The Two Faces of Cross-Border Banking Flows

Dennis Reinhardt (Bank of England) and Steven J. Riddiough (University of Melbourne)

7 May 2016

3rd BIS-CGFS workshop on 'Research on global financial stability: the use of BIS international banking and financial statistics'

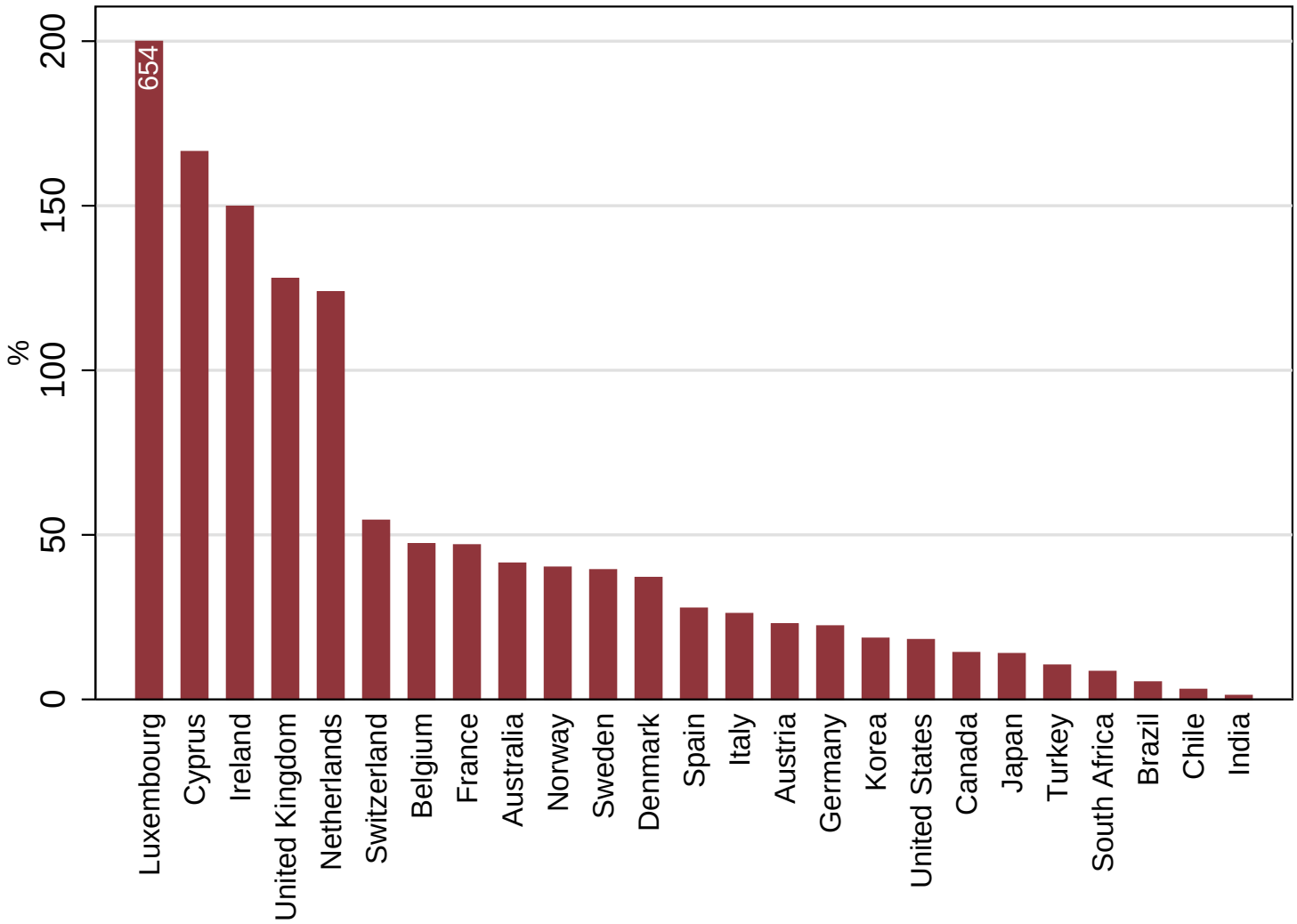
The views expressed are those of the authors, and not necessarily those of the Bank of England.

Banking Flows: Interbank vs. Intragroup

- Globalisation of financial markets has changed the landscape of international banking
  - → Large and growing networks of foreign branches and subsidiaries centered around global parent banks (McCauley, McGuire and von Peter, 2010; Claessens and van Horen, 2014)
- Cross-border bank-to-bank funding (liabilities) can be decomposed into two distinctive forms:
  1. Arms-length (**interbank**) funding that takes place between unrelated banks
  2. Related (**intragroup**) funding that takes place in an internal capital market between global parent banks and their foreign affiliates

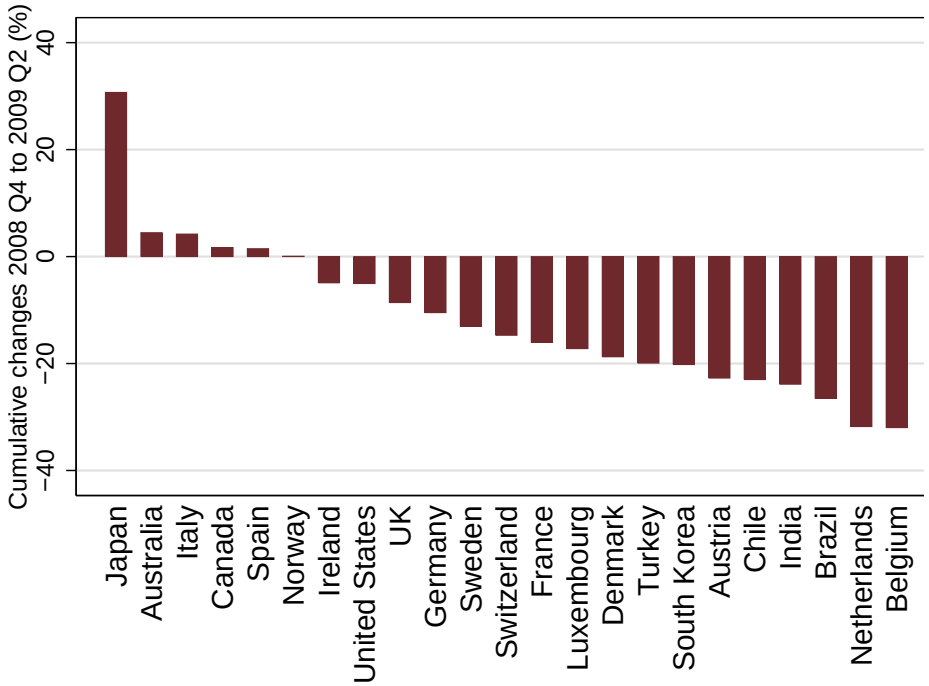
⇒ How do these two types of funding behave? What are the systematic factors driving them over time and across countries, in both normal and crisis times?

