



FEDERAL RESERVE BANK *of* NEW YORK

Volatile International Capital Flows to Emerging Markets

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Volatile International Capital Flows

- ✓ Evolution of international capital flows
- ✓ Size and changing global factor (common movement across countries)
 - What are the drivers?
 - How/why does its strength evolve?
 - Differences for advanced economy vs emerging markets?
- ✓ Open questions
 - Different types of participants/ health/ sensitivities
 - New amplification factors
 - Implications of more synchronized business cycles

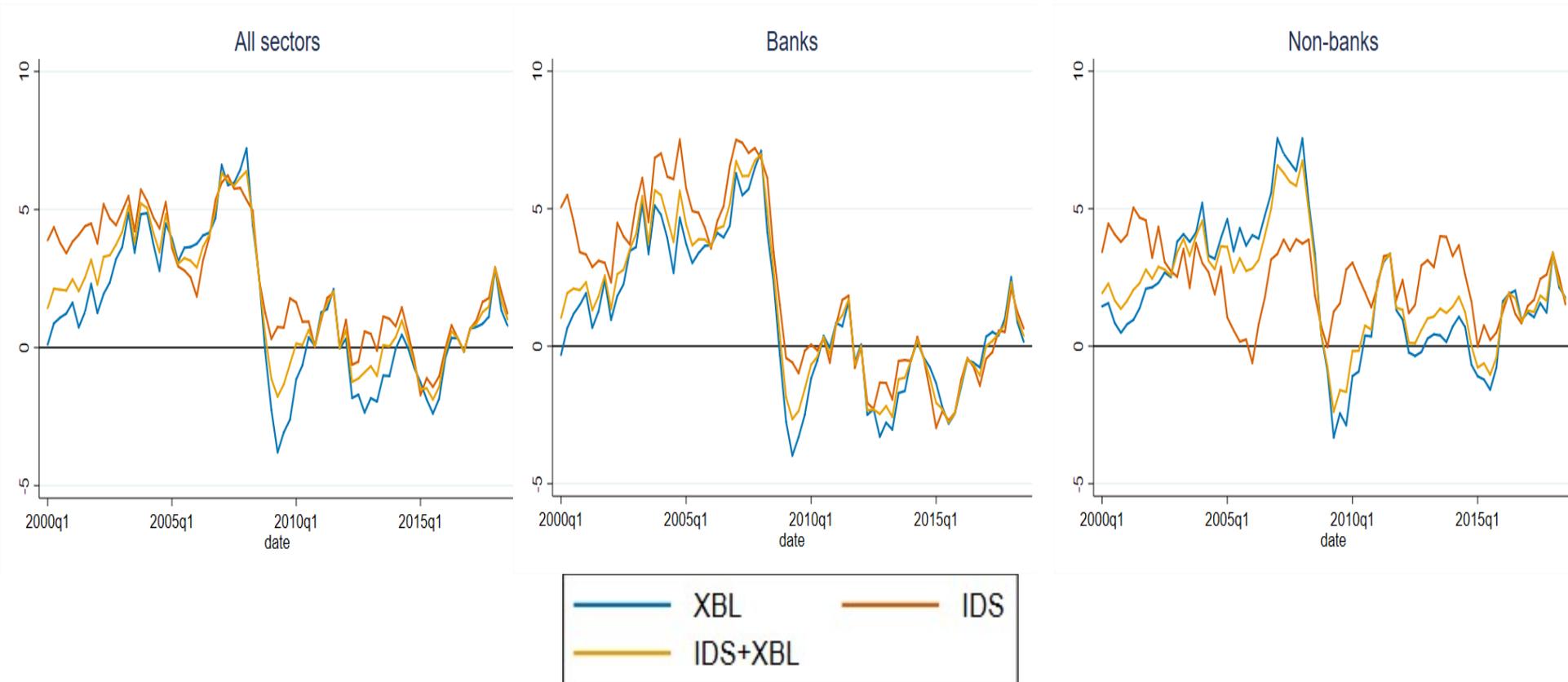
Evolution of International Capital Flows

- What happened to global liquidity growth across borrowing countries?
 - ✓ Volumes of international capital flows (through 2018Q3)
 - ✓ International Debt Securities, Bank Claims (BIS data)
 - ✓ Borrower perspective, Bank versus Nonbank (corporate)
 - ✓ AEs and EMs aggregated, separated

