Global European banks and dollar (co-)dependence: how housing markets became internationally synchronized

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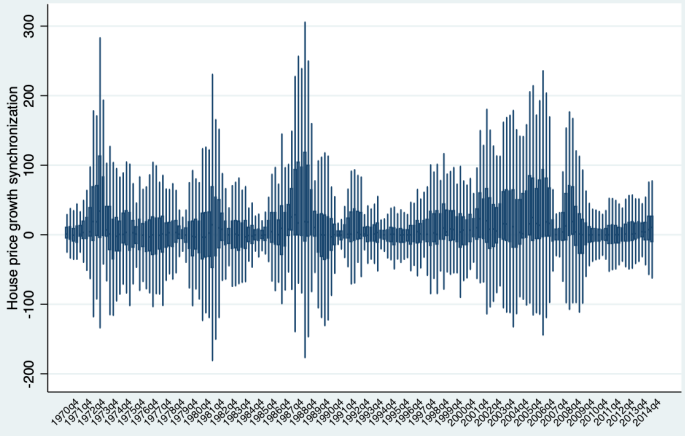
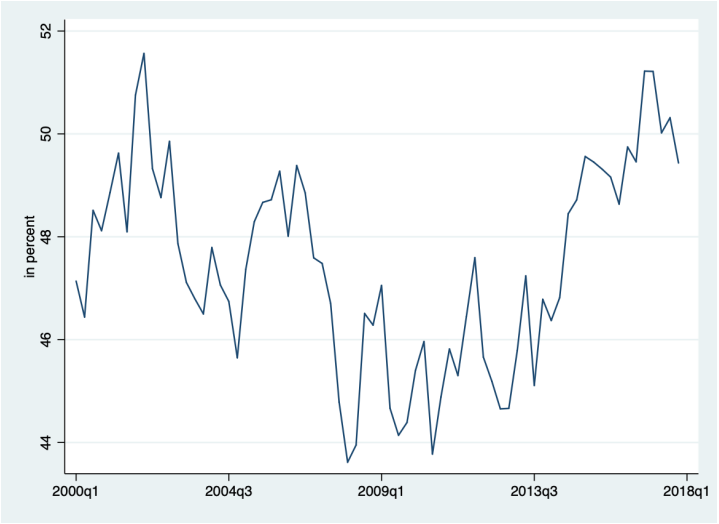
The co-movement of house prices varies over country pairs and time.



Pairwise international house price synchronization computed as product of four quarter ahead house price growth, 1970Q1-2015Q1

Based on 782 country pairs, and 36 countries.
Source: OECD country-wide residential real house price index.

The US dollar is the most important funding currency of non-US banks.

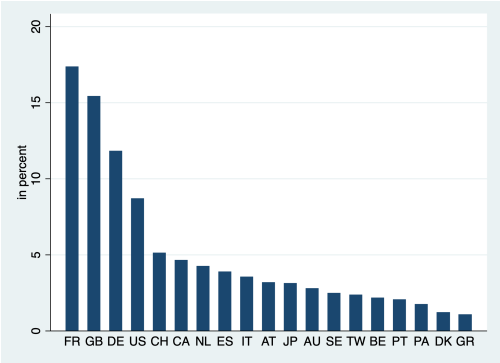


Share of US dollar-denominated foreign liabilities of non-US global banks, mean, 2000Q1-2017Q4

Source: BIS locational banking statistics by nationality

Non-US nodes dominate the global banking network.

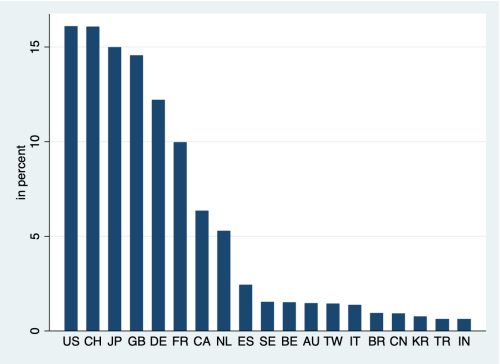
Market shares of lending banking systems in total foreign lending



Note: Market shares > 1 percent

Source: BIS consolidated banking statistics, own calculations

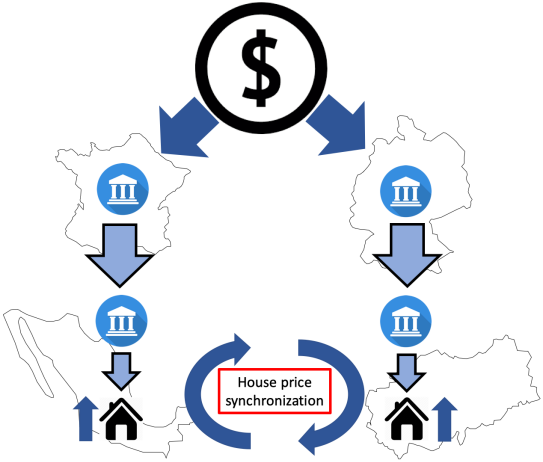
Dollar dependence of lending banking systems



Note: Dollar dependence > 0.5 percent

Source: BIS locational banking statistics by nationality, own calculations

Dollar co-dependence induces house price co-movement.