Cross-Border Bank-to-Bank Funding to GDP

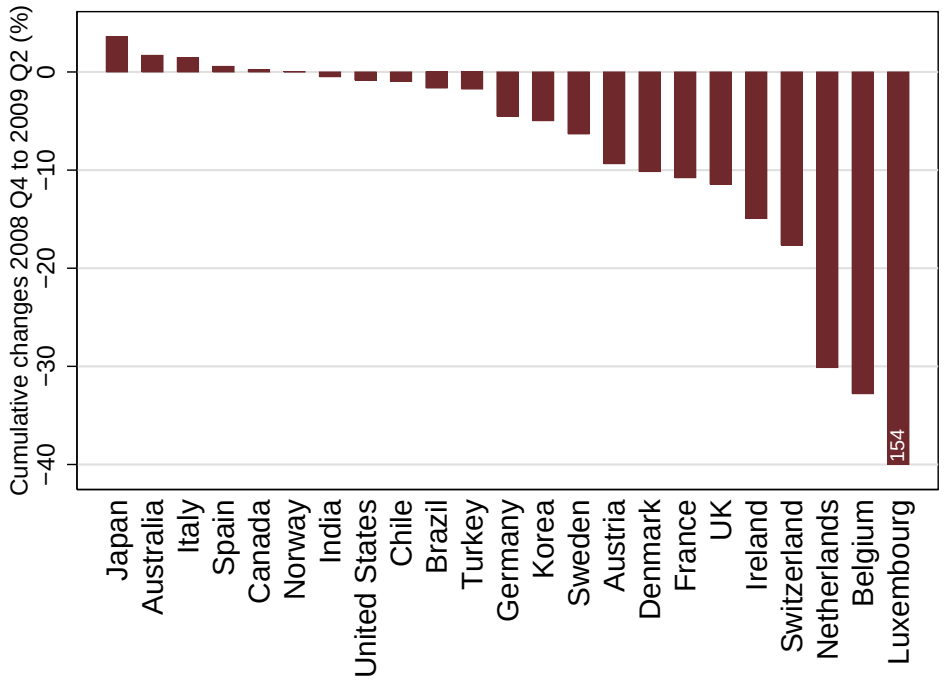


Ratio of Aggregate Cross-Border Bank-to-Bank Liabilities to GDP (2011 Q4, %)

Cross Border Bank to Bank Funding Losses since Lehman



(A) In per cent of own stock

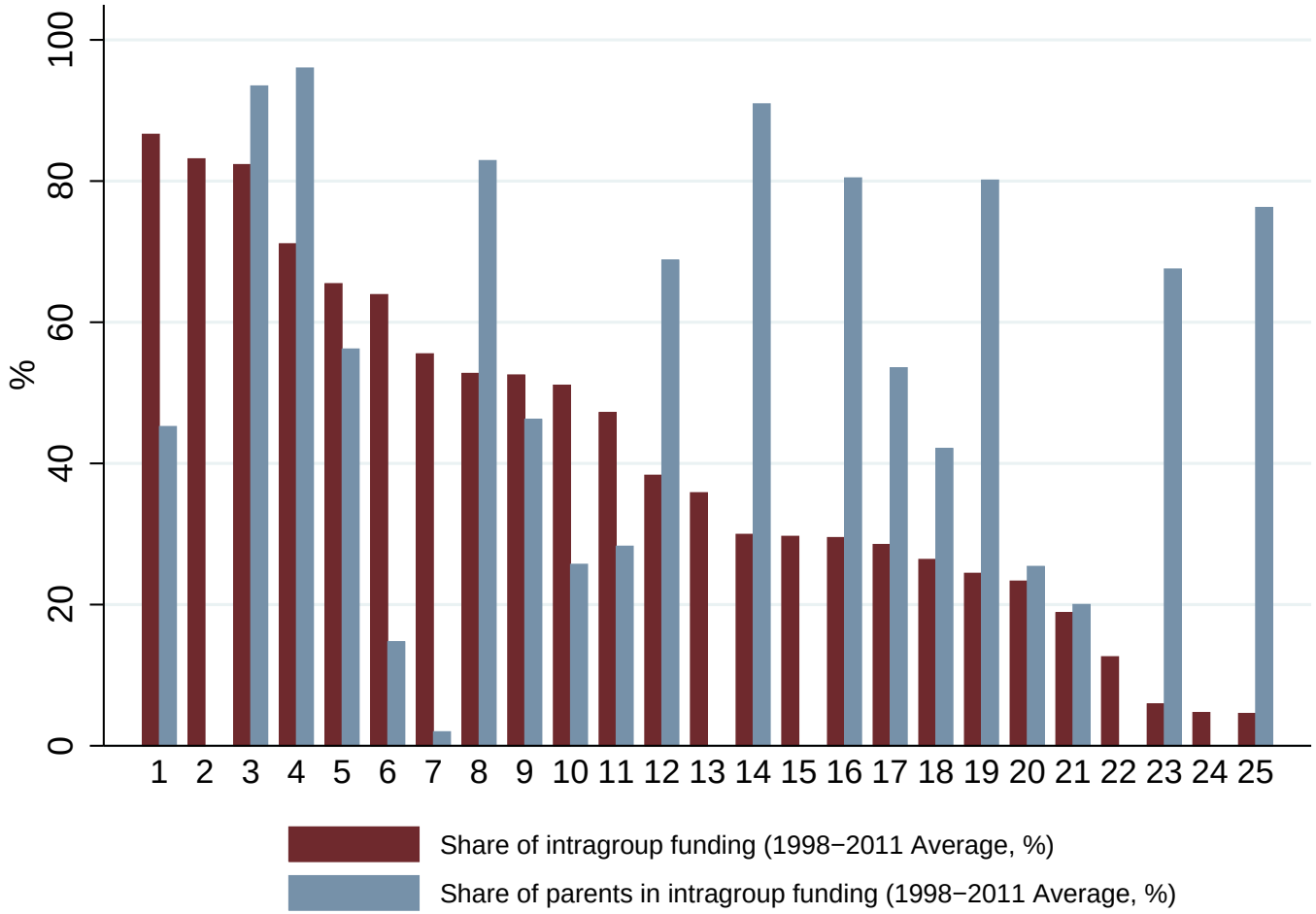


(B) In per cent of GDP

- Wide cross-country dispersion of losses in total bank to bank funding following Lehman's collapse

$\Rightarrow$ Is the *mix* of banking systems' funding a key determinant of losses in aggregate funding in crisis times?

Banking systems' funding mix



- Large variation in funding models ⇒ Kerl and Niepmann (2015), De Haas and Kirschenmann (2013): structural drivers of banks' choice of interbank vs. intragroup lending.

