Capital flows and housing markets: a global perspective

Conference on THE CHINESE PATH TO MODERNIZATION AND GLOBAL ECONOMIC DEVELOPMENT

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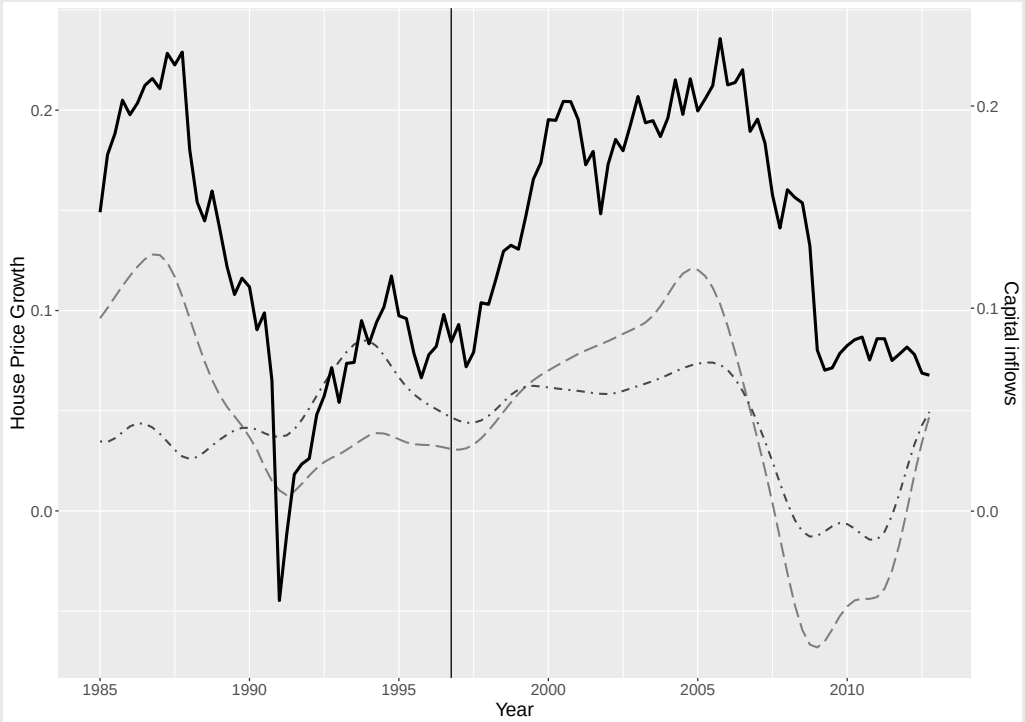
Background

- Housing booms are a risk to financial stability.
- Housing booms are often associated with persistent capital inflows.

Example: Aggregate U.S. Capital inflows and state-level house prices before and after the GFC.



(source: Hoffmann and Stewen, JEEA 2020)