Co-dependence on US dollar funding intermediated through European global banks leads to house price co-movement in borrowing countries.

Research question & key findings

What drives the international synchronization of house prices ?

- How does the synchronization depend on US dollar funding conditions ?
- What role for the topography of the global banking network ?

What we find:

- US net capital inflows drive the international synchronization of house prices through the co-dependence of borrowing countries on global lending banking systems' US dollar funding.
- Borrowing country pairs whose non-US lending banking systems are more dependent on US dollar funding exhibit higher house price synchronization.
- The co-dependence is determined by the topography of the global banking network.
- Mechanism driven mostly by European global banks. US-banks are irrelevant for the mechanism.

Novel international spillover channel of US net capital inflows on refinancing conditions of global banks, and ultimately on real estate markets worldwide

Outline

1. Motivation
2. Contribution to literature
3. Dollar dependence and the BIS international banking statistics
4. Statistical model
5. Data
6. Empirical framework and main results
7. Conclusion

Contribution to literature

House price co-movement increased over the last two decades

- Alter et al. (2018), IMF Global Financial Stability Report (2018), **Landier et al. (2017)**, Milcheva and Zhu (2016), Miles (2017)

Capital inflows are a major driver of house prices

- Aizenman and Jinjarak (2009), Cesa-Bianchi et al. (2018), Favilukis et al. (2012), Ferrero (2015), **Hoffmann and Stewen (2019)**, Justiniano et al. (2013)

US dollar cycle affects trade, investment, and bank capital flows

- Avdjiev et al. (2018), Boz et al. (2017, 2018, 2019), Bruno and Shin (2015, 2019), Cerutti et al. (2017), Goldberg and Tille (2008), Gopinath and Stein (2018), Habib and Venditti (2019), IMF Global Financial Stability Report (2019), Miranda-Agrippino and Rey (2019), Rey (2015)

Shifts in supply and demand of US dollar-denominated assets determine US dollar cycle

- Krishnamurthy and Lustig (2019), Lilley et al. (2019)

Our contribution:

- Novel, explicit international spillover channel of US dollar funding conditions
- House price synchronization driven by non-US global banks' common but heterogeneous exposure to US dollar funding conditions, not by the common exposure of borrowing countries to non-US global banks
- Explicit role for the network structure of international banking

Dollar dependence: the concept

Average fraction of global foreign bank borrowing in US dollars accounted for by banks domiciled in the countries lending to country i

$$DD_t^i = \sum_{b \in \mathscr{B}(i)} \omega_t^{b,i} \lambda_t^b$$

where

$$\lambda_t^b = \frac{L_t^{b,(USD)}}{\sum_b L_t^{b,(USD)}} \qquad \omega_t^{b,i} = \frac{L_t^{b,i}}{L_t^i}$$

- $L_t^{b,(USD)}$: stock of US dollar-denominated foreign liabilities by lending banking system b
- Share of global US dollar denominated foreign bank borrowing accounted for by banks in banking system b at time t

- $L_t^{b,i}$: stock of foreign bilateral claims of lending banking system b on borrowing country i
- Share of lending banking system b in total foreign bank lending to borrowing country i at time t

Dollar co-dependence of borrowing countries i and j:

$$CoDD_t^{i,j} = DD_t^i \times DD_t^j$$

Deriving $\omega_t^{b,i}$ from the international banking statistics

We obtain $\omega_t^{b,i}$ from the consolidated banking statistics (CBS) on immediate counterparty basis.

What are the CBS ?

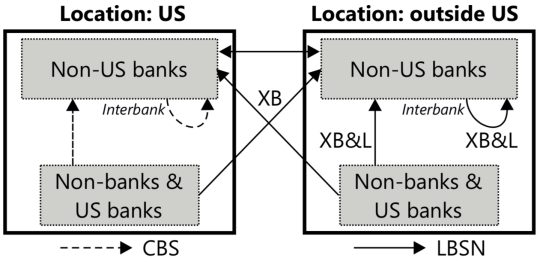
- organized on the principle of bank nationality (legal headquarters): consolidated foreign claims of reporting banks, incl. foreign affiliates
- abstract from interoffice positions
- foreign claims comprise loans, debt securities holdings, net derivatives

CBS suitable to capture the network topography of foreign claims:

- decisions on foreign currency funding taken by headquarters: Bank nationality coincides with decision making unit
- abstracting from interoffice positions ensures we exclude intermediate transactions and "look through" financial centers
- abstracts from mode of foreign credit provision: cross-border or through local office

Deriving λ_t^b from the international banking statistics

Dimension	CBS	LBSN
Nationality	✓	✓
Booking location	✓	✓
Counterparty residence	✓	(✓[1])
Currency	local[2]	✓
Counterparty sector		✓



