Foreign Banks and Macroeconomic Fluctuations: Evidence from Financially Integrated Emerging Markets

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In this paper,

- We examine the association between foreign bank presence (i.e., share of foreign banks in local banking market) and the volatility in real GDP growth rate and its components, mainly consumption and investment.

- We investigate how this relationship changed during the 2008/2009 global crisis.

- In this way, we aim to contribute to literature whether foreign banks play any stabilizing or destabilizing role in emerging markets.

Motivation

▶ Macroeconomic volatility has been a fundamental concern

    ▶ Volatility leads to lower economic growth (Ramey and Ramey, 1995; Mendoza, 1997; Stiglitz, 2000; Fatás, 2002; Laursen and Mahajan, 2005); social welfare (Pallage and Robe, 2003; Loayza, Servén, Ventura, 2007) and has persistent effect (Caprio, 1997)

    ▶ The lack of consumption smoothing causes significantly negative effects on life expectancy, nutrition intake and education of households (Behrman, 1988; Rose, 1994; Foster, 1995)

Motivation

- ▶ Over the last two decades there has been a convergence of business cycles among emerging market economies (EMEs) and among advanced economies.

- ▶ Moreover, there was a growing sense that EMEs had become more resilient to shocks originating in advanced countries (Kose and Prasad, 2010).

Motivation

- However, recent global financial crisis has changed the direction of the debate and cast a shadow over the ability of the EMEs to insulate themselves from external shocks.

- Most of EMEs faced collapsing (volatile), yet showed notable resilience in the aftermath of recent global crisis

Motivation

▶ There is significant variation in the degree of resilience displayed by different groups of EMEs.

  ▶ The ones in the Emerging Europe experienced larger output declines in 2008/2009 crisis than any other region in the world (Blanchard, Faruquee, Das, 2010).

  ▶ Asian emerging markets, especially China and India, have done far better than the economies of Emerging Europe (Kose and Prasad, 2010).

Motivation

- As once mentioned by Stiglitz (2000), "crises have become more severe suggesting a fundamental weakness in global economic arrangements."

- In this study, we focus on local presence of foreign banks, which we think a distinct economic arrangement, and reconsider whether their presence contributes any volatilities on the real economy of EMEs during normal and crisis times.

Literature

- In the literature, only few (*two*) studies that investigate the relationship between macroeconomic fluctuations and foreign banks
    - It seems that the mechanism that shows ownership *per se* is critical element in the volatility is unclear.
    - Yet, understanding their impact on real economy, i.e., empirically, may help some policy considerations especially for EMEs.

Literature on Foreign Banks and Financial Stability

- Several studies look at the link between foreign bank presence and financial stability
  - lowers the probability of incidence of local bank crises (Levine,1999; Demirguc-Kunt, Levine and Min,1998)
  - contribute to greater stability of credit in times of local crisis (Gooldberg, Dages and Kinney, 2000; Detragiache and Gupta, 2004)
  - improve financial stability by their ability to access supportive parent banks that provide liquidity and capital if and when needed (Clarke, Cull and Martinez-Peria, 2006; De Haas and van Lelyveld, 2010; Vogel and Winkler, 2012)
  - source of instability by constraining funding (De Haas and van Lelyveld, 2006, 2014; Kamil and Rai, 2010; Cetorelli and Goldberg, 2011 and Tong and Wei, 2011)

Literature on Foreign Banks and Macroeconomic Volatility

► Only two studies look at the link between foreign bank presence and macroeconomic volatility

  ► Morgan, Strahan and Rime (2004) find that macroeconomic volatility defined as fluctuations in employment growth fell significantly as banks became more integrated

  ► Morgan and Strahan (2004) find that foreign banks amplify macroeconomic volatility in some less-developed economies.

The Model I: A version of Morgan and Strahan (2004)

First-Stage Regressions:

$$\text{GROWTH}_{it} = \eta_i + \mu_t + \Theta \, \text{CONTROL}_{it} + \epsilon_{it}$$

where GROWTH_{it} is real growth rate of GDP, private consumption, investment

Second-Stage Regression:

$$\text{VOLATILITY}_{it} = \alpha + \beta_1 \text{Foreign}_{it} + \beta_2 \text{FinDev}_{it} + \beta_3 \text{FinDev}_{it}^2$$
$$+ \Psi \text{CONTROL}_{it} + u_{it}$$

where VOLATILITY_{it} is absolute value ($|\epsilon_{it}|$) of residuals from the first step estimation

Foreign Bank Presence and Financial Development Measures

- Foreign Bank (FOREIGN)
  - Share of foreign bank assets in total assets of the banking system
  - "Brick-and-Mortar" affiliates of international banks. Subsidiaries that are at least 50 percent owned by the parent bank.