This paper

- What are the (empirical) determinants of the behavior of interbank vs. intragroup funding in a panel of countries?
- What is the role of global vs. host country and banking system characteristics in both normal and crisis times?
- Granular **BIS international banking statistics** allow us to contribute to the literature a systematic set of observations on the behavior of intragroup funding across countries
  - BIS International Banking Statistics by Nationality to disaggregate banking flows into interbank and intragroup

Overview of Results

- Intragroup funding is unrelated to global or local cyclical factors, while flightier interbank funding responds pro-cyclically
  - Interbank funding declines sharply during periods of high global volatility
  - Intragroup funding remains stable during high-volatility periods for *both* domestic parent banks and foreign affiliates (and even during the GFC).
  - During normal times, intragroup funding is related positively to increases in global interest rates, with parent banks using affiliates to offset tighter global funding conditions
- Intragroup funding is instead more sensitive to domestic banking system conditions
  - During normal times: more funding to affiliates in more profitable banking systems
  - But during the GFC: evidence for intragroup funding being used to support weaker (less solvent, less profitable) banking systems.

Literature I

- Focus on gross flows/stocks
  - Obstfeld (2012), Shin (2012): Need to focus less on global (net) imbalances, but more on (gross) 'leveraged entity' imbalances (Also: Borio and Disyatat, 2011, Rothenberg and Warnock, 2011).
- Determinants of aggregate (interbank + intragroup) banking flows
  - Cetorelli and Goldberg (2011); Bruno and Shin, 2015; Cerutti, Claessens, and Ratnovski, 2015; Avdjiev and Takats, 2015; Correa, Paligrova, Sapriza, and Zlate, 2015.
  - This paper: disaggregated (interbank vs. intragroup) flows
- Interbank funding
  - Potentially beneficial source of bank monitoring (Calomiris and Kahn, 1991; Calomiris, 1999) and may alleviate liquidity shocks caused by depositor withdrawals (Goodfriend and King, 1998)
  - But information asymmetries may lead to inefficient withdrawals (Huang and Ratnovski, 2011, Gorton and Metrick, 2012, Brunnermeier, 2009).

Literature II

- Direct evidence on intragroup funding from micro-banking studies
  - Cetorelli and Goldberg (2012a): Liquidity management by US global banks. Locational pecking order following funding shocks.
  - Schnabl (2012): global banks maintained intragroup funding to Peruvian affiliates following the Russian financial crisis, but withdrew interbank
  - Cetorelli and Goldberg (2012b): Internal capital markets insulate global banks from domestic monetary policy shocks
  - Hoggarth, Hooley, and Korniyenko (2013): Intragroup *lending* by foreign affiliates resident in the U.K. increased strongly following Northern Rock
- Indirect cross-country evidence on intragroup funding
  - De Haas and van Lelyveld (2010): substitution and support effect. Foreign affiliates reined in credit supply by less than domestic banks during financial crises. But during GFC foreign affiliate lending was hit harder (their 2014 paper).
- This paper: direct and systematic evidence across countries and time

Data: Banking Flows

- BIS Locational Statistics by Nationality
  - Intragroup funding: Liabilities held by 'related foreign offices'
  - Interbank funding: Liabilities held by 'Other banks'
  - **Source of funding: rest of the world (i.e no bilateral intragroup data in original BIS data set). But following Stage 1/2 enhancements BIS data will include bilateral intragroup funding allowing for a richer analysis of global internal capital markets.**
  - Nationality dimension. Example: intragroup funding of US-owned banks resident in the UK from their parent or other related offices abroad.
- Sample: 25 BIS reporting banking systems that report interbank and intragroup data (19 AEs, 6 EMEs)
  - 1998 Q1 to 2011 Q4

Data: Banking Flows

Dependent variable: Per cent change in cross-border interbank or intragroup funding:

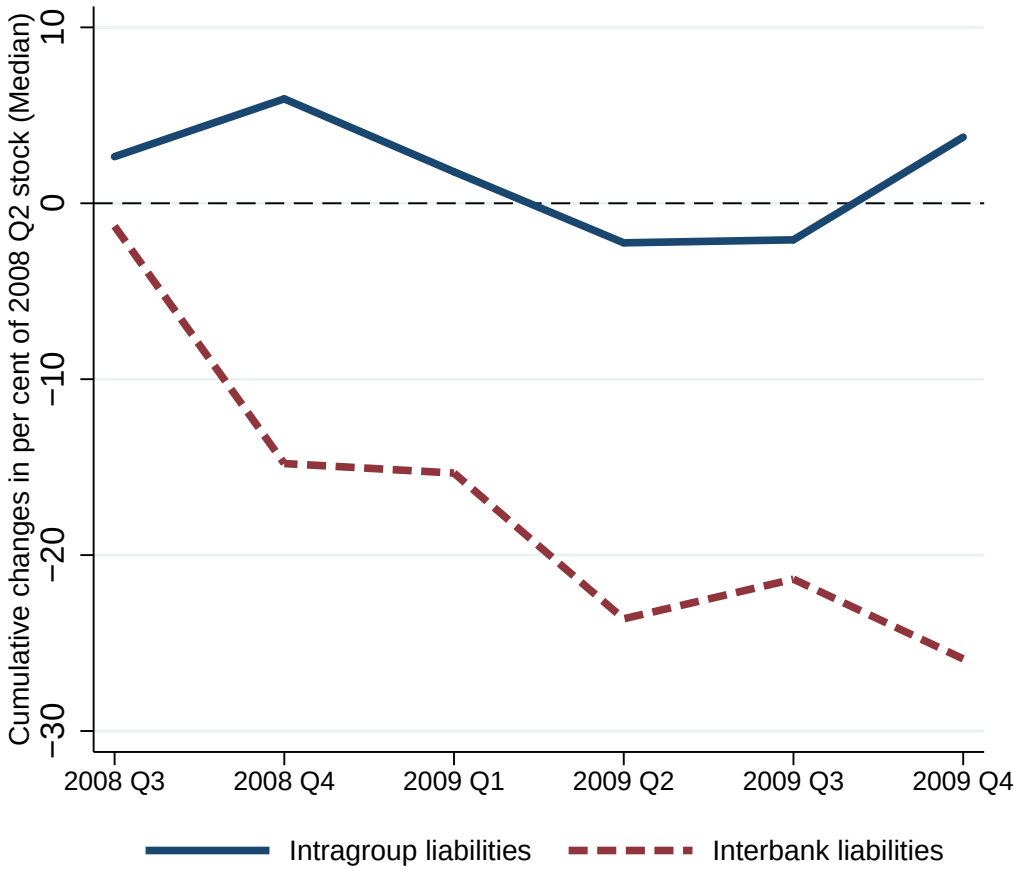
$$\Delta F^i_{j,t} = \frac{\sum_{k=1}^{K} Flow^i_{k,j,t}}{\sum_{k=1}^{K} Stock^i_{k,j,t-1}}, \tag{1}$$

- F denotes the (exchange rate adjusted) *flow* of interbank or intragroup funding (j=1,2), reported by the BIS, while S denotes the previous-quarter *stock* of interbank or intragroup funding.
- $j = 1, 2, .., 25$, denotes the 25 BIS reporting countries who provide the BIS with both interbank and intragroup data on their resident banks, and $k = 1, 2, ..., N$, refers to the N countries of ultimate bank origin/nationality which have banking operations in country j.