Source: Aldasoro and Ehlers, 2018

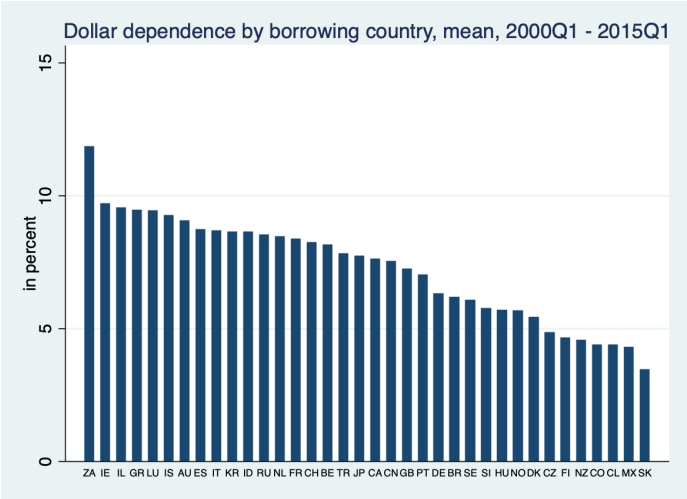
We combine locational banking statistics by nationality (LBSN) with CBS:

1. Use US dollar-denominated foreign claims to proxy on-balance sheet and (net) off-balance sheet liabilities
2. Aggregate the global US dollar-denominated positions of banks of a given nationality (LBSN)
3. Subtract interoffice positions (LBSN)
4. Add local positions in local currency of banks of the same nationality vis-à-vis the US (CBS)

[1] Since June 2012

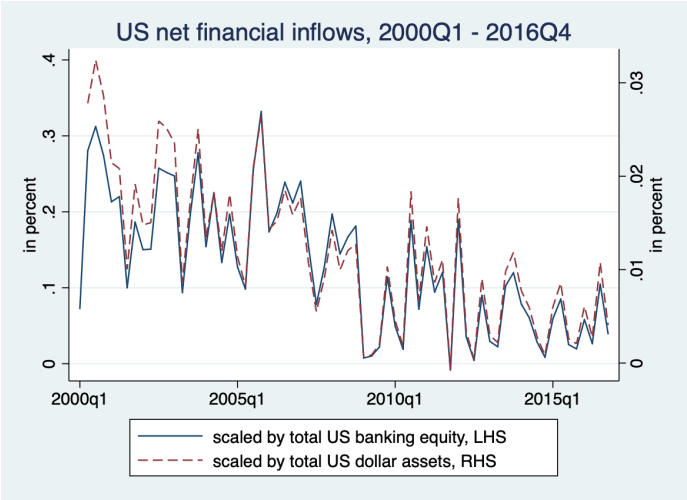
[2] Local claims in local currency, in particular US dollar claims of foreign affiliates in the US

Heterogenous dollar dependence by borrowing country



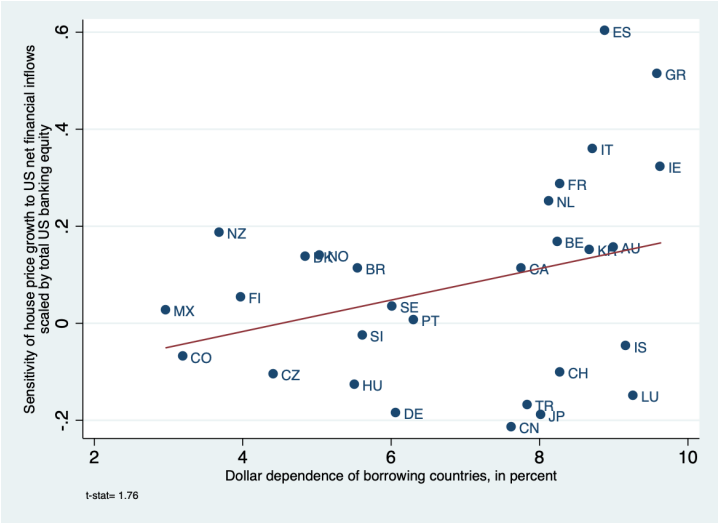
Source: BIS consolidated banking statistics, BIS locational banking statistics by nationality, own calculations

US net capital inflows improve dollar funding conditions of non-US banks.



Source: US Bureau of Economic Analysis, Federal Financial Institutions Examination Council (US), BIS LBSN

US capital inflows, dollar dependence, and house price growth



$$\frac{\Delta HP_t^i}{HP_{t-4}^i} = \beta^i CAPFLOW_t + \mu^i + \varepsilon_t^i$$

Statistical model (1/2)

A parsimonious model follows from an adaptation of Landier et al. (2017) to the international context.