- Financial Intermediary Development (FINDEV)
  - Value of credit by financial intermediaries to the private sector, divided by GDP

Control Variables

- 1st Stage Estimations (Bekaert, Harvey and Lundblad (2005))
    - Trade Openness, Private Capital Flows, Unemployment Rate, Population Growth, Government Expenditures, Years in Secondary school, Inflation, External Debt, Life Expectancy, Local Crisis Dummies
- 2nd Stage Estimations (Morgan and Strahan (2004))
    - Bank Concentration and Real Exchange Rate

Endogeneity Issue

- In the first-stage estimation, ad hoc solution
  - Lag of the dependent variable of growth rate of GDP, CONS, INV

- No evidence of endogeneity in the second-stage regressions

- OLS estimation with heteroskedasticity consistent standard errors

Data

- 24 Emerging market economies over 1998-2011
  - **Latin America:** Argentina, Brazil, Chile, Mexico, Peru, Venezuela
  - **Asia:** China, India, Indonesia, Malaysia, Mexico, Pakistan, Philippines, Thailand
  - **Emerging Europe:** Bulgaria, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Russian Federation, Turkey, Ukraine
  - **Africa:** South Africa

- The data on macroeconomic variables and banking are obtained from WDI, BIS and mostly annual reports of national Central Banks.

The Model II with 2-way Interaction

$$\text{VOLATILITY}_{it} = \alpha + \beta_1 \text{Foreign}_{it} + \beta_2 \text{FinDev}_{it} + \beta_3 \text{FinDev}_{it}^2$$
$$+ \beta_4 (\text{Foreign}_{it} \times \text{FinDev}_{it}) + \Psi \text{CONTROL}_{it} + u_{it}$$

The Model III with 2008-2009 Crisis Dummies (3-way Interaction)

$$
\begin{aligned}
\text{VOLATILITY}_{it} \;=\; & \alpha + \beta_1 \text{Foreign}_{it} + \beta_2 \text{FinDev}_{it} + \beta_3 \text{FinDev}_{it}^2 \\
& + \beta_4(\text{Foreign}_{it} \times \text{FinDev}_{it}) + \gamma_1 \text{Y}_{2008} + \gamma_2 \text{Y}_{2009} \\
& + \gamma_3(\text{Foreign}_{it} \times \text{Y}_{2008}) + \gamma_4(\text{Foreign}_{it} \times \text{Y}_{2009}) \\
& + \gamma_5(\text{Foreign}_{it} \times \text{FinDdev}_{it} \times \text{Y}_{2008}) \\
& + \gamma_6(\text{Foreign}_{it} \times \text{FinDev}_{it} \times \text{Y}_{2009}) + \Psi \text{X}_{it} + u_{it}
\end{aligned}
$$

Table 1. Means and Standard Deviations (in percentages)

	Latin America	Emerging Europe	Asia	South Africa	All Countries
Growth Rate in GDP	3.66	3.90	5.14	3.25	4.17
	(4.58)	(5.25)	(3.99)	(1.86)	(4.67)
Growth Rate in CONS	4.31	4.60	4.85	3.77	4.56
	(5.24)	(6.98)	(3.86)	(2.36)	(5.62)
Growth Rate in INV	7.51	8.07	4.70	5.50	6.84
	(20.50)	(20.75)	(13.86)	(6.61)	(18.50)
Foreign	40.24	54.85	11.40	16.94	37.16
	(18.96)	(32.08)	(8.17)	(11.53)	(29.77)
FinDev	29.95	31.22	68.27	136.37	45.80
	(20.79)	(19.98)	(44.72)	(12.33)	(38.44)