Housing markets and capital flows: international evidence

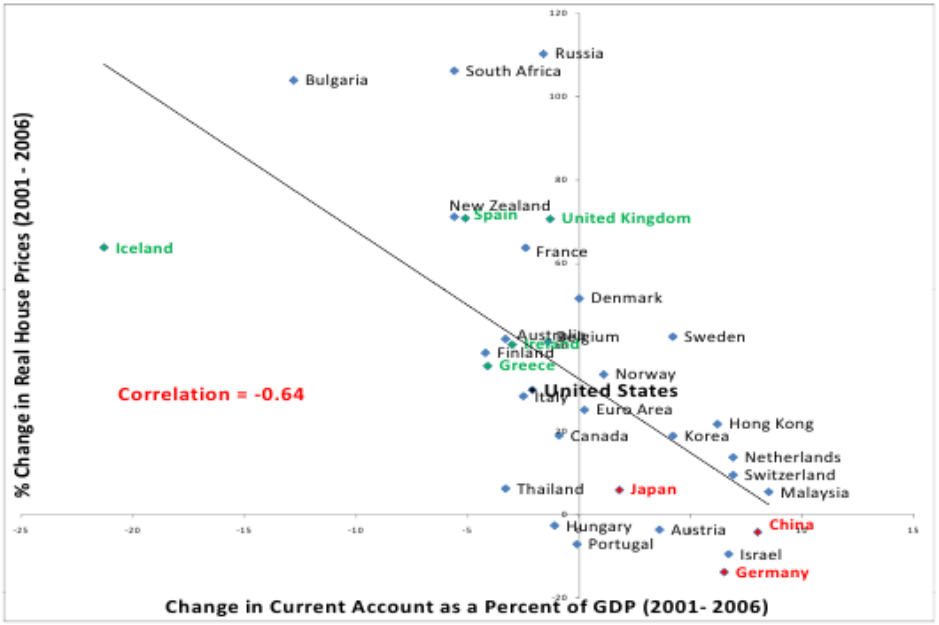


Figure 2: Current accounts and house prices in advanced and emerging economies.

(source: Ferrero (JMCB 2013))

Is this correlation driven by domestic (pull) factors or foreign (push) factors?

Outline of this talk

- Do capital inflows *cause* housing booms?
- Are house prices driven by global factors?
- Is there a global housing cycle?
- How is China affected by this?

Holes in the Dike: the global savings glut, U.S. house prices and the long shadow of banking deregulation (Hoffmann and Stewen, JEEA 2020)

- Identification exploits the interaction of state-level variation in banking market openess with US-wide aggregate inflows:
  - During the 1980s, US federal states opened their local banking markets to out-of-state banks.
  - States that opened up earlier had a larger presence of integrated (i.e. multi-state) banks by the time when global imbalances started to hit, in the mid 1990s.
- House prices in early-liberalized states were more sensitive to U.S. aggregate capital inflows during 1997-2012.
- Transmission mechanism:
  - We suggest a simple **model of VaR portfolio management by banks**. This model predicts that lending by banks with lower notional risk (higher geographical diversification) react more to capital inflow shocks
- Corroborate this mechanisms based on **bank-county-level mortgage lending data (HMDA)**
- Aggregate bank-level shock to county-level. **Counties with stronger presence of notionally diversified banks see stronger house price increases.**