Foreign lending supply drives house price growth $\frac{\Delta HP_t^i}{HP_{t-1}^i}$ in country i with elasticity α:

$$\frac{\Delta HP_t^i}{HP_{t-1}^i} = \alpha \frac{\Delta L_t^i}{L_{t-1}^i} + v_t^i \tag{1}$$

where v_t^i is a credit demand shock specific to country i and

$$L_t^i = \sum_{b \in \mathscr{B}(c)} L_t^{b,i} \tag{2}$$

is international lending to country i and $L_t^{b,i}$ measures the bilateral international position of lending banking system b to borrowing country i. Lending growth takes the form

$$\frac{\Delta L_t^{b,i}}{L_{t-1}^{b,i}} = \gamma_t + \lambda_{t-1}^b \zeta_t + \eta_t^b \tag{3}$$

where the lending supply from lending banking system b is determined by a global factor γ_t, a lending banking system specific shock η_t^b and the combination of lending banking system b's dollar dependence λ_{t-1}^b and ζ_t.
ζ_t is a global factor specifically reflecting lending banking system b's refinancing conditions in US dollars. We claim:

$$\zeta_t = CAPFLOW_t \tag{4}$$

Statistical model (2/2)

After some intermediate steps we obtain an empirically testable hypothesis:

$$\frac{\Delta HP_t^i}{HP_{t-1}^i} = \alpha \left(\sum_{b \in \mathscr{B}(i)}^{N} \left(\lambda_{t-1}^b \zeta_t + \eta_t^b + \gamma_t \right) \omega_{t-1}^{b,i} \right) + \nu_t^i \tag{5}$$

or expanded:

$$\frac{\Delta HP_t^i}{HP_{t-1}^i} = \alpha\gamma_t + \alpha \left(\sum_{b \in \mathscr{B}(i)}^{N} \omega_{t-1}^{b,i} \eta_t^b \right) + \underbrace{\alpha \left(\sum_{b \in \mathscr{B}(i)}^{N} \omega_{t-1}^{b,i} \lambda_{t-1}^b \right)}_{\text{Dollar dependence}} \times \zeta_t + \nu_t^i \tag{6}$$

Rich panel data set on international banking activities

- **Sample period:** 2000Q1 - 2015Q1
- **Market share $\omega^{b,i}$:**
  - BIS consolidated banking statistics
  - international claims of 28 lending banking systems on 36 borrowing countries
- **Dollar dependence λ^b of lending banking system b :**
  BIS locational banking statistics by nationality
- **House price growth**, 4 quarters ahead
  - OECD real house price index (country-wide, residential) for 36 countries
  - Co-movement: product of house price growth in borrowing country i and j
- **Mortgage credit growth**, 4 quarters ahead: credit to households and NPISHs, BIS
- **Drivers of US dollar financing conditions:**
  - **US net capital inflows:** scaled by US bank equity or total USD assets, BEA
  - **Federal funds rate:** Wu-Xia shadow federal funds rate, Atlanta Fed
  - **Broker-dealer leverage:** computed based on US Flow of Funds, table L.128
  - **Vix:** CBOE SP500 Volatility Index
  - **Broad dollar index:** trade weighted real effective exchange rate based on 26 bilateral exchange rates, Fed Board
- **Bilateral trade integration:**
  sum of bilateral imports scaled by sum of GDPs of country i and j

Panel regression framework: house price growth

$$HPgrowth_t^i = const + \beta_1 DD_{t-1}^i + \beta_2' DD_{t-1}^i \times \mathbf{RF_t} + \nu_i + \tau_t + \xi_t^i \tag{7}$$

- $HPgrowth_t^i$: House price growth in borrowing country i, 4 quarters ahead
- DD_{t-1}^i: Average dollar dependence of country i
- $\mathbf{RF_t}$: Vector of variables driving US dollar refinancing conditions
- ν_i, τ_t: Country and time fixed effects
- Standard errors clustered by time

Results: house price growth

For major nodes in the global banking network: DE, FR, GB, NL, CH, JP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	House price growth							
$DD_{i,t-1}$	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001
	[0.752]	[0.743]	[1.268]	[0.629]	[0.296]	[0.274]	[0.627]	[0.185]
$DD_{i,t-1}$ X Capflow/equity$_t$	0.015*	0.016*	0.016*	0.016*				
	[1.972]	[1.872]	[1.882]	[1.861]				
$DD_{i,t-1}$ X Capflow/dollar assets$_t$					0.243**	0.256**	0.253**	0.255**
					[2.494]	[2.357]	[2.332]	[2.329]
$DD_{i,t-1}$ X Federal funds rate$_t$		0.00007	0.00001	-0.00003		0.00009	0.00004	-0.00001
		[0.211]	[0.023]	[-0.096]		[0.261]	[0.104]	[-0.039]
$DD_{i,t-1}$ X Broker-dealer leverage$_t$			-0.00000	-0.00000			-0.00000	-0.00000
			[-1.039]	[-1.222]			[-0.678]	[-0.883]
$DD_{i,t-1}$ X Vix$_t$				-0.00002				-0.00003
				[-0.307]				[-0.394]
country$_i$ FE	yes	yes	yes	yes	yes	yes	yes	yes
year-quarter FE	yes	yes	yes	yes	yes	yes	yes	yes
year-quarter clustering	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,264	1,264	1,264	1,264	1,264	1,264	1,264	1,264
R^2	0.386	0.386	0.386	0.386	0.387	0.387	0.387	0.388

