Discussion of

# Foreign-currency exposures and the financial channel of exchange rates: Eroding monetary policy autonomy?

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Acknowledgments: Some of my discussion builds on ongoing work with Oscar Jórda and Alan M. Taylor. Thanks to them for many discussions on these topics without implicating them.

# introduction

foreign currency exposure and monetary autonomy

- EMEs accumulated foreign-currency exposure since the Asian crisis
- does this limit the EME central bank autonomy?

method

- estimate interest rate rule for 21 floating SOEs (advanced and EMEs)
- does domestic policy rate load on the “base”-country policy rate?
- is foreign currency exposure relevant to this loading?

answers

- robust: positive loading on the “base”-country policy rate
- this loading is increasing in foreign currency exposure

# layout

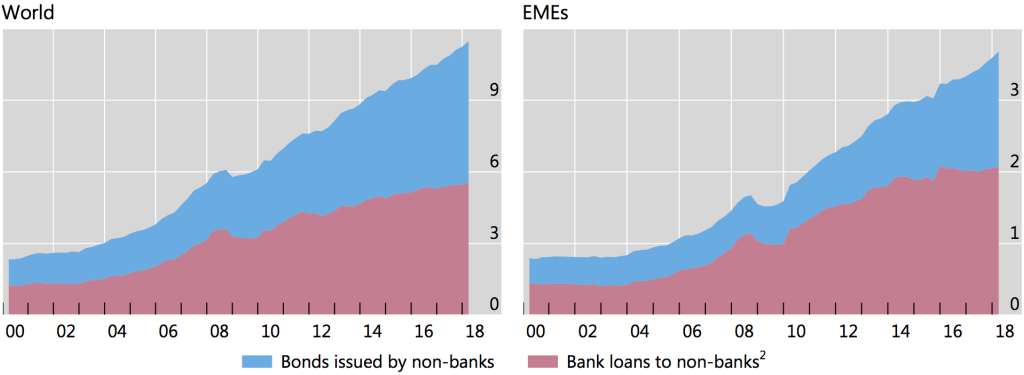
- brief motivation and simple theoretical model
- main comment: more (causal?) investigation of the channel

Overall, the paper provides evidence in favor of financial exposure channel.
Important contribution.

# EME exposure

## US dollar-denominated credit to non-banks outside the United States[1]

Amounts outstanding, in trillions of US dollars — Graph A4




Further information on the BIS global liquidity indicators is available at www.bis.org/statistics/about_gli_stats.htm.

[1] Non-banks comprise non-bank financial entities, non-financial corporations, governments, households and international organisations. [2] Loans by LBS-reporting banks to non-bank borrowers, including non-bank financial entities, comprise cross-border plus local loans.

# Georgios and Feng's question

Is there a systematic response by EME central banks to base country interest rates <u>over and above</u> any exchange rate intervention?

# Mundell Fleming framework ala Gourinchas (2017)

a domestic (small) open economy vs a foreign (large) economy

$$
\begin{aligned}
Y &= A + NX \\
A &= \xi - \delta\, r - \zeta\, s \\
NX &= \alpha(Y^* - Y) + \beta\, s \\
Y^* &= A^* = \xi^* - \delta\, r^* \\
s &= \theta(r^* - r) + \gamma\, r^* + \chi
\end{aligned}
\qquad \alpha,\ \beta,\ \delta,\ \zeta,\ \theta,\ \gamma,\ \chi \geq 0
$$

- $Y$ is output; $A$ is domestic absorption; $NX$ is net exports; $r$ is the interest rate; $s$ is exchange rate
- $\gamma$ global financial cycle; $\zeta$ other financial spillovers (balance sheet exposure, etc.); $\chi$ exogenous UIP deviations
- $\zeta = \gamma = \chi = 0$ is textbook Mundell-Fleming-Dornbusch model

# CB is passive, $\Delta r = 0$

Case 1: $\zeta = \gamma = \chi = 0$

- Foreign demand for home goods falls and lowers NX through $\alpha$
- Domestic currency depreciates and boosts NX through $\beta$
- No effect on domestic absorption
- Domestic demand for imports $\downarrow$ i.e. $NX$
- $\Delta Y = \Delta NX = \frac{(-\alpha\delta + \beta\theta)}{1+\alpha} \Delta r^*$

Case 2: add $\zeta > 0$

- Financial balance sheet effects on domestic absorption open up
- $\Delta A = -\zeta \Delta s = -\zeta\theta \Delta r^*$
- If $\zeta$ large enough, domestic economy unambiguously contracts

$\zeta$ - financial channel motivation for stabilizing exchange rate

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With $\gamma > 0$ (endogenous risk premia), passthrough to $\Delta s \uparrow$

# hard peg, $\Delta r = \Delta r^*$

Case 1: $\zeta = \gamma = \chi = 0$

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- no effect on competitiveness as $\Delta s = 0$
- Domestic absorption contracts $\Delta A = -\delta r^*$
- Domestic demand for imports $\downarrow$ i.e. $\Delta NX = -\alpha\delta\Delta r^* + -\alpha\Delta Y$
- $\Delta Y = \Delta NX + \Delta A = -\delta\Delta r^*$

