{w_{n}}{w_{3}})_{it} + \frac{1}{2} \sum_{h=1}^{3} \sum_{m=1}^{2} \beta_{hm} \ln(y_{h})_{it} \ln(\frac{w_{m}}{w_{3}})_{it} + \lambda \ln EQ_{it} + \frac{1}{2} \sum_{h=1}^{3} \eta_{i} \ln EQ_{it} \ln(y_{h})_{it} + \frac{1}{2} \sum_{m=1}^{2} \rho_{m} \ln EQ_{it} \ln(\frac{w_{m}}{w_{3}})_{it} + \delta_{1}T + \delta_{2}T^{2} + \varepsilon_{it}$$

$$\mathcal{E}_{it} = \mathcal{U}_{it} - \mathcal{V}_{it}$$

The measurements of bank risks and data (4)

- We define a bank as foreign owned
 - if more than 50% of its capital is held by foreign banks, firms, individuals or organizations.
 - Bankscope, the SDC Platinum ...
- Bank characteristics
 - Size, capital, equity, liquid assets, operational efficiency and growth rate of real assets
- Financial regulations *Barth et al. (World Bank, 2004, 2008, 2013)*
 - the requirement on capital adequacy, the restriction on banks' activity mix, the power of supervisory officials, and the extent to which banks are subject to market discipline.
- Macroeconomic conditions -- *IFS*
- Banking market structure, competition, efficiency,
 - deposit insurance system, rule of law (World Bank)...
 - HHI, Lerner index

Table 4. List of Banks in Korea (2000 – 2009) in the Data Set

	Bank name	year	Home country	Parent bank
1	Busan Bank (Pusan Bank)	2000-9		
2	Jeju Bank (<i>Cheju Bank</i>)	2000-9		
3	Citibank Korea	2000-9	US since 2004	Citigroup
4	Daegu Bank	2000-9		
5	H&CB	2000		
6	Hana Bank	2000-9		
7	Industrial Bank of Korea	2000-9		
8	Jeonbuk Bank	2001-9		
9	Kookmin Bank	2000-9		
10	Korea Exchange Bank	2000-9	US since 2003	Lone Star Fund
11	Kwangju Bank	2000-9		
12	Kyongnam Bank	2000-9		
13	Meritz Investment Bank	2001-6	France	Societe Generale
			domestic since 2006	
14	Suhyup Bank-National Federation of Fisheries Cooperatives	2000-9		
15	Seoul Bank	2000-1		
16	Shinhan Bank (Previous name: Chohung Bank)	2000-9		
17	Shinhan Bank (Old)	2000-5		
18	Standard Chartered First Bank Korea	2000-9	US since 1999	Newbridge Capital (US)
			UK since 2005	Standard Chartered Bank
19	Woori Bank	2000-9		

Descriptive Statistics: Domestic vs. foreign banks 2000-2013.

	Panel A			Panel B					
		All banks		Domestic	Foreign				
	Mean	Std. dev.	Median	Mean	Mean	H ₀ : D > F	$H_0: D = F$	H ₀ : D < F	
Bank risk									
Z	3.315	1.146	3.335	3.418	3.186	1.000	.000	.000	
Z_n	.528	.156	.535	.537	.515	1.000	.000	.000	
<i>Z_v</i>	.484	.167	.512	.495	.470	1.000	.000	.000	

The empirical model: the differential bank risk-taking model

• Our baseline econometric model is described as follows:

 $Risk_{it} = c + \beta \cdot foreign_{it} + \phi \cdot state_{it} + \lambda \cdot Char_{it} + \sigma \cdot Macro_{jt} + \zeta \cdot Regu_{jt} + \eta \cdot other + f_i + \varepsilon_{it}$

- where the dependent variable, *Risk_{it}*, is our indicator of banks' financial riskiness, i.e., *Z*, *Z_n*, and *Z_v*, respectively, in our regressions. *foreign_{it}* and *state_{it}* are ownership dummies for foreign-owned and domestically government-owned banks, respectively. *Char_{it}*, *Macro_{jt}* and *Regu_{jt}* represents the series of bank characteristics of bank *i*, the proxies for bank regulation rules and the macroeconomic conditions for country *j*, respectively,
- The benchmark model is estimated by using the fixed-effects estimator,