Robust t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Statistical model extended: synchronization

Departing from

$$\frac{\Delta HP_t^i}{HP_{t-1}^i} = \alpha \left(\sum_{b \in \mathscr{B}(i)}^{N} \left(\lambda_{t-1}^b \zeta_t + \eta_t^b + \gamma_t \right) \omega_{t-1}^{b,i} \right) + \nu_t^i \tag{8}$$

and considering another borrowing country j, while assuming that η_t^b, ν_t^i, γ_t and ζ_t are mutually uncorrelated, we obtain an empirically testable equation for synchronization:

$$HPsynch_t^{i,j} = \alpha^2 \sigma_\gamma^2 + \alpha^2 \sigma_\eta^2 \overbrace{\left(\sum_{b \in \mathscr{B}(i) \cup \mathscr{B}(j)}^{N} \omega_{t-1}^{i,b} \omega_{t-1}^{j,b} \right)}^{\text{Common lender effect} = \text{co-Herfindahl}\,(CoHFI_{ij})} + \alpha^2 \sigma_\zeta^2 \underbrace{\left(\sum_{b \in \mathscr{B}(i)} \omega_{t-1}^{i,b} \lambda_{t-1}^b \right) \left(\sum_{b \in \mathscr{B}(j)} \omega_{t-1}^{j,b} \lambda_{t-1}^b \right)}_{\text{Dollar co-dependence}\,(CoDD_{ij})} \tag{9}$$

Panel regression framework: house price growth synchronization

We exploit the rich structure of the data to isolate a supply driven lending channel.

$$HPsynch_t^{i,j} = const + \delta\, CoHFI_{t-s}^{i,j} + \beta\, CoDD_{t-s}^{i,j} + CONTROLS + \theta_{i,j} + \mu_{i,t} + \phi_{j,t} + \varepsilon_t^{i,j} \quad (10)$$

- $HPsynch^{i,j}$: House price growth co-movement for country pair i, j, where $i \neq j$
- $CoHFI_{t-s}^{i,j}$: Co-Herfindahl of country pair i, j
- $CoDD_{t-s}^{i,j}$: Dollar co-dependence of country pair i, j
- CONTROLS: Measure of bilateral integration between country i and j
- $\theta_{i,j}$, $\mu_{i,t}$, $\phi_{j,t}$: Country pair and country-time fixed effects
- Standard errors clustered by country pair

Results: house price growth synchronization

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	House price growth synchronization					
lag s	s = 3			s = 4		
$CoHI_{t-s}$	-0.000001*	-0.000001	-0.000001	-0.000001*	-0.000001*	-0.000001
	[-1.65]	[-1.574]	[-0.924]	[-1.891]	[-1.684]	[-0.969]
$CoDD_{t-s}$	0.00004***	0.00004*	0.00003	0.00005***	0.00003*	0.00003
	[2.79]	[1.787]	[1.524]	[3.132]	[1.832]	[1.537]
Bilateral trade integration$_t$			0.001			0.001
			[0.872]			[0.878]
countrypair$_{ij}$ FE	yes	yes	yes	yes	yes	yes
country$_i$-year-quarter FE		yes	yes		yes	yes
country$_j$-year-quarter FE		yes	yes		yes	yes
countrypair$_{ij}$ clustering	yes	yes	yes	yes	yes	yes
Observations	27,532	27,422	22,267	27,256	27,148	22,063
R^2	0.239	0.525	0.575	0.24	0.53	0.582

Robust t-statistics in brackets

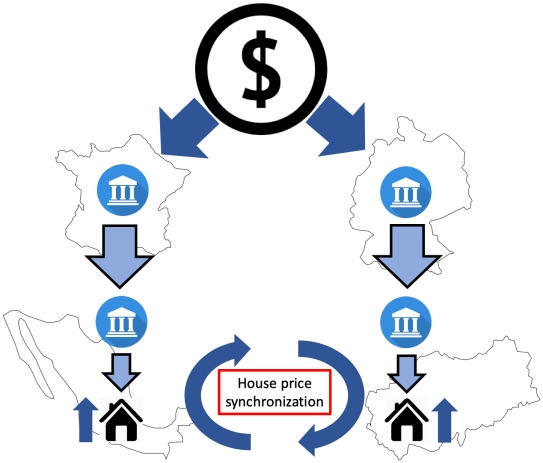
*** p<0.01, ** p<0.05, * p<0.1

Conclusions

- US net capital inflows are an important determinant of house price co-movements around the globe.
- The topography of international bank lending affects the synchronization of real estate markets.
- The synchronization is driven by non-US global banks' common but heterogeneous exposure to US dollar funding conditions, not by the common exposure of borrowing countries to non-US global banks.
- Mechanism driven mostly by European global banks. US-banks are irrelevant for the mechanism.

Transmission mechanism

Dollar co-dependence induces house price co-movement.