Cross border lending most volatile, especially for bank borrowers

XB Global Liquidity, all countries, borrower perspective

4-quarter moving averages of quarterly growth rates, %



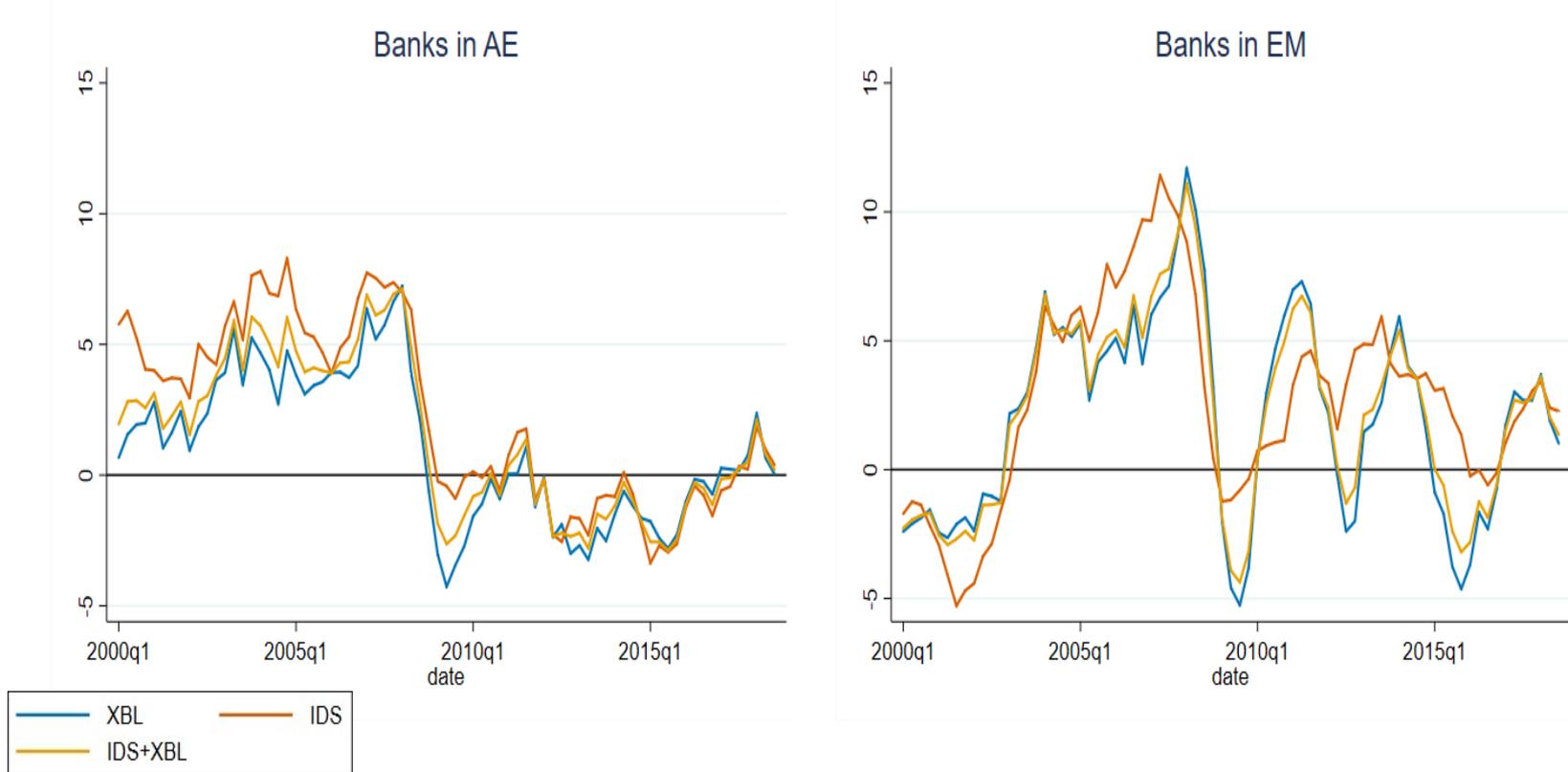
$$\text{Quarterly Growth Rate}_t = \left(\text{Outstanding Stock}_t / \text{Outstanding Stock}_{t-1} \right) - 1$$

XBL = Cross-border loans, IDS = International Debt Securities

Data Source: BIS Locational Banking Statistics, International Debt Securities

Amplitudes of swings are larger for EM **bank** borrowers, especially when financed through international bank flows.