Three dependent variables (example for j=UK):

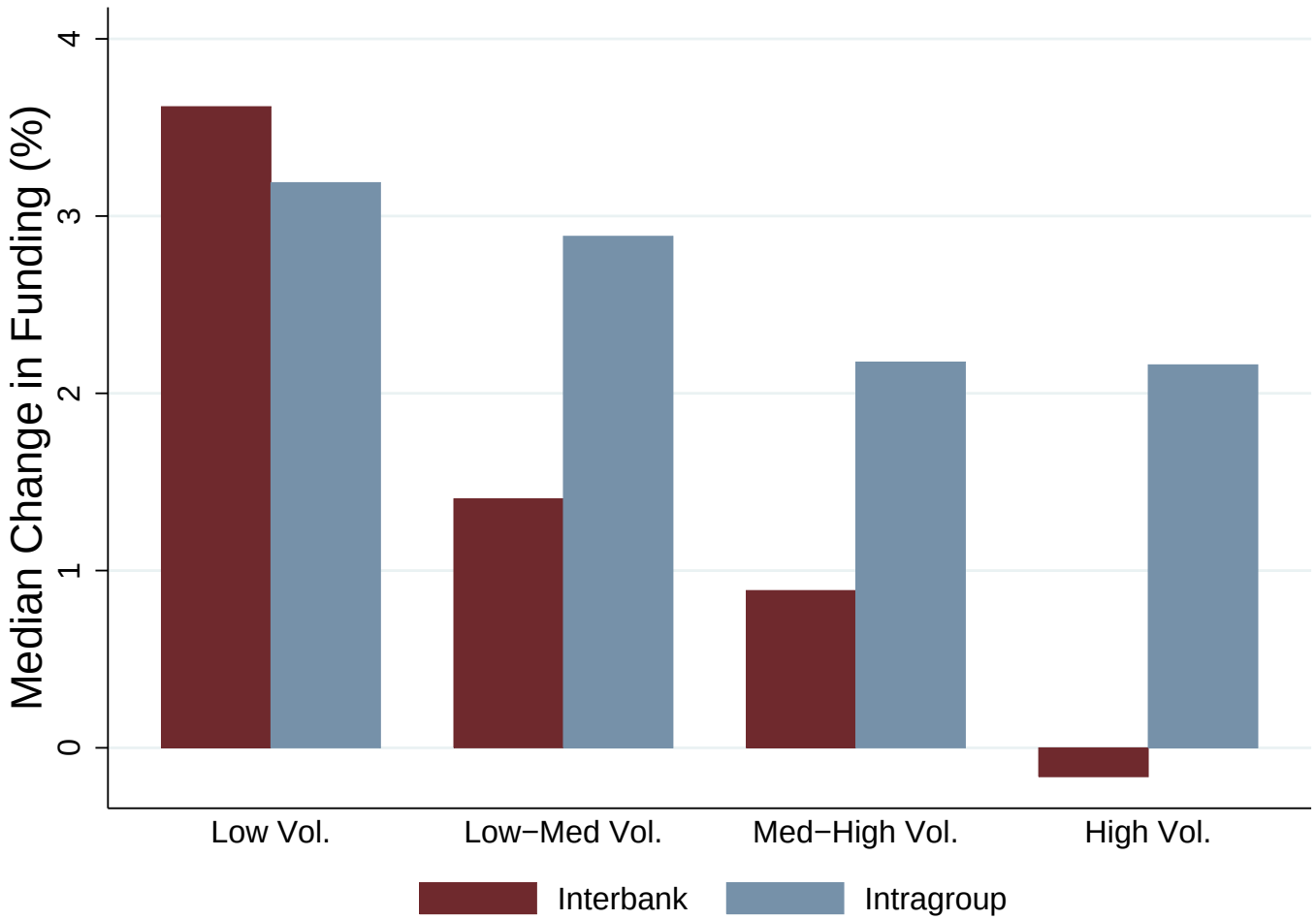
1. Funding to banks of **all nationalities** resident in the UK (sum over all k)
2. Funding to **UK owned banks** resident in the UK (parent banks; k = j = UK)
3. Funding to **non-UK owned banks** resident in the UK (foreign affiliate; k ≠ UK)

A first look: Interbank vs. Intragroup in GFC



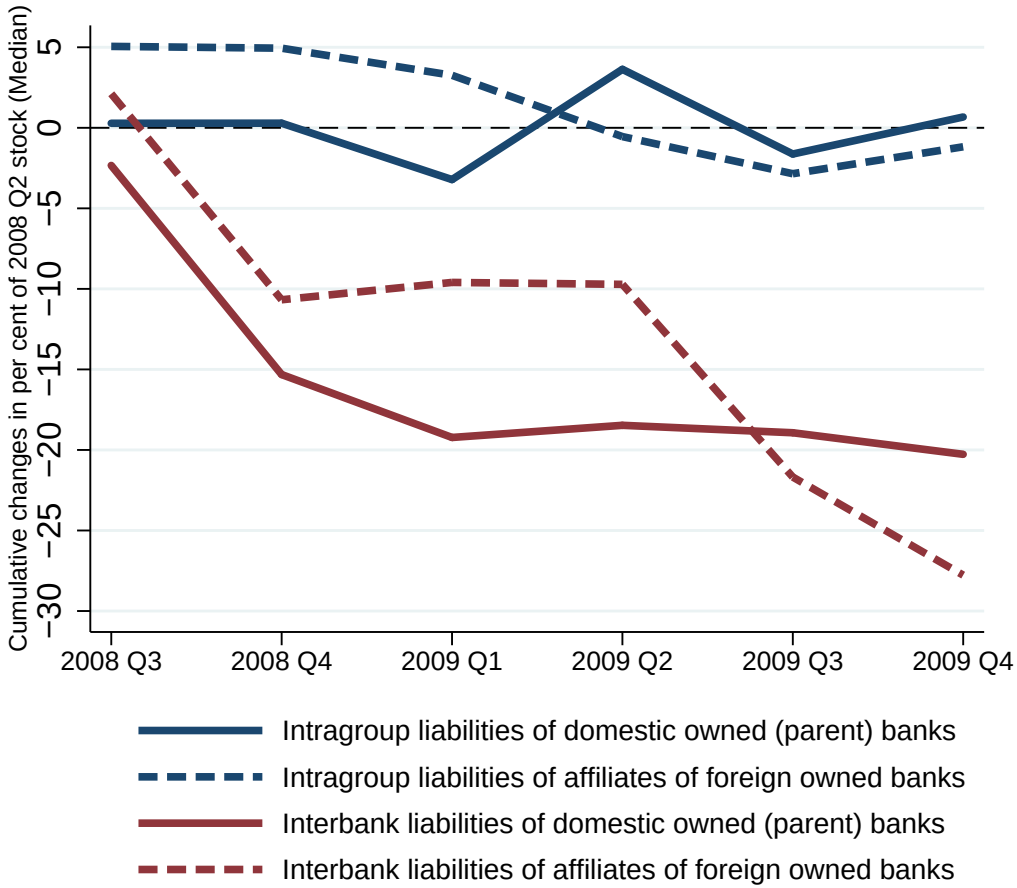
Note: Median cumulative change in funding scaled by 2008 Q2 stocks