Co-dependence on US dollar funding intermediated through European global banks leads to house price co-movement in borrowing countries.

Panel regression framework: mortgage credit growth

$$MGgrowth_t^i = const + \beta_1 DD_{t-1}^i + \beta_2' DD_{t-1}^i \times \mathbf{RF_t} + \nu_i + \tau_t + \xi_t^i \tag{11}$$

- $MGgrowth_t^i$: Mortgage credit growth in borrowing country i, 4 quarters ahead
- DD_{t-1}^i: Average dollar dependence of country i
- $\mathbf{RF_t}$: Vector of variables driving US dollar refinancing conditions
- ν_i, τ_t: Country and time fixed effects
- Standard errors clustered by time

Results: mortgage credit growth

For major nodes in the global banking network: DE, FR, GB, NL, CH, JP

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	Mortgage credit growth							
$DD_{i,t-1}$	0.016***	0.015***	0.019***	0.017***	0.015***	0.014***	0.018***	0.016***
	[7.525]	[6.97]	[7.736]	[4.642]	[6.083]	[6.377]	[6.991]	[4.364]
$DD_{i,t-1}$ X Capflow/equity$_t$	0.01	0.028**	0.028**	0.028**				
	[1.025]	[2.072]	[2.074]	[2.129]				
$DD_{i,t-1}$ X Capflow/dollar assets$_t$					0.246*	0.398**	0.379**	0.38**
					[1.832]	[2.578]	[2.464]	[2.589]
$DD_{i,t-1}$ X Federal funds rate$_t$		0.001***	0.001**	0.001**		0.001***	0.001**	0.001**
		[2.948]	[2.28]	[2.057]		[3.163]	[2.392]	[2.096]
$DD_{i,t-1}$ X Broker-dealer leverage$_t$			-0.000**	-0.000**			-0.000**	-0.000**
			[-2.15]	[-2.064]			[-2.094]	[-2.025]
$DD_{i,t-1}$ X Vix$_t$				-0.000				-0.000
				[-0.889]				[-1]
country$_i$ FE	yes	yes	yes	yes	yes	yes	yes	yes
year-quarter FE	yes	yes	yes	yes	yes	yes	yes	yes
year-quarter clustering	yes	yes	yes	yes	yes	yes	yes	yes
Observations	1,310	1,310	1,310	1,310	1,310	1,310	1,310	1,310
R^2	0.506	0.508	0.510	0.51	0.507	0.509	0.511	0.511

Robust t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Panel regression framework: mortgage credit synchronization

$$MGsynch_t^{i,j} = const + \delta CoHFI_{t-s}^{i,j} + \beta CoDD_{t-s}^{i,j} + CONTROLS + \theta_{i,j} + \mu_{i,t} + \phi_{j,t} + \varepsilon_t^{i,j} \quad (12)$$

- $MGsynch^{i,j}$: Mortgage credit growth co-movement for country pair i, j, where $i \neq j$
- $CoHFI_{t-s}^{i,j}$: Co-Herfindahl of country pair i, j
- $CoDD_{t-s}^{i,j}$: Dollar co-dependence of country pair i, j
- CONTROLS: Measure of bilateral integration between country i and j
- $\theta_{i,j}$, $\mu_{i,t}$, $\phi_{j,t}$: Country pair and country-time fixed effects
- Standard errors clustered by country pair

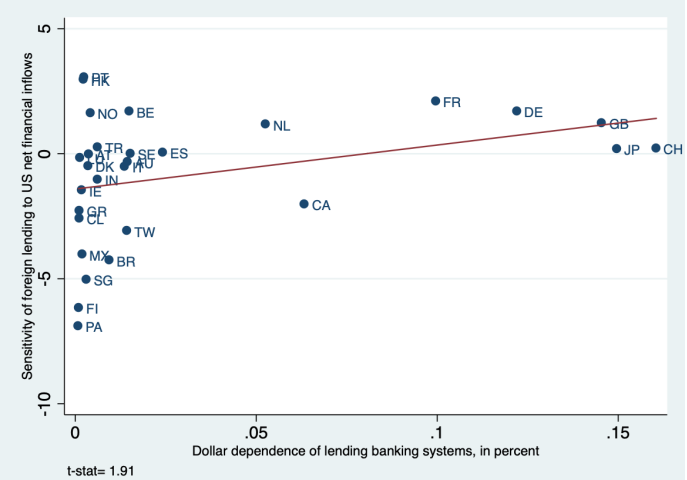
Results: mortgage credit growth synchronization

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Mortgage credit growth synchronization					
lag s	s = 3			s = 4		
$CoHI_{t-s}$	0.000006**	0.000002	0.000004*	0.000006**	0.000003	0.000004*
	[2.316]	[1.427]	[1.724]	[2.239]	[1.427]	[1.707]
$CoDD_{t-s}$	0.0001***	0.00009**	0.00008*	0.0002***	0.0001**	0.00009*
	[5.485]	[2.13]	[1.663]	[5.726]	[2.18]	[1.69]
Bilateral trade integration$_t$			-0.001			-0.001
			[-0.786]			[-0.900]
countrypair$_{ij}$ FE	yes	yes	yes	yes	yes	yes
country$_i$-year-quarter FE		yes	yes		yes	yes
country$_j$-year-quarter FE		yes	yes		yes	yes
countrypair$_{ij}$ clustering	yes	yes	yes	yes	yes	yes
Observations	30,254	30,138	23,466	29,876	29,762	23,173
R^2	0.263	0.591	0.609	0.282	0.612	0.633