External Debt Flows, **Bank Borrowers** in AE vs EM 4-quarter moving average of quarterly growth rates, %



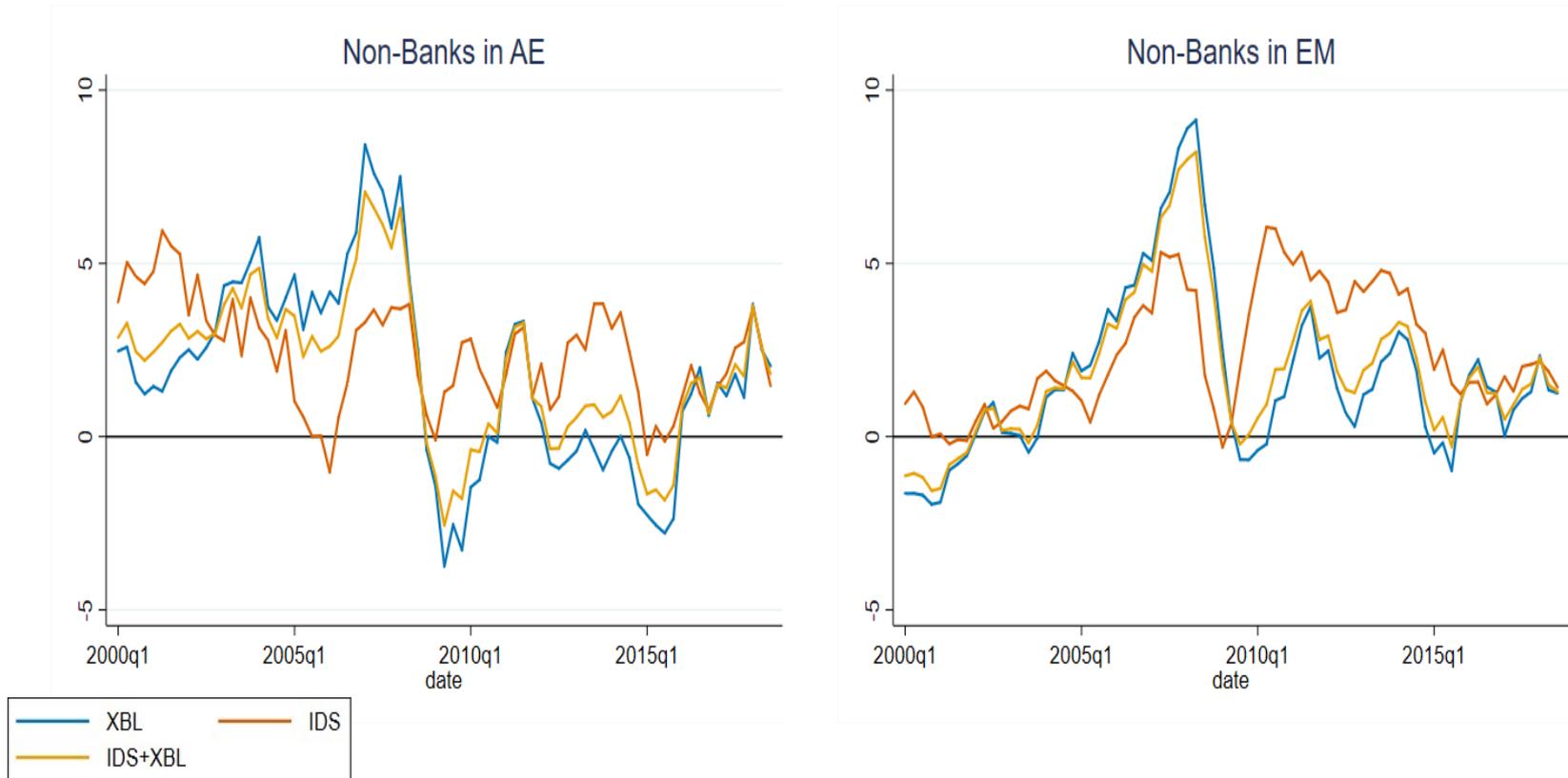
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For nonbank borrowers (corporates), bank-based credit slowed or contracted post crisis, especially for AEs.