Share of Foreign Banks in Total Bank Assets, Latin America
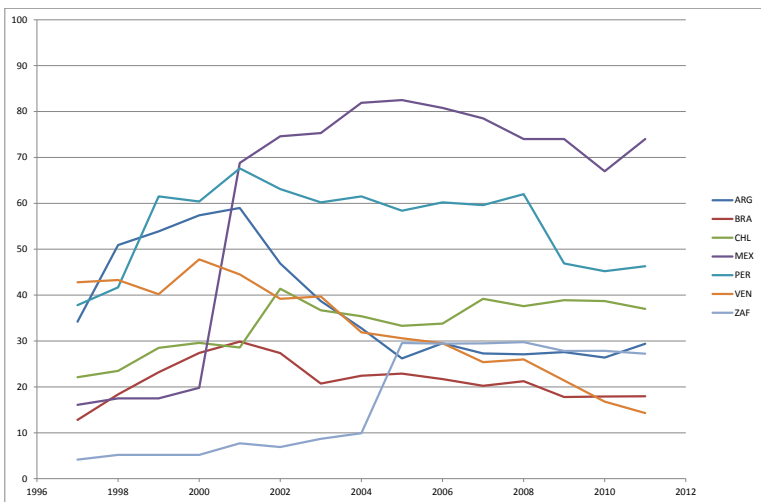
Share of Foreign Banks in Total Bank Assets, Emerging Europe
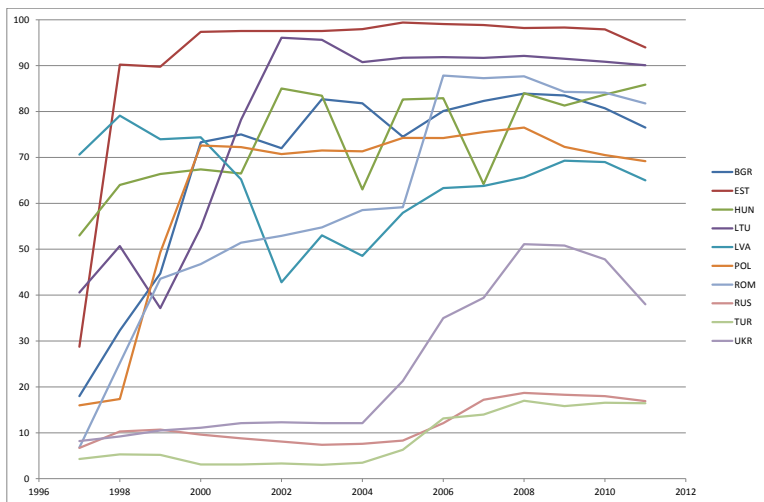
Share of Foreign Banks in Total Bank Assets, Asia
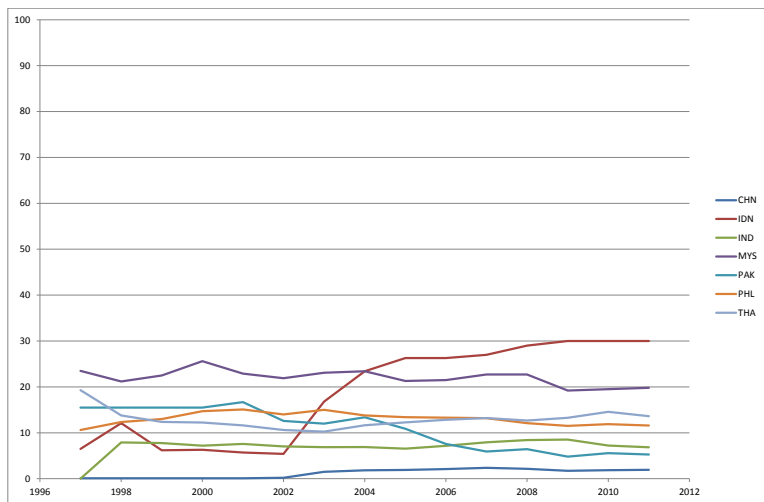
Table A.1. First Stage Estimation of Growth Rate in

	GDP	CONS	INV
Intercept	40.464	112.015	316.857
Trade Openness	6.656 ***	6.501 ***	28.185***
Capital Flows to GDP	0.028	0.039	0.038
Unemployment Rate	-0.279***	-0.504 ***	-0.420
Growth in Population	0.017	0.003	1.218
Years in Secondary School	4.445	-1.401	-7.838
External Debt to GDP	-3.172***	-3.785 ***	-10.070 ***
Government to GDP	-0.517	-3.625 *	5.836
Log(Expected Life)	-13.181	-23.714	-86.586
Log(1+Inflation)	-4.393***	-8.439 ***	-14.231 **
Local Crisis Dummy	-5.131***	-4.863 ***	-23.702 ***
Log(Growth)$_{-1}$	0.098 *	0.135 **	-0.052
Year and Country Fixed Effects	Yes	Yes	Yes
Adjusted R^2	0.555	0.462	0.304
Obs	355	355	355