Empirical results

- Baseline estimation
 - Using fixed effects estimator and system GMM estimator
 - $-\beta$ (foreign bank) < 0, after controlling other factors
 - foreign banks are more risky than domestic private banks, for all three measures of bank riskiness.
 - <u>Bank characteristics</u> are shown to play important roles in determining a bank's riskiness, in particular, its liquidity and efficiency.
 - The more liquid, the more efficient, the more stable.
 - Macroeconomic conditions and monetary policy are shown to play a role in affecting a bank's riskiness.
 - The more recessionary economy, the more expansionary money, the more risky.

Empirical results: *Baseline estimation (2)*

- The regulatory rules matters:
 - the stricter regulation on capital adequacy and market discipline, the less risky.
 - The more stringent regulation on bank's activity mix, the more risky banks.
- Market structure does matter:
 - The greater competition (the Lerner Index measure), the more risky—"competition-fragility" view
 - Financial depth (domestic credit / GDP) is positively associate with bank stability.

Table 3.

The impact of foreign ownership on bank risk-taking

Dependent variable	Z		Z_	n	Z_v		
	(1)	(2)	(3)	(4)	(5)	(6)	
Bank ownership							
Foreign	360***	297**	042***	036**	059***	038*	
	(.008)	(.033)	(.000)	(.026)	(.004)	(.058)	
State	546**	343	049	027	081*	043	
	(.025)	(.278)	(.105)	(.486)	(.069)	(.338)	
Bank characteristics							
Size	039 (.324)	024 (.580)	002 (.652)	001 (.890)	016** (.017)	016** (.046)	
Liquidity	.003** (.012)	.002** (.049)	.000** (.027)	.000* (.087)	.000** (.047)	.000	
Efficiency	006*** (.000)	005*** (.000)	001*** (.000)	001*** (.000)	001*** (.000)	001*** (.000)	
Income diversification	003*** (.004)	003** (.011)	000*** (.005)	000** (.014)	.000** (.027)	.000** (.026)	
Funding diversification	.001	.001	.000	.000	.000	000	
Growth rate of assets	000 (.376)	001* (.080)	000 (.160)	000** (.030)	.000 (.423)	000 (.805)	
Macroeconomic condition	× ,	~ /	· · ·	~ /	~ /	. ,	
GDP growth rate		.020*** (.000)		.002*** (.000)		.003*** (.000)	
Inflation		001 (.220)		000 (.377)		000 (.350)	
Monetary policy		.016*** (.000)		.001*** (.000)		.001* (.084)	
Crisis		207* (.070)		014 (.316)		019 (.268)	
Financial regulation							
Capital		.033**		.004**		.003	



- The contributing factors include:
 - foreign banks' informational disadvantages,
 - agency problems,
 - the contagious effect of parent banks' financial conditions
 using internal capital markets, and
 - the disparity between home and host markets.

International Capital flows via multinational banking: Cross-border risk spillovers in financial crises



Contagion links: funding shock, liquidity shock, cash flow shock,...

[The host country]

[The home country]

Internal capital markets among global banks

- Multinational banks manage their liquidity on a global base, such that the liquidity constraints and capital inadequacy in multinational banks during the global financial turmoil cause a "reversed" capital flow, via internal capital markets, from foreign subsidiaries in host countries to their headquarters in home countries.
- When host central banks relax their monetary policy, subsidiaries in the host country have more deposits available to lend and these resources can be reallocated toward the liquidity-seeking and capital-needing headquarters in the home country.
- As a result, subsidiaries reduce, rather than increase, their loans within the boundary of host countries in reaction to the expansionary monetary policy.
 - Cetorelli and Goldberg (2011, 2012), Jeon, Olivero and Wu (2013)

The bank risk-taking equation with interaction terms: The impact of modifying factors on foreign banks' risk-taking

 $Risk_{it} = c + \beta \cdot foreign_{it} + \rho \cdot foreign_{it} \times X + \mu \cdot others + f_i + \varepsilon_{it}$

- β (foreign) < 0
- ρ (foreign $\times \mathbf{X}$) ? 0

 $\partial Risk / \partial foreign = \beta + \rho \cdot X$

The estimation results of the risk-taking equation show that foreign banks' risk-taking will be affected by X factors.