External Debt Flows, **Non-Bank Borrowers** in AE v EM
4-quarter moving average of quarterly growth rates, %



$$\text{Quarterly Growth Rate}_t = \left(\frac{\text{Outstanding Stock}_t}{\text{Outstanding Stock}_{t-1}} \right) - 1$$

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Size and drivers of the global factor

The importance of the global factor is episodic, and shifting

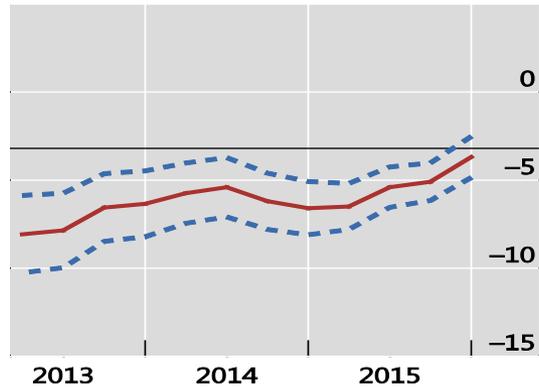
- The “global factor” has received a lot of attention, but size, pervasiveness, and consequences for economic activity debated.
- Episodic strength in international capital flows [AGGS 2018]
 - cross border credit from banks and international debt securities
 - ✓ 2000:Q1 to 2015:Q4, 64 countries
 - Post-crisis temporary spike in sensitivity to US monetary policy largely driven by co-movement in AE monetary policies.
 - Longer run, expect stabilizing effects from increased market shares of better-capitalized lending banking systems. These banks tend to be less responsive to fluctuations in global risk conditions.

AGGS 2018. Avdjiev, Gambacorta, Goldberg and Schiaffi “The Shifting Drivers of Global Liquidity” NBER 23565 (July version)

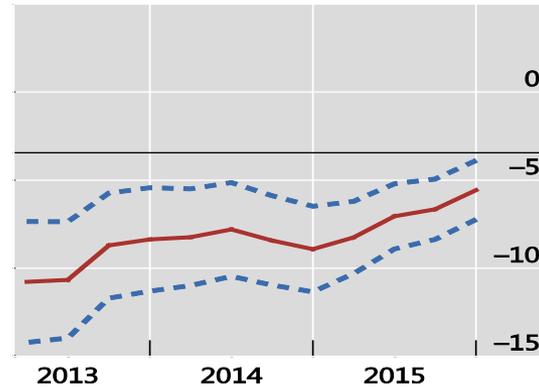
Change in sensitivities to FFR (or shadow rate), pre v. post-break & over time