The geography of state-level banking deregulation

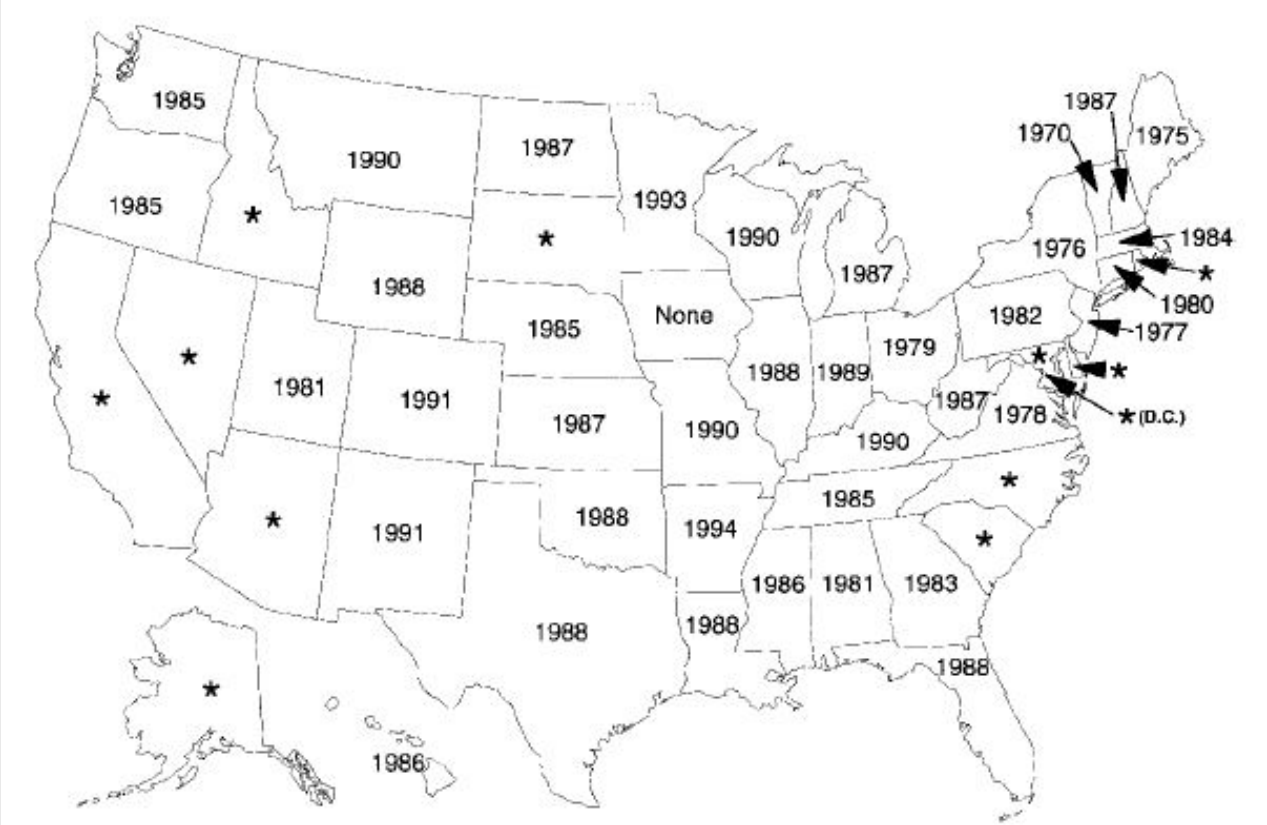
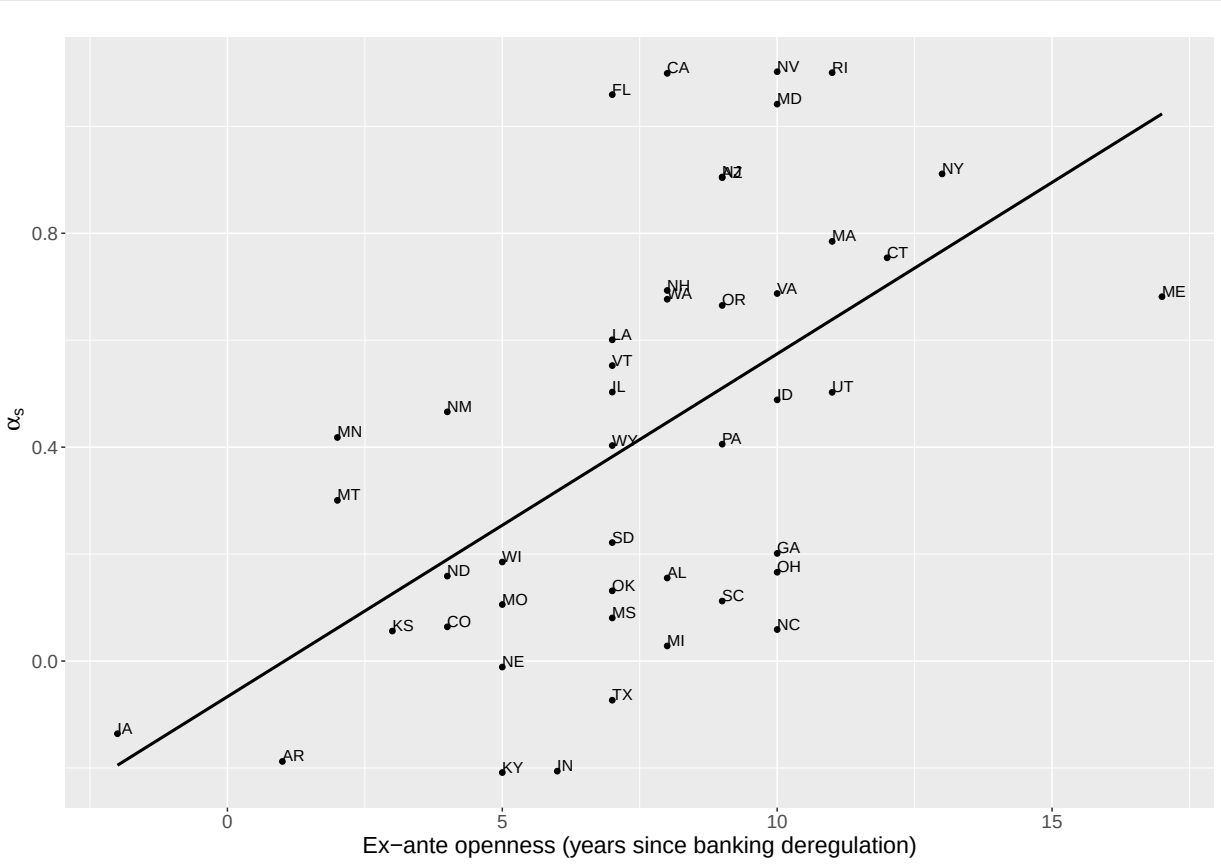


FIGURE I
Deregulation of Restrictions on Intrastate Branching
*Permitted Intrastate Branching before 1970.