Table 2. Macroeconomic Volatility Estimations (Model I and II)

	GDP		CONS		INV	
Foreign	0.503	-5.344**	1.117*	-9.240***	-0.075	-25.144**
Foreign × FinDev		1.703 **		3.016 ***		7.301 **
FinDev	-0.890	-2.106	-0.820	-2.973**	2.536	-2.676
FinDev^2	0.128	0.227	0.139	0.315	-0.404	0.024
Bank Conc	-0.009	-0.008	-0.016	-0.013	-0.026	-0.019
REER	-0.026***	-0.026***	-0.029***	-0.028***	-0.050	-0.049
Adj R^2	0.035	0.060	0.035	0.080	0.010	0.033
F-stat	2.860**	3.110***	2.300**	4.100***	1.010	2.010*
Obs	307	307	307	307	307	307

Threshold Levels of Financial Development

- Simple Analysis
  - If FinDev is above 23.1%, the estimated relation seems to be **(+)** for GDP equation
  - If FinDev is above 21.4%, the estimated relation seems to be **(+)** for CONS equation
  - If FinDev is above 31.3%, the estimated relation seems to be **(+)** for INV equation
- Percentiles (25th, 50th, 75th) of Financial Intermediary Development Measure (FINDEV) to have statistically robust analysis of relation between foreign banks, financial development and year-to-year fluctuations

Table 3. Macroeconomic Volatility Estimations (Model III)

	GDP	CONS	INV
Foreign	-2.506	-6.521***	-21.365*
Foreign $\times$ FinDev	0.778	2.105 ***	6.327 *
Foreign $\times$ Y2008	1.380	2.043	-3.128
Foreign $\times$ Y2009	-18.998***	-1.854	-41.712**
Foreign $\times$ FinDev $\times$ Y2008	0.204	0.010	0.972
Foreign $\times$ FinDev $\times$ Y2009	4.939 ***	0.676	8.863 *
FinDev	-1.732	-2.993**	-2.857
FinDev^2	0.188	0.332 *	0.052
Y2008	-0.954**	-0.911	-0.643
Y2009	2.232 **	3.309**	8.237 **
Adj R^2	0.170	0.216	0.065
F-statistics	3.55 ***	3.19 ***	2.46***
Obs	307	307	307

Table 4. Predicted Coefficient of 'Foreign'
at Different Levels of Financial Development

	Percentile of Financial Development		
	25th	50th	75th
GDP			
Model II	-0.239	0.383	1.605 **
Model III	-0.173	0.111	0.669
CONS			
Model II	-0.198	0.903	3.068***
Model III	-0.211	0.557	2.068***
INV			
Model II	-3.258 *	-0.593	4.649
Model III	-2.400	-0.090	4.452

Table 4. Predicted Coefficient of 'Foreign'
at Different Levels of Financial Development (con't)

	Percentile of Financial Development		
	25th	50th	75th
GDP			
2008	1.851	2.222	2.913 *
2009	-2.892	2.673	4.652 *
CONS			
2008	1.862	2.638	4.152 **
2009	0.162	1.653	3.359
INV			
2008	-2.457	0.269	5.440
2009	-14.901**	-3.116	3.974

Table 5. Macroeconomic Volatility Estimations with Region Dummies

	GDP		CONS		INV	
	Model II	Model III	Model II	Model III	Model II	Model III
Foreign × LA	6.477	8.823 **	1.790	1.697	28.584	35.033
	(4.389)	(4.268)	(5.574)	(5.167)	(19.803)	(21.440)
Foreign × FinDev × LA	-2.606*	-3.323 **	-1.169	-1.001	-13.146 *	-14.973 *
	(1.585)	(1.551)	(1.932)	(1.833)	(7.284)	(7.811)
Foreign × Asia	0.900	-13.657	21.145	14.795	22.593	-17.451
	(16.649)	(11.410)	(25.052)	(19.215)	(63.313)	(56.946)
Foreign × FinDev × Asia	-0.370	2.685	-5.554	-4.218	-5.875	2.835
	(3.718)	(2.817)	(5.610)	(4.492)	(14.980)	(13.854)
Foreign × EE	-5.649**	-2.925	-7.915**	-6.163 **	-25.136 **	-23.477 *
	(2.569)	(2.313)	(3.235)	(2.898)	(10.840)	(12.773)
Foreign × FinDev × EE	1.527 **	0.574	2.509 **	1.852 **	6.756 **	6.348
	(0.768)	(0.681)	(0.987)	(0.900)	(3.300)	(3.992)