Post-break sensitivities to Δ FFR, evolution over time

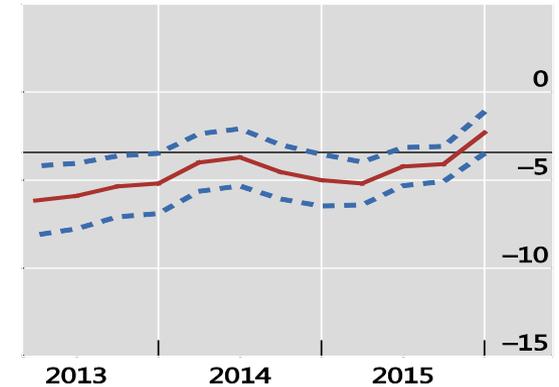
Cross border loans to all



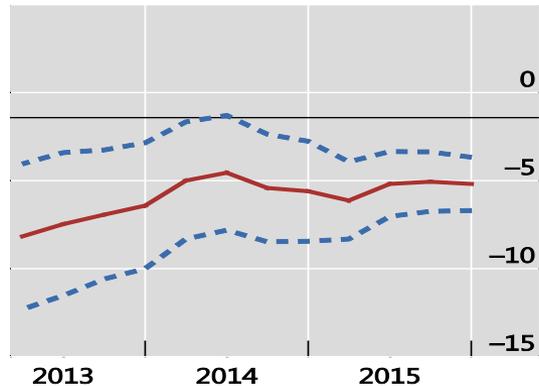
Cross border loans to banks



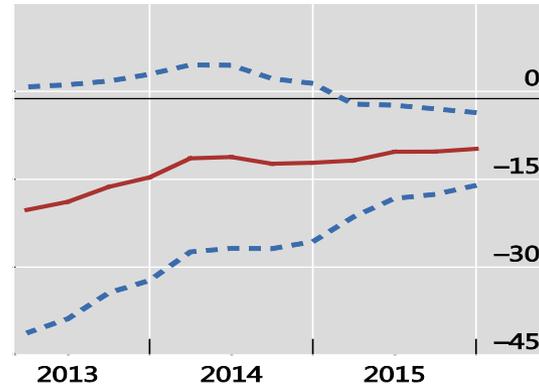
Cross border loans to non-banks



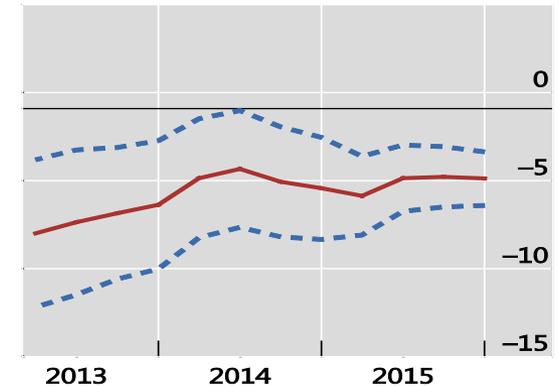
IDS issued by all



IDS issued by banks



IDS issued by non-banks



— estimate
 - - - Lower 90%
 - - - Upper 90%

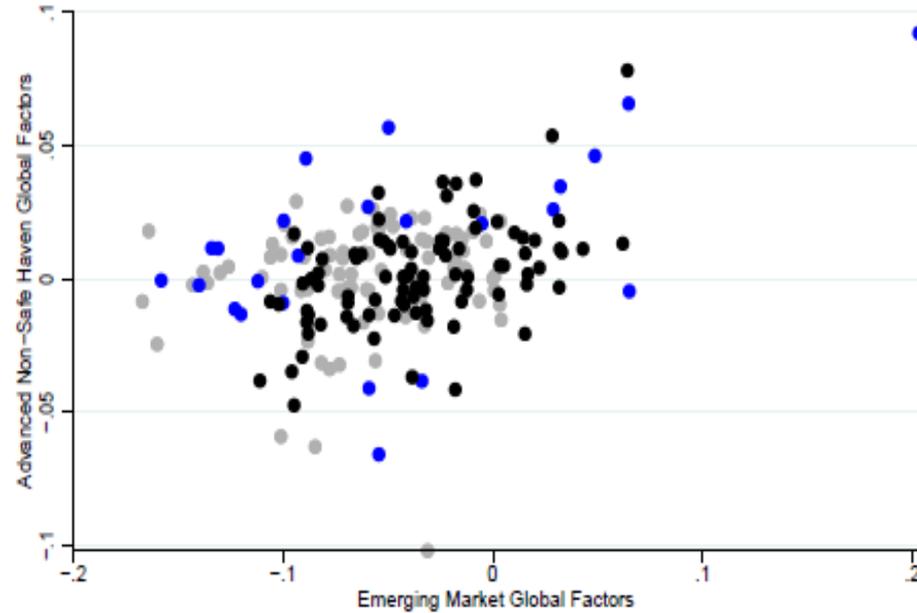
The graph shows the evolution over time of sensitivities to the Δ FFR. For each quarter t , the charts show the post-break coefficient (and its 90% confidence interval) obtained by estimating the model with a sample from 2000:Q1 up to quarter t , with a break in 2009:Q1. The model includes the $\log(\text{VIX})$, Δ Real GDP, Δ Sovereign Ratings, Chinn-Ito Index, Δ Real Global GDP, Δ FFR (i.e. Δ Effective federal funds rate for the period 2001:Q1 – 2008:Q4, Δ Wu-Xia Shadow rate for the period 2009:Q1 – 2015:Q4) as explanatory variables. The black line in each panel represents the pre-break estimate of the sensitivity to Δ FFR.