Source: Kroszner & Strahan QJE 1999

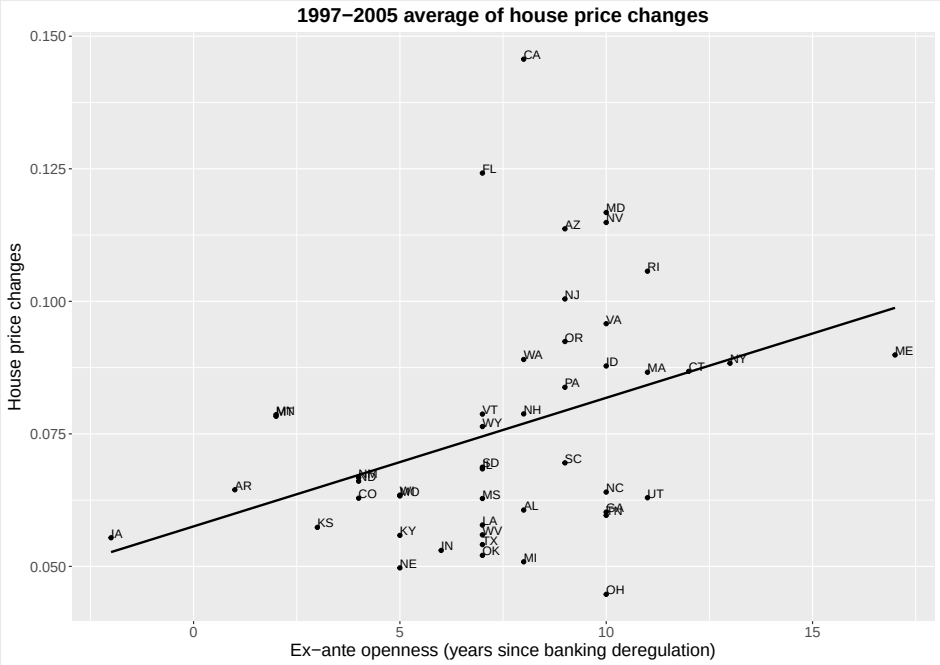
Deregulation and state-level exposure to aggregate capital inflows