Growth Rate Volatility in

Table 6. Predicted Coefficient of 'Foreign'
at Different Levels of Financial Development

	Percentile of Financial Development		
	25th	50th	75th
	GDP		
Latin America			
Model II	-0.762	-1.508	-2.790 *
Model III	-0.408	-1.359	-2.993 *
Asia			
Model II	0.318	-0.491	-0.844
Model III	-4.811 *	-3.553**	-0.987
Emerging Europe			
Model II	-1.387 *	-0.654	0.003
Model III	-1.324 *	-1.048 *	-0.801

Table 6. Predicted Coefficient of 'Foreign' at Different Levels of Financial Development (con't)

	Percentile of Financial Development		
	25th	50th	75th
		CONS	
Latin America			
Model II	1.456	-1.790	-2.365
Model III	-1.083	-1.370	-1.862
Asia			
Model II	2.848	0.245	-5.063
Model III	0.898	-1.079	-5.110
Emerging Europe			
Model II	-0.913	0.292	1.372
Model III	-0.994	-0.105	0.692

Table 6. Predicted Coefficient of 'Foreign'
at Different Levels of Financial Development (con't)

	Percentile of Financial Development		
	25th	50th	75th
	INV		
Latin America			
Model II	7.932 *	-11.695 **	-18.160 **
Model III	-6.556	-10.842 *	-18.206 **
Asia			
Model II	3.237	0.483	-5.132
Model III	-8.113	-6.784	-4.075
Emerging Europe			
Model II	-6.284*	-3.040	-0.133
Model III	-5.762*	-2.714	0.018

Table 6. Predicted Coefficient of 'Foreign' at Different Levels of Financial Development (con't)

	Percentile of Financial Development		
	25th	50th	75th
	GDP		
Latin America			
2008	-0.394	-1.247	-3.590
2009	-8.255 *	-8.272 *	-6.776
Asia			
2008	-0.661	-0.034	3.539
2009	27.518***	11.080	-25.183**
Emerging Europe			
2008	1.934	2.204	2.388
2009	3.012	1.583	1.281

	Percentile of Financial Development		
	25th	50th	75th
	CONS		
Latin America			
2008	0.165	-0.722	-2.147
2009	-7.145 **	-7.479 **	-4.553
Asia			
2008	8.326 **	7.505***	3.998
2009	29.675***	14.411***	-19.851***
Emerging Europe			
2008	1.850	1.849	1.823
2009	-2.659	-0.381	0.815

Table 6. Predicted Coefficient of 'Foreign'
at Different Levels of Financial Development (con't)

	Percentile of Financial Development		
	25th	50th	75th
	INV		
Latin America			
2008	-8.858	-9.546	-5.154
2009	-26.358**	-29.681**	-29.925**
Asia			
2008	47.163	27.389	-31.513
2009	55.331 *	30.972	-23.575
Emerging Europe			
2008	-5.592	-1.818	1.632
2009	-12.870	-8.084	-4.529

Robustness Checks

- Measurement of Macroeconomic Volatility
    - Squared Deviations of 1st Stage Estimation Residuals
    - Standard Deviation (non-overlapping windows of three years) of Growth Rates (sample size decreased by 1/3)
- IV Estimations
    - IV estimations using legal origin (English, French, German and Socialist) and lagged values of share of foreign banks

Concluding Remarks

- The effect of increasing presence of foreign banks seems to be varying depending on the level of financial intermediary development

- There is also a widespread variation of the effect of foreign banks on the macroeconomic fluctuation across regions.

  - During the global crisis, foreign banks had a dampening effect on the volatility of GDP and its components in Latin America, some evidence that magnified volatility in Asia and did not significantly affect it in Emerging Europe.

- Their presence should not be overstated from the point of view of macroeconomic fluctuations.