Whole sample



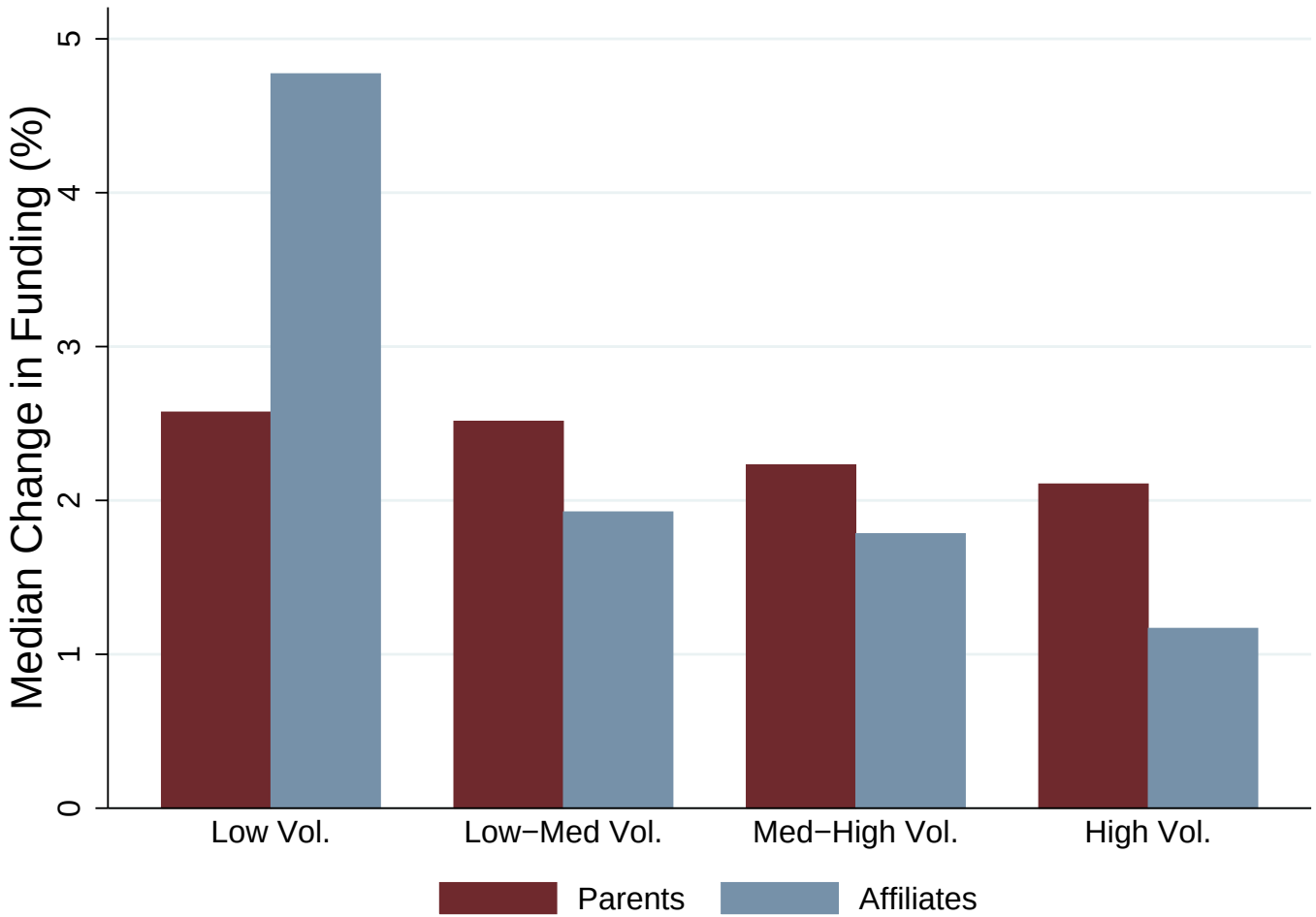
Note: Median per cent changes in interbank or intragroup funding for different levels of global volatility (realized volatility of returns of the MSCI Global Equity Index).

A first look: Parents vs. Affiliates



Note: Median cumulative change in funding scaled by 2008 Q2 stocks

Whole sample



Note: Median per cent changes in interbank or intragroup funding for different levels of global volatility.

Empirical Methodology

Panel regression with country level fixed effects:

$$\Delta F^i_{j,t} = \alpha + \beta' Global_{t-1} + \gamma' Host_{j,t-1} + \lambda_j + \epsilon_{j,t} \quad (2)$$

- $Global_{t-1}$: Global Volatility, Interest Rate changes and Growth.
- $Host_{j,t-1}$: Host country and banking system characteristics (next slide)
- Normal and crisis times:
  1. Show results for excluding the GFC (2008 Q4 to 2009 Q2) as well as for excluding whole post-2008 Q3 period.
  2. To test directly for behaviour of intragroup/interbank in GFC: include a *Crisis* dummy
  3. Interact *Crisis* dummy with banking system conditions
- Data cleaning
  - LHS and domestic RHS variables are winsorised at the 2.5% level

Global Factors

- Global Volatility
  - Theoretical and empirical link between global uncertainty and global bank leverage suggesting a negative relationship with interbank funding (Adrian and Shin, 2010).
  - Relationship with intragroup funding is more complex and may depend on health of parent banks (de Haas and van Lelyveld, 2010)
  - **Data**: Average quarterly realized volatility of returns of the MSCI Global Equity Index (similar to VIX but more global)
- ΔGlobal Interest Rates (IR)
  - Higher global IR may decrease cross-border bank lending (lower IR spread) (Bruno and Shin (2015), but internal capital markets could also be used to smooth IR shocks (Cetorelli and Goldberg, 2012).
  - **Data**: quarterly changes in average short-term money market rates across Germany, Japan, UK and US.
- ΔGlobal Growth
  - Influences the profitability, solvency and liquidity needs of global banks.
  - **Data**: IMF IFS. Quarterly.