$$\Delta HP_t^s = \alpha^s \times CAPFLOW_t + \varepsilon_t^s$$



State-level exposures α^s vs. Years since deregulation

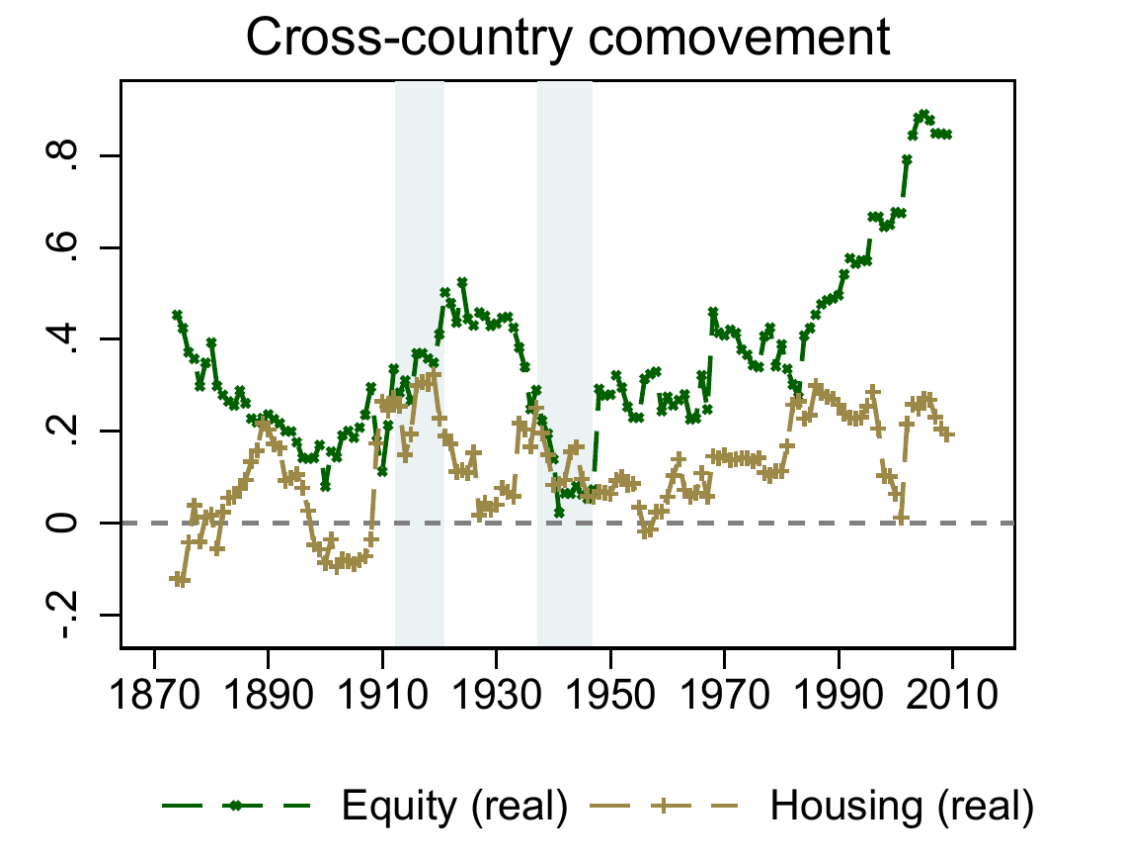
Financial openess and house price growth…



… during the boom

… and during the bust

Is there a global housing cycle? – historical evidence



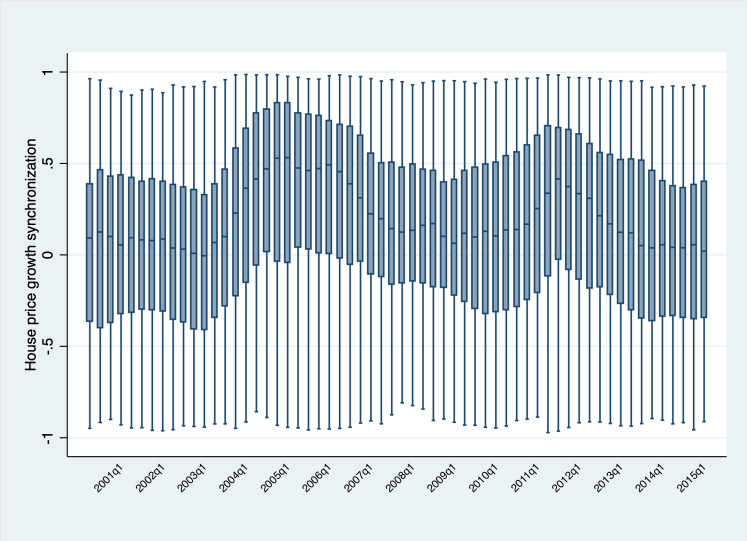
Source: Jordà et al, "The rate of return on everything", QJE 2019

House prices comove across countries:

- but much less than equities
- and the correlation is varying over time
- Can we really talk about a global housing cycle?

How house prices became internationally synchronized – dollar dependence and the role of non-US global banks (Ehlers, Hoffmann, Raabe, BIS-DP 897)