Exchange rate movements reflect the global factor, but are not sufficient indicators of pressures on currencies

- New theory-based **Exchange Market Pressure** measure [GK 2018]
 - EMP is expressed in currency depreciation units
 - ✓ Weighted sum of observed exchange rate moves, plus the currency changes that are not released as foreign exchange intervention and monetary policy changes responded to pressure
 - ✓ Cross-country panel, 44 countries, 2001m1-2018m10
 - ✓ All currency values defined against a reference currency (\$, euro)
- Global factor (as time fixed effect) is important but not always large
- Pre-crisis: AE EMPs don't move with EM EMPs
- Post-crisis: AEs less appropriate as a class. Those described as “Safe-haven currencies” appreciate with risk; other AEs economies more similar to EMs, but facing weaker exchange market pressure.

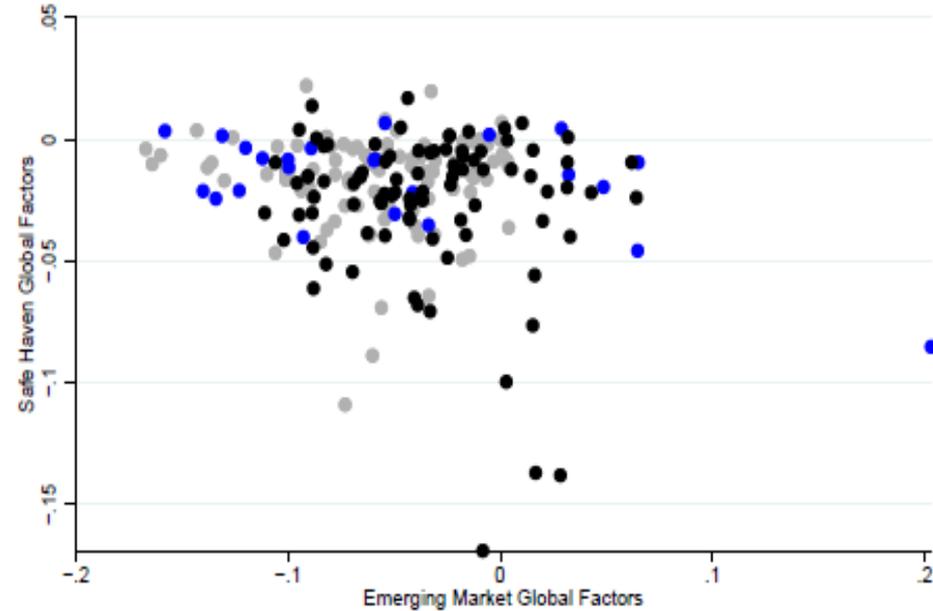
GK 2018. Goldberg and Krogstrup. “International Capital Flow Pressures” NBER 24286 (current version)

Global factor by country panel shows episodic strength, distinguished by country types



Regression fits by period:

Period	Reg. Line	P-val	R2
Pre - 2007m7	$y = 0.0405x$	0.4528	0.006
2007m7 - 2009m6	$y = 0.2193x$	0.0068	0.288
Post - 2009m7	$y = 0.2355x$	0.0000	0.240



Regression fits by period:

Period	Reg. Line	P-val	R2
Pre - 2007m7	$y = -0.0219x$	0.6816	0.002
2007m7 - 2009m6	$y = -0.1284x$	0.0060	0.295
Post - 2009m7	$y = -0.1111x$	0.1667	0.022

AE non-safe haven v. EMs

AE "safe haven" v. EMs

Global factors measured by time fixed effects from panel regressions of the *EMP* on time and country fixed effects and first differences of domestic interest rate.

Grey dots: pre-2007m7 observations, **blue**: 2007m7-2009m6, **black**: 2009m7-2017m10.

Concluding Remarks

- International capital flows are volatile and complex: composition evolves, drivers and global factor strength change
- Capital flow data (and bank-specific data, IBRN) allow identification of particular channels and decomposition of borrower/creditor behaviors;
- GK Exchange Market Pressure is a useful new complement to global factor and analytical work on international spillovers.
- Amplification factors: weak and under-capitalized global banks, synchronized advanced economy business cycles, big changes in risk sentiment by investors
- Need to better understand: what different dynamics from market-based financing? What effectiveness of innovations in intervention toolkit?



Thank you!