Host Country Factors

⇒ Strength of economy and health (profitability, solvency) of banking system matters for bank funding: probability of default, need for liquidity support (de Haas and van Lelyveld, 2010; Bruno and Shin, 2015).

- **Banking system variables**
  - Return on equity: median return on book equity (Net Income/Total Equity) across all resident banks (Beck et al., 2000, 2009))
  - Solvency: ratio of bank capital to total assets (World Bank, GFD)
  - Net interest margin: related to solvency (World Bank, GFD)
- **Macro variables**
  - Quarterly Inflation and GDP growth (IMF)
  - Δ Interest Rates: A rise in the ratio between regional and global interest rates reduces default probability of regional bank: more lending (IMF IFS)
  - FX Return/Depreciation: A local currency depreciation increases the value of FX denominated liabilities and pushes the regional bank towards its default boundary (IMF IFS)

Baseline Results

	(1) Interbank	(2) Intragroup
Global Factors		
Global Volatility (L)	-3.64**	1.50
	(1.54)	(2.33)
ΔGlobal Interest Rates (L)	-5.17**	4.48*
	(2.02)	(2.46)
Global Growth (L)	0.64	-0.19
	(0.49)	(0.47)
Host Country Factors		
Domestic GDP Growth (L)	0.45**	0.23
	(0.18)	(0.26)
Inflation (L)	-0.22***	-0.17
	(0.08)	(0.18)
Δ Interest Rates (L)	-0.48	-0.11
	(0.82)	(1.32)
FX Return (L)	-0.15	-0.24***
	(0.12)	(0.08)
Return on Equity	0.10**	0.17***
	(0.05)	(0.04)
Solvency	0.19	-0.42
	(0.45)	(0.44)
Net interest margin	0.06	-3.13**
	(0.48)	(1.26)
Observations	1,099	1,099
R-squared	0.09	0.07
Countries	25	25

- If (log) global volatility index is 2 SD higher, quarterly interbank funding growth is 3 pp lower.

Baseline Results

	(1) Interbank	(2) Intragroup
Global Factors		
Global Volatility (L)	-3.64**	1.50
	(1.54)	(2.33)
ΔGlobal Interest Rates (L)	-5.17**	4.48*
	(2.02)	(2.46)
Global Growth (L)	0.64	-0.19
	(0.49)	(0.47)
Host Country Factors		
Domestic GDP Growth (L)	0.45**	0.23
	(0.18)	(0.26)
Inflation (L)	-0.22***	-0.17
	(0.08)	(0.18)
Δ Interest Rates (L)	-0.48	-0.11
	(0.82)	(1.32)
FX Return (L)	-0.15	-0.24***
	(0.12)	(0.08)
Return on Equity	0.10**	0.17***
	(0.05)	(0.04)
Solvency	0.19	-0.42
	(0.45)	(0.44)
Net interest margin	0.06	-3.13**
	(0.48)	(1.26)
Observations	1,099	1,099
R-squared	0.09	0.07
Countries	25	25

Baseline Results

	(1) Interbank	(2) Intragroup
Global Factors		
Global Volatility (L)	-3.64**	1.50
	(1.54)	(2.33)
ΔGlobal Interest Rates (L)	-5.17**	4.48*
	(2.02)	(2.46)
Global Growth (L)	0.64	-0.19
	(0.49)	(0.47)
Host Country Factors		
Domestic GDP Growth (L)	0.45**	0.23
	(0.18)	(0.26)
Inflation (L)	-0.22***	-0.17
	(0.08)	(0.18)
Δ Interest Rates (L)	-0.48	-0.11
	(0.82)	(1.32)
FX Return (L)	-0.15	-0.24***
	(0.12)	(0.08)
Return on Equity	0.10**	0.17***
	(0.05)	(0.04)
Solvency	0.19	-0.42
	(0.45)	(0.44)
Net interest margin	0.06	-3.13**
	(0.48)	(1.26)
Observations	1,099	1,099
R-squared	0.09	0.07
Countries	25	25

Baseline Results: Crisis and normal times

	(1)	(2)	(3)	(4)	(5)	(6)
	Interbank			Intragroup		
	No GFC	Pre-2008:3	GFC Dummy	No GFC	Pre-2008:3	GFC Dummy
Global Factors						
Global Volatility (L)	-2.93*	-1.87	-2.76*	1.36	1.00	1.24
	(1.67)	(2.05)	(1.61)	(2.60)	(3.14)	(2.55)
ΔGlobal IR (L)	-4.39*	-6.73**	-6.20***	4.92	9.46**	4.79*
	(2.61)	(3.22)	(1.81)	(3.53)	(4.25)	(2.41)
Global Growth (L)	0.41	1.47**	0.67	-0.05	-0.97	-0.19
	(0.51)	(0.72)	(0.45)	(0.53)	(0.85)	(0.46)
Crisis			-4.76**			1.42
			(1.97)			(2.29)
Host Country Characteristics						
Dom GDP Growth (L)	0.44**	0.57**	0.37**	0.10	-0.46	0.26
	(0.19)	(0.27)	(0.18)	(0.27)	(0.43)	(0.26)
Inflation (L)	-0.21**	-0.18*	-0.23***	-0.21	-0.30	-0.17
	(0.08)	(0.10)	(0.08)	(0.18)	(0.23)	(0.18)
Δ IR (L)	0.20	-0.18	-0.47	0.55	1.24	-0.12
	(0.82)	(0.94)	(0.78)	(1.58)	(1.63)	(1.33)
FX Return (L)	-0.05	-0.09	-0.10	-0.24**	-0.30**	-0.26***
	(0.12)	(0.11)	(0.11)	(0.10)	(0.12)	(0.09)
Return on Equity	0.10**	0.07	0.11**	0.15***	0.09	0.17***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.05)
Solvency	0.00	0.18	0.11	-0.22	0.10	-0.40
	(0.44)	(0.61)	(0.44)	(0.45)	(0.49)	(0.45)
Net interest margin	-0.25	-0.27	-0.07	-3.31**	-3.18*	-3.09**
	(0.49)	(0.51)	(0.46)	(1.28)	(1.63)	(1.27)
Observations	1,028	811	1,099	1,028	811	1,099
R-squared	0.07	0.07	0.09	0.07	0.07	0.07
Countries	25	23	25	25	23	25