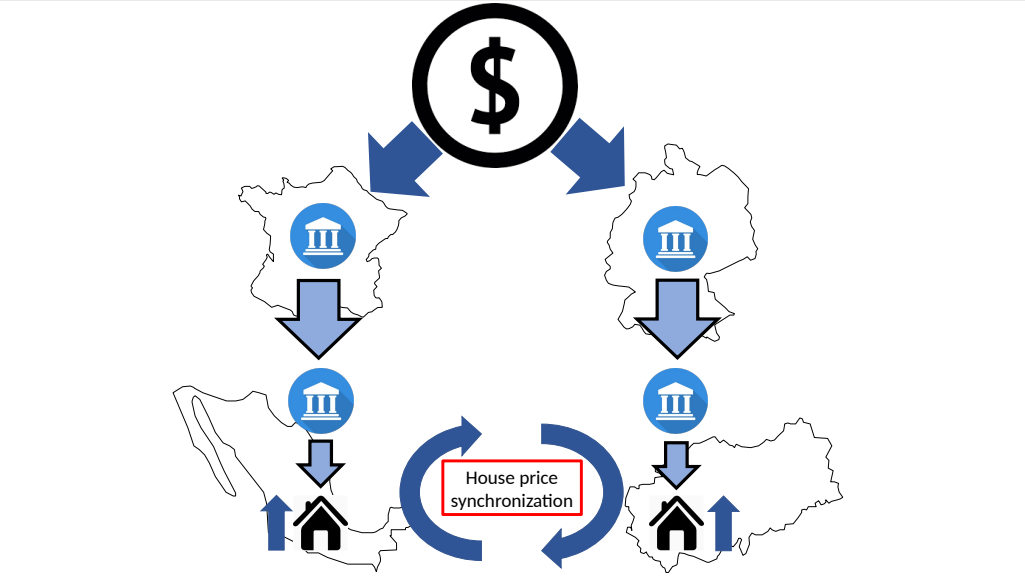
- International House price comovement varies considerably across time and country pairs.



Distribution of pairwise house price correlations over time

- We identify dollar refinancing conditions for non-US global banks as common factor driving global house price comovement.

Dollar (co-)dependence vs. common lender effects



source: Ehlers et al.

- **Dollar dependence** is about joint exposure of lender countries to dollar refinancing conditions, **NOT** about common lenders!
- Define **dollar dependence** of *borrower country i* as the weighted average of the dollar exposures of its lending banking systems:

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

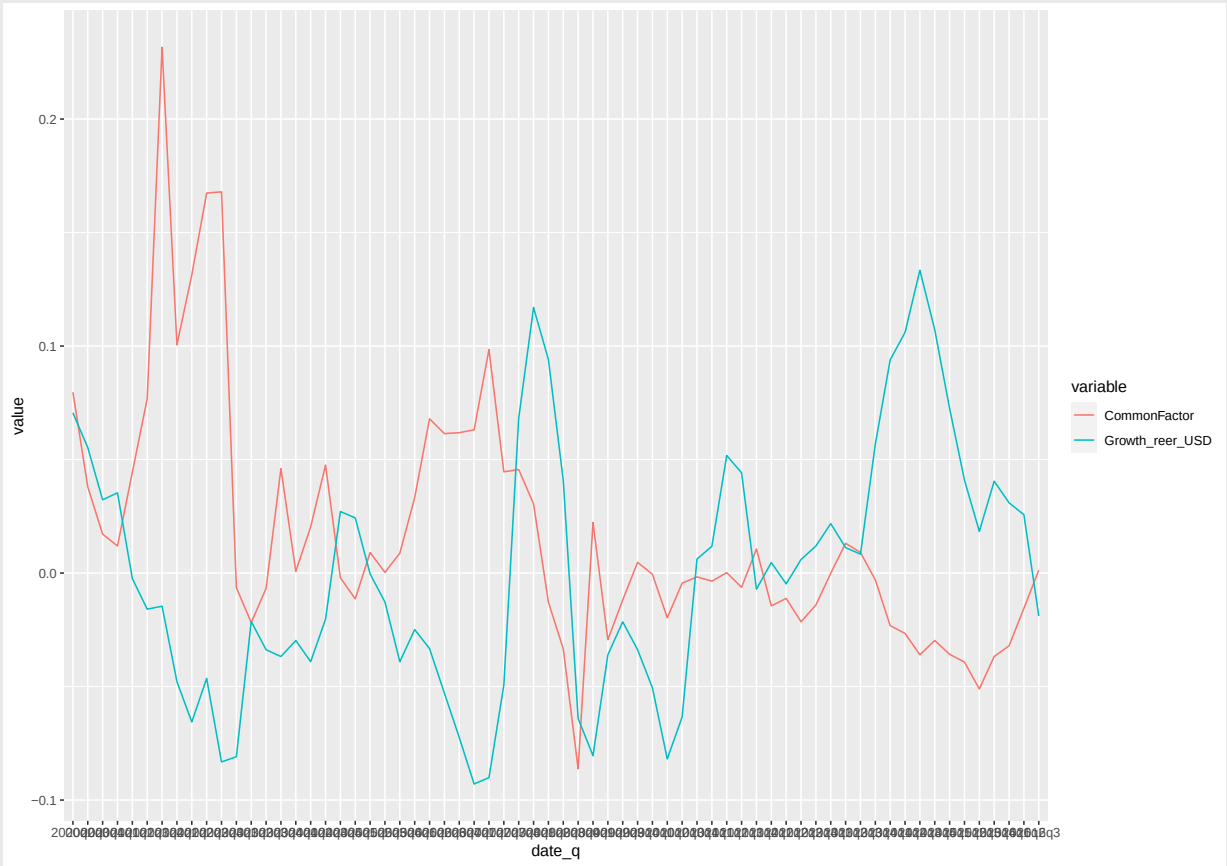
What matters for house prices? The global financial cycle or the dollar cycle.