Measurements of the contributing factors, X

- foreign banks' informational disadvantages,
 - Age, common languages, law origin, regional FTAs, major FDI partners
- agency problems,
 - Hierarchy of foreign banks, distance, entry modes (de novo vs. M&As)
- the contagious effect of parent banks' financial conditions using **internal capital markets**, and
 - Parents' leverage ratio, inter-office transactions
- the disparity between home and host markets.
 - Real GDP growth, monetary policy ("*risk-taking channel of monetary policy*"), market structure and competition (the Lerner Index), financial regulation

Table 7. The effect of the **entry mode** on foreign banks' risk

Dependent variable			
-	(1)	(2)	(3)
	Ζ	Z_n	Z_v
Panel C: The effect of	entry mode		
Dummy (de novo)	033	004	.029
	(.887)	(.879)	(.445)
Dummy (M&A)	315**	038**	043**
	(.021)	(.016)	(.028)
Panel D: The effect of entry	mode after a fu	rther division of	f M&A foreign
banks			
Dummy (de novo)	.142	.017	.034
	(.489)	(.520)	(.347)
Dummy (M&A_Bad)	-1.963***	197***	238***
	(.000)	(.000)	(.001)
Dummy (M&A_Good)	232*	031**	034*
	(.076)	(.045)	(.075)

Table 9.

The effect of home-host country disparity on foreign subsidiaries' risk

Dependent variable			
	(1)	(2)	(3)
	Ζ	Z_n	Z_v
Panel A: The effect of home and host GI	DP growth rate		
Foreign	296**	037**	040*
	(.037)	(.026)	(.051)
Foreign \times (Home-Host) GDP growth rate	.016**	.002**	.002**
difference	(.044)	(.034)	(.049)
Panel B: The effect of home and ho	st monetary po	licy difference	
Foreign	283**	034**	035*
-	(.041)	(.034)	(.077)
Foreign $ imes$ (Home-Host) MP difference	.030**	.003**	.005***
	(.023)	(.036)	(.009)
Panel C: The effect of home and ho	ost different ma	rket competition	
Foreign	257*	032**	036*
C	(.067)	(.050)	(.072)
Foreign \times (Home-Host) Lerner difference	146***	021***	018***
	(.000)	(.000)	(.000)
Panel D: The effect of home and ho	ost market disci	pline	
Foreign	922***	123***	149***
-	(.002)	(.003)	(.004)
Foreign \times (Home-Host) market discipline	.093**	.013**	.016**
difference	(.021)	(.021)	(.016) 43

Robustness tests

- *Robustness test 1*: alternative measure of bank risk
 - NPLs, $\sigma(ROE)$, the Sharp ratio, ...
- *Robustness test 2*: employing alternative econometric methodologies
 - GMM, 2SLS
- *Robustness test 3*: employing a dynamic model estimation

Conclusions and policy implications

- We find that foreign owned banks take on more risk than their domestic counterparts.
- The contributing factors include:
 - foreign banks' informational disadvantages,
 - agency problems, entry modes
 - the contagious effect of parent banks' financial conditions and
 - the disparity between home and host markets.
- We find supportive evidence that these factors play a significant role in affecting foreign banks' risk-taking.

Conclusions and policy implications (2)

- Policy makers in monetary authority need to keep vigilant to this possible **detrimental impact of foreign prominence** in their banking sector.
- Policy makers need to address possible **risk spillovers from foreign banks** (both in host country and home countries) to the domestic banking sector.
- There is an alternative **source of crisis contagion channel** via multinational banking and cross-border risk spillovers vis foreign banks.

Future research

Does foreign bank penetration affect the risk of domestic banks? Evidence from emerging economies (Jeon et al. 2016)

- By using bank-level data from 35 markets during the period of 2000-2014, we find significant evidence that the riskiness of domestic banks increases with the presence of foreign banks,
- We also explore various conditions for the heterogeneity of the nexus between foreign bank penetration and domestic banks' risk-taking

The impact of foreign banks on the effectiveness of monetary policy: Evidence from emerging economies (Jeon et al. 2017)