Baseline Results: Crisis and normal times

	(1)	(2)	(3)	(4)	(5)	(6)
	Interbank			Intragroup		
	No GFC	Pre-2008:3	GFC Dummy	No GFC	Pre-2008:3	GFC Dummy
Global Factors						
Global Volatility (L)	-2.93*	-1.87	-2.76*	1.36	1.00	1.24
	(1.67)	(2.05)	(1.61)	(2.60)	(3.14)	(2.55)
ΔGlobal IR (L)	-4.39*	-6.73**	-6.20***	4.92	9.46**	4.79*
	(2.61)	(3.22)	(1.81)	(3.53)	(4.25)	(2.41)
Global Growth (L)	0.41	1.47**	0.67	-0.05	-0.97	-0.19
	(0.51)	(0.72)	(0.45)	(0.53)	(0.85)	(0.46)
Crisis			-4.76**			1.42
			(1.97)			(2.29)
Host Country Characteristics						
Dom GDP Growth (L)	0.44**	0.57**	0.37**	0.10	-0.46	0.26
	(0.19)	(0.27)	(0.18)	(0.27)	(0.43)	(0.26)
Inflation (L)	-0.21**	-0.18*	-0.23***	-0.21	-0.30	-0.17
	(0.08)	(0.10)	(0.08)	(0.18)	(0.23)	(0.18)
Δ IR (L)	0.20	-0.18	-0.47	0.55	1.24	-0.12
	(0.82)	(0.94)	(0.78)	(1.58)	(1.63)	(1.33)
FX Return (L)	-0.05	-0.09	-0.10	-0.24**	-0.30**	-0.26***
	(0.12)	(0.11)	(0.11)	(0.10)	(0.12)	(0.09)
Return on Equity	0.10**	0.07	0.11**	0.15***	0.09	0.17***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.07)	(0.05)
Solvency	0.00	0.18	0.11	-0.22	0.10	-0.40
	(0.44)	(0.61)	(0.44)	(0.45)	(0.49)	(0.45)
Net interest margin	-0.25	-0.27	-0.07	-3.31**	-3.18*	-3.09**
	(0.49)	(0.51)	(0.46)	(1.28)	(1.63)	(1.27)
Observations	1,028	811	1,099	1,028	811	1,099
R-squared	0.07	0.07	0.09	0.07	0.07	0.07
Countries	25	23	25	25	23	25

Intragroup: Parents v Foreign Affiliates

	(1)	(2)	(3)	(4)	(5)	(6)
	Parents			Foreign Affiliates		
	All	Pre-2008:3	GFC Dummy	All	Pre-2008:3	GFC Dummy
Global Factors						
Global Volatility (L)	2.02	2.21	1.77	-0.86	0.24	-0.82
	(3.48)	(4.74)	(3.97)	(1.93)	(2.76)	(2.15)
ΔGlobal IR (L)	2.98	10.62**	3.46	-0.96	2.61	-1.00
	(3.70)	(5.17)	(3.57)	(2.73)	(4.39)	(2.77)
Global Growth (L)	-0.71	-1.10	0.05	0.27	-0.27	0.28
	(0.56)	(1.03)	(0.56)	(0.55)	(1.01)	(0.56)
Crisis			1.33			-0.24
			(3.93)			(2.86)
Host Country Characteristics						
Dom GDP Growth (L)	0.71*	-0.12	0.74**	0.25	-0.73	0.24
	(0.36)	(0.63)	(0.36)	(0.35)	(0.47)	(0.36)
Inflation (L)	-0.46*	-0.60*	-0.45*	0.11	-0.04	0.10
	(0.25)	(0.32)	(0.25)	(0.18)	(0.23)	(0.18)
Δ IR (L)	-0.29	-0.15	-0.29	1.17	0.47	1.18
	(1.82)	(2.03)	(1.83)	(1.56)	(1.86)	(1.56)
FX Return (L)	-0.31*	-0.36	-0.33*	-0.15	-0.29*	-0.14
	(0.16)	(0.22)	(0.18)	(0.12)	(0.16)	(0.13)
Return on Equity	0.21***	0.11	0.21***	0.15**	0.24***	0.15*
	(0.06)	(0.09)	(0.06)	(0.07)	(0.08)	(0.08)
Solvency	-1.49**	-0.65	-1.47**	0.04	0.09	0.03
	(0.67)	(0.81)	(0.68)	(0.52)	(0.62)	(0.53)
Net interest margin	-1.01	-1.19	-0.99	-3.32**	-2.92*	-3.32**
	(1.70)	(2.01)	(1.72)	(1.35)	(1.62)	(1.37)
Observations	916	692	916	925	709	925
R-squared	0.05	0.06	0.05	0.05	0.07	0.05
Countries	20	20	20	20	20	20

Intragroup: Parents v Foreign Affiliates

	(1)	(2)	(3)	(4)	(5)	(6)
	Parents			Foreign Affiliates		
	All	Pre-2008:3	GFC Dummy	All	Pre-2008:3	GFC Dummy
Global Factors						
Global Volatility (L)	2.02	2.21	1.77	-0.86	0.24	-0.82
	(3.48)	(4.74)	(3.97)	(1.93)	(2.76)	(2.15)
ΔGlobal IR (L)	2.98	10.62**	3.46	-0.96	2.61	-1.00
	(3.70)	(5.17)	(3.57)	(2.73)	(4.39)	(2.77)
Global Growth (L)	-0.71	-1.10	0.05	0.27	-0.27	0.28
	(0.56)	(1.03)	(0.56)	(0.55)	(1.01)	(0.56)
Crisis			1.33			-0.24
			(3.93)			(2.86)
Host Country Characteristics						
Dom GDP Growth (L)	0.71*	-0.12	0.74**	0.25	-0.73	0.24
	(0.36)	(0.63)	(0.36)	(0.35)	(0.47)	(0.36)
Inflation (L)	-0.46*	-0.60*	-0.45*	0.11	-0.04	0.10
	(0.25)	(0.32)	(0.25)	(0.18)	(0.23)	(0.18)
Δ IR (L)	-0.29	-0.15	-0.29	1.17	0.47	1.18
	(1.82)	(2.03)	(1.83)	(1.56)	(1.86)	(1.56)
FX Return (L)	-0.31*	-0.36	-0.33*	-0.15	-0.29*	-0.14
	(0.16)	(0.22)	(0.18)	(0.12)	(0.16)	(0.13)
Return on Equity	0.21***	0.11	0.21***	0.15**	0.24***	0.15*
	(0.06)	(0.09)	(0.06)	(0.07)	(0.08)	(0.08)
Solvency	-1.49**	-0.65	-1.47**	0.04	0.09	0.03
	(0.67)	(0.81)	(0.68)	(0.52)	(0.62)	(0.53)
Net interest margin	-1.01	-1.19	-0.99	-3.32**	-2.92*	-3.32**
	(1.70)	(2.01)	(1.72)	(1.35)	(1.62)	(1.37)
Observations	916	692	916	925	709	925
R-squared	0.05	0.06	0.05	0.05	0.07	0.05
Countries	20	20	20	20	20	20