Robust t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Dollar dependence: evidence from foreign lending



$$\frac{\Delta L_t^b}{L_{t-4}^b} = \beta^b CAPFLOW_t + \mu^b + \varepsilon_t^b$$

Panel regression framework: international lending

$$\frac{\Delta L_t^{b,i}}{L_{t-4}^{b,i}} = const + \beta_1 D_{t-1}^b + \beta_2' D_{t-1}^b \times \mathbf{RF_t} + \theta_{b,i} + \mu_{i,t} + \psi_t^{b,i} \tag{13}$$

- $\frac{\Delta L_t^{b,i}}{L_{t-4}^{b,i}}$: Growth in bilateral international claims of lending banking system b on borrowing country i
- D_{t-1}^b: Dollar dependence of lending banking system b
- $\mathbf{RF_t}$: Vector of variables driving US dollar refinancing conditions
- $\mu_{i,t}$: Country-time fixed effect
- $\theta_{b,i}$: Lending-banking-system-country fixed effects
- Standard errors clustered by country and time
- Estimated by WLS using D_t^b as weight

Results: bilateral international lending

	(1)	(2)	(3)	(4)
Dependent variable	Bilateral foreign lending			
Lending banking systems	G6		all	
Borrowing country sector	bank and non-bank			
	WLS using weight = D^b			
D^b_{t-1}	-20.609	-23.805	-30.488**	-32.666**
	[-1.862]	[-1.819]	[-2.304]	[-2.285]
D^b_{t-1} X Capflow/equity$_t$	237.499***		332.337***	
	[4.593]		[4.438]	
D^b_{t-1} X Capflow/dollar assets$_t$		2,997.422**		3,996.414***
		[3.988]		[4.204]
lending banking system$_b$-borrowing country$_i$ FE	yes	yes	yes	yes
borrowing country$_i$-year-quarter FE	yes	yes	yes	yes
lending banking system$_b$-year-quarter clustering	yes	yes	yes	yes
Observations	7,592	7,592	11,695	11,695
R^2	0.525	0.526	0.459	0.461

Robust t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Results: bilateral international lending by sector

	(1)	(2)	(3)	(4)
Dependent variable	Bilateral foreign lending			
Borrowing country sector	bank		non-bank	
	WLS using weight = D^b			
D^b_{t-1}	-43.381*	-46.495**	-37.571	-38.213
	[-1.798]	[-2.199]		
D^b_{t-1} X Capflow/equity$_t$	367.388***		393.760**	
	[4.171]		[2.764]	
D^b_{t-1} X Capflow/dollar assets$_t$		4,468.573***		4,602.845**
		[3.638]		[2.694]
lending banking system$_b$-borrowing country$_i$ FE	yes	yes	yes	yes
borrowing country$_i$-year-quarter FE	yes	yes	yes	yes
lending banking system$_b$-year-quarter clustering	yes	yes	yes	yes
Observations	4,305	4,305	6,043	6,043
R^2	0.402	0.403	0.458	0.458

Robust t-statistics in brackets

*** p<0.01, ** p<0.05, * p<0.1

Panel regression framework: foreign lending by currency

$$\frac{\Delta L_t^{b,c}}{L_{t-4}^{b,c}} = const + \beta_1 D_{t-1}^b + \boldsymbol{\beta_2'} D_{t-1}^b \times \mathbf{RF_t} + \nu_b + \tau_t + \psi_t^{b,c} \tag{14}$$

- $\frac{\Delta L_t^{b,c}}{L_{t-4}^{b,c}}$: Growth in aggregate foreign claims of lending banking system b in currency c
- D_{t-1}^b: Dollar dependence of lending banking system b
- $\mathbf{RF_t}$: Vector of variables driving US dollar refinancing conditions
- $\mu_{i,t}$: Borrowing country-time fixed effect
- ν_b, τ_t: Lending banking system and time fixed effects
- Standard errors clustered by lending banking system and time
- Estimated by WLS using D_t^b as weight