- The global financial cycle (Rey 2013) is about general US financial conditions (monetary policy) synchronizing capital flows around the world. This affects refinancing conditions for *all* banks, US and non-US.

- A stronger dollar, however, asymetrically tightens dollar financing conditions (mainly) for non-US banks:
  - cross-border lending is largely in US dollars.
  - Non-US banks have to either use domestic currency deposits to raise dollars (which requires costly hedging)
  - Or they raise dollars directly, but this exposes their global balance sheet to currency risk, tying up risk taking capacity.

The dollar is a common factor in global housing markets

$$\Delta HP_t^i = DD_{t-1}^i \times GHC_t + \tau_t$$



GHC vs 4-quarter change in the real effective dollar exchange rate

Global house price comovement

Our analytical framework implies that the correlation between house prices in countries i and j is

$$corr_t(\Delta HP^i, \Delta HP^j) = \alpha \times CoDD^{i,j}_{t-1} + \beta CoHFI^{i,j}_{t-1} + ...$$

where we call

$$CoDD^{i,j}_{t-1} = DD^i_{t-1} \times DD^j_{t-1}$$

the **dollar co-dependence** between i and j.

CoHFI is the product of the markets share Herfindahls in country i and j and measures common-lender effects (Landier et al. JFE 2017). Importantly, *CoHFI* also captures the common lender effects from US banks!

Empirical results

Dependent Variable:	$\text{HPcorr}_t^{i,j}$		
	(1)	(2)	(3)
Variables			
$\text{CoDD}_t^{i,j}$	1.76***	1.76***	1.76***
	(3.26)	(3.48)	(3.49)
$\text{CoHFI}_t^{i,j}$	0.175	0.174	0.176
	(0.328)	(0.311)	(0.316)
GDP growth corr.		0.154***	0.154***
		(3.14)	(3.14)
trade integration			-5.31
			(-0.238)
Fixed-effects			
CountryPair	Yes	Yes	Yes
country1-date	Yes	Yes	Yes
country2-date	Yes	Yes	Yes
Fit statistics			
Observations	27,767	26,894	26,894
R^2	0.53560	0.54960	0.54962
Within R^2	0.00150	0.00820	0.00823

Dyadic panel regressions of house price correlations on dollar co-dependence

Summary and some final thoughts

- Capital inflows (can be) causal for house prices – the US housing boom of the early 2000s a prime example.

- But is there a global house price cycle?
  - Fluctuations in the dollar exchange rate together with the dominant role of the dollar in cross-border lending on non-US banks account for time variation in global house price comovement.
  - But house prices much less correlated across countries than other asset prices.

- What role did China play? How is it affected?
  - "Savings glut" contributed to the US housing boom. But (de-) regulation in the US was a key mediator.
  - With a closed capital account, the dollar channel not directly relevant for house price dynamics in China today.
  - But the flip side of the reduction of China's surpluses over the last decade was increased domestic absorption which may have helped fuel China's domestic housing boom (Huang, Hoffmann and Zhang, in progress).