Crisis Interactions

	(1)	(2)	(3)	(4)
	Parents	Foreign Affiliates		
	Gross	Gross	Gross	Net
Global Factors				
Global Volatility (L)	1.64	-0.50	-0.78	1.31
	(3.98)	(2.15)	(2.11)	(3.23)
ΔGlobal IR (L)	3.07	-2.16	-0.65	0.84
	(3.64)	(2.65)	(2.96)	(3.70)
Global Growth (L)	-0.69	0.33	0.46	-0.43
	(0.56)	(0.56)	(0.50)	(0.71)
Crisis	12.14**	5.16		16.23**
	(5.64)	(11.89)		(6.24)
Host Country Characteristics				
Other		Included		
Return on Equity	0.20***	0.21***	0.48**	0.20*
	(0.07)	(0.07)	(0.20)	(0.11)
Solvency	-1.32*	0.07	-0.19	0.58
	(0.69)	(0.53)	(0.52)	(0.79)
Interactions				
Return on Equity*Crisis	0.19*	-0.41***		-0.50***
	(0.10)	(0.08)		(0.12)
Solvency*Crisis	-1.80***	-0.89		-2.79***
	(0.66)	(1.97)		(0.92)
Intra Share (L)			-19.89***	
			(5.47)	
Intra Share*Crisis			0.65	
			(3.63)	
Intra Share*ROE			-0.80**	
			(0.34)	
Observations	916	925	925	921
R-squared	0.05	0.06	0.10	0.05
Countries	20	20	20	20

Crisis Interactions

	(1)	(2)	(3)	(4)
	Parents	Foreign Affiliates		
	Gross	Gross	Gross	Net
Interactions				
Return on Equity*Crisis	0.19*	-0.41***		-0.50***
	(0.10)	(0.08)		(0.12)
Solvency*Crisis	-1.80***	-0.89		-2.79***
	(0.66)	(1.97)		(0.92)
Intra Share (L)			-19.89***	
			(5.47)	
Intra Share*Crisis			0.65	
			(3.63)	
Intra Share*ROE			-0.80**	
			(0.34)	
Observations	916	925	925	921
R-squared	0.05	0.06	0.10	0.05
Countries	20	20	20	20

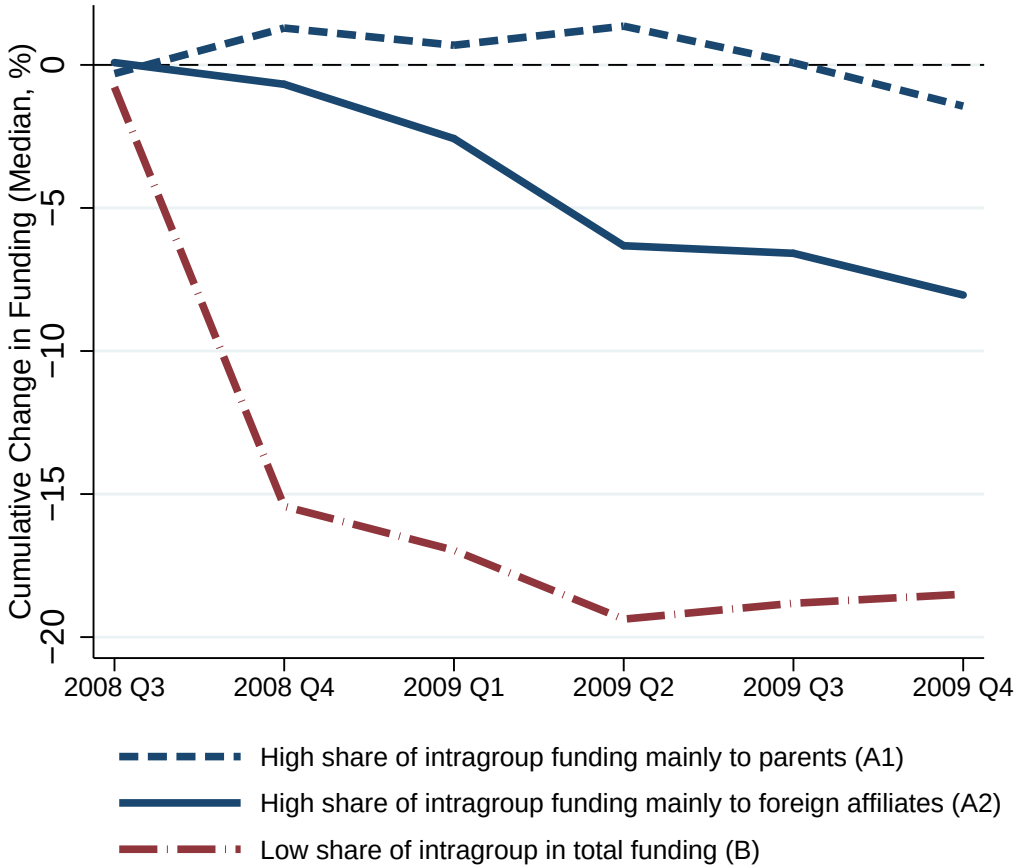
- Parent banks in banking systems with lower solvency levels: supported by their affiliates in the GFC.
- Affiliate banks in less profitable/solvent banking systems: supported by their parents in the GFC, even when looking at *net* intragroup flows.

Crisis Interactions

	(1)	(2)	(3)	(4)
	Parents	Foreign Affiliates		
	Gross	Gross	Gross	Net
Interactions				
Return on Equity*Crisis	0.19*	-0.41***		-0.50***
	(0.10)	(0.08)		(0.12)
Solvency*Crisis	-1.80***	-0.89		-2.79***
	(0.66)	(1.97)		(0.92)
Intra Share (L)			-19.89***	
			(5.47)	
Intra Share*Crisis			0.65	
			(3.63)	
Intra Share*ROE			-0.80**	
			(0.34)	
Observations	916	925	925	921
R-squared	0.05	0.06	0.10	0.05
Countries	20	20	20	20

- Intra Share: proportion of intragroup funding in total bank-to-bank funding → proxy for importance of location for global banks's business.
- Results suggest that global parent banks support their affiliates according to a locational pecking order (Cetorelli and Goldberg, 2012).

Funding mix and aggregate funding after Lehman



Note: Median cumulative change in aggregate (interbank + intragroup) funding scaled by 2008 Q2 stocks for 3 types of banking systems differing by funding mix

Robustness

- Alternative measures of global factors
- Extended time series
- Degree of liquidity support (Drechsler et. al, 2014).
- Extended time series
- Two-way clustering

Conclusion

- **Not all types of bank funding are equally flighty**: Intragroup funding less driven by global and domestic cyclical conditions than interbank funding
- Intragroup funding is instead more sensitive to domestic banking system conditions, being used to support weaker banking systems during the GFC.

$\Rightarrow$ Surveillance: Policy makers need to monitor the decomposition of bank funding to avoid a misleading assessment of risks to financial stability

$\Rightarrow$ Debate on financial protectionism has recently focused on intragroup flows/internal capital markets (Goldberg and Gupta, 2013)

$\Rightarrow$ The results caution against ringfencing policies that restrict intragroup flows: a focus on the potentially destabilising role of outflows needs to be complemented by a focus on the stabilising role of inflows.