Results: foreign lending by currency

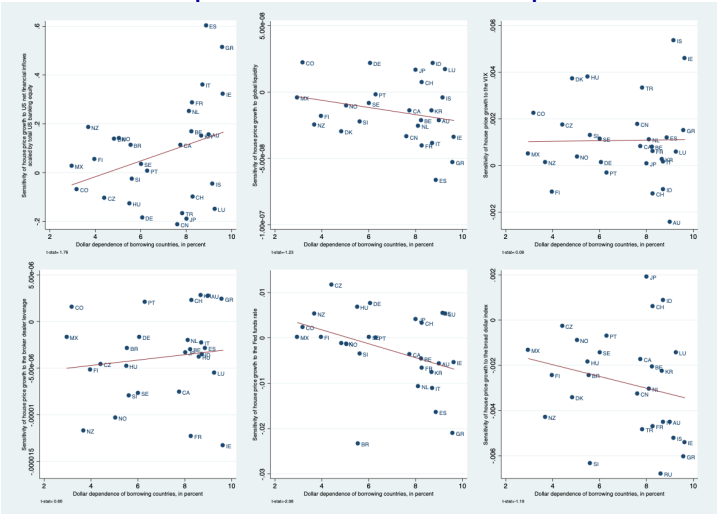
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Foreign lending					
Currency denomination of foreign credit	All	USD	Other	All	USD	Other
	WLS using weight = D^b					
D^b_{t-1}	0.159	0.085	6.194***	0.375	-1.272	19.283
	[0.696]	[0.275]	[3.022]	[0.553]	[-0.725]	[0.875]
D^b_{t-1} X Capflow/equity$_t$	3.698***	4.559***	-40.558	2.319*	2.787***	-74.437
	[2.99]	[3.15]	[-1.493]	[1.766]	[3.359]	[-1.242]
controls for other drivers of US dollar liquidity				yes	yes	yes
lending banking system$_b$ FE	yes	yes	yes	yes	yes	yes
year-quarter FE	yes	yes	yes	yes	yes	yes
lending banking system$_b$-year-quarter clustering	yes	yes	yes	yes	yes	yes
Observations	1,779	2,281	1,779	1,629	2,076	1,629
R^2	0.438	0.111	0.045	0.457	0.116	0.05

Robust t-statistics in brackets

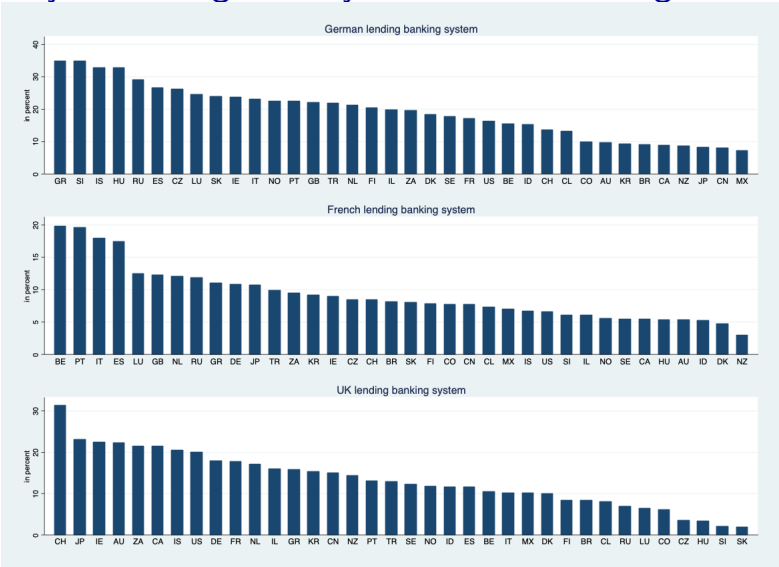
*** p<0.01, ** p<0.05, * p<0.1

Additional stylized facts

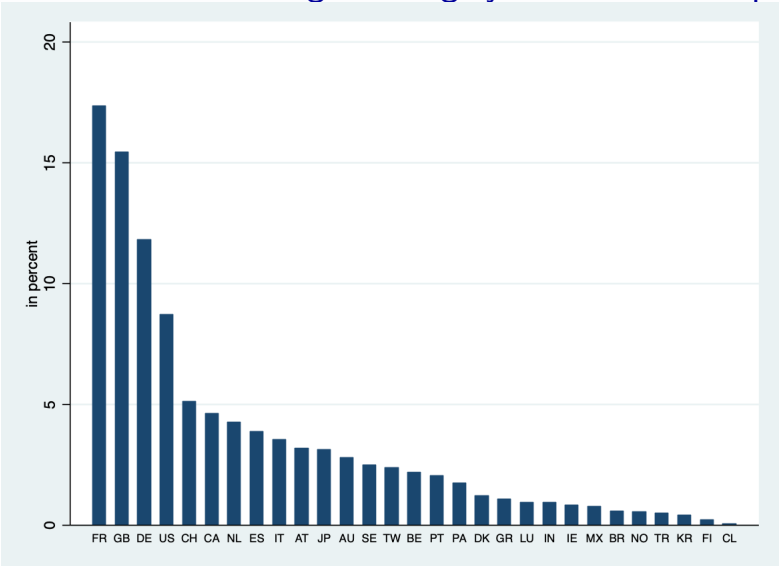
Alternative drivers of US dollar refinancing conditions, dollar dependence, and house prices



Market shares by borrowing country for selected lending banking systems



Market shares of lending banking systems - full sample



Dollar dependence of lending banking systems - full sample