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- $\Delta Y = \Delta NX + \Delta A = -\delta\Delta r^* \rightarrow$ "as-if" domestic monetary policy shock

Case 2: add $\zeta > 0$

- No financial balance sheet effects as $\Delta s = 0$
- $\Delta Y = \Delta NX + \Delta A = -\delta\Delta r^*$

With $\gamma > 0$ (endogenous risk premia), passthrough to $\Delta r \uparrow$

# Implications with $\zeta > 0$

Case 1: Do not react to $\Delta r^*$

- balance sheet effects retard domestic absorption
- $\Delta Y = \frac{-\alpha\delta + (\beta - \zeta)\theta}{1+\alpha} \Delta r^*$

Case 2: Hard peg

- No balance sheet effects as $\Delta s = 0$
- $\Delta Y = -\delta \Delta r^*$

Hard to put a bound on $\zeta$ theoretically.
Large theoretical literature (for e.g. Céspedes Chang & Velasco 2004, or Akinci Queralto 2019)

# Big picture

Is there a tradeoff?

- Presence of a tradeoff implies that domestic output has to contract.
- Do we see this in the data?
  (Vicondoa 2019, Iacoviello & Navarro 2018, Ilzetzki & Jin 2013)

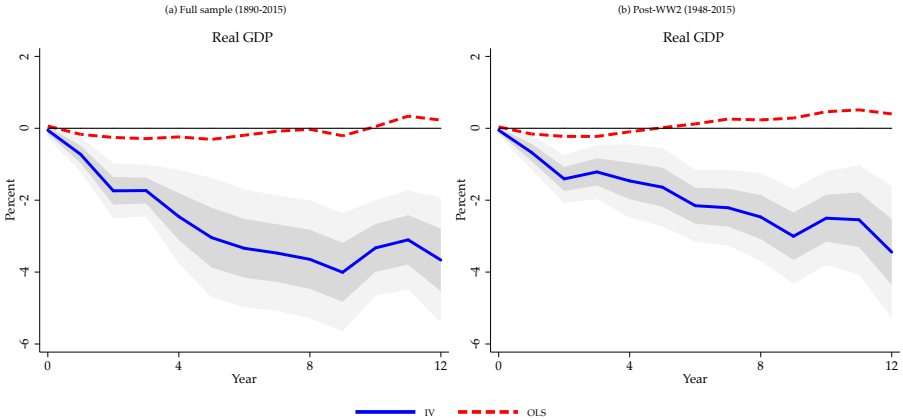
Differential effect on output, exchange rate based on exposure, conditional on interest rate reaction?

# Trilemma in history ( + shameless self promotion)

Jordá-Singh-Taylor (2019): *The long-run effects of monetary policy*

Data: 17 advanced economies 1890-2015

Use trilemma to identify monetary policy shocks for open pegs



# Big picture 2

"Original sin" in a new bottle (Carstens & Shin 2019)

- Is foreign currency exposure (FCE) because of lack of domestic financial development?
- Du & Schreger: private sector offshore debt explains sovereign risk premia
- Can you use instruments to proxy for FCE ?
  (Rajan Zingales '98?, Levine '05?)

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Counterfactual loading on base rate ?

- If EME didn't have large FCE, would there still be a passthrough?
- Likely that the FCE is complementary to variety of factors (dollar invoicing, stability of reference currency, demand for safe assets, imported inputs/ global value chains, trade credit,...)

  Gopinath (2015), Mukhin (2019), Hassan (2013), Caballero Farhi Gourinchas (2008, 2016) ...

# Big picture 3

Are EMEs stabilizing exchange rates with the policy rate movements?

- Kalemli-Özcan (2019): UIP violations for EMEs comove with interest differentials
- Need larger movements in interest rate to stabilize $s$: $\left(1 + \frac{\gamma}{\theta}\right) \Delta r^*$
- also suggestion: control for EMBI instead of VIX?

# Big picture 4

Challenge for EMEs to build a base for domestic currency borrowings

- low r-star, demand for dollar based liabilities $\rightarrow$ temptation to issue debt in dollar
- Hale Jones & Spiegel (2019): GFC gave impetus to home currency issuance
- path dependence in “what is safe”

# into details...

1. Why no lags for base country rate?
   - Cointegration for domestic policy rate possibly taken care of by adding forecasts.
   - Unit root in base rate can be problematic for inference

2. Why forecasts instead of actual fundamentals in these economies?
   - VARs feature actual macro fundamentals in reaction function
   - Can use longer time series instead of starting in 2002.
     - Foreign currency exposure interpolated from annual to monthly
     - Can start in 1990 (Benetrix, Lane and Shambaugh 2015)

# into details...

3. Omitted variables?
   - Exports and imports likely to change when the base rate changes
   - Not controlling for base country GDP, current account can be problematic.
   - I would add current and lag values of these variables as controls.

4. Why does the $R^2$ barely move despite all the controls?
   - Clarification: are interaction terms Table 3 onwards also added as levels?
   - Bit surprising that explanatory power is low in estimated rules.

# into details...

5. Robustness suggestion
   - check confidence bands with clustered standard errors at country level

6. Exposition suggestion
   - Show how do EME with soft pegs behave?
   - Could bilateral trade between EMEs explain policy rule response?
   - If your trading partner is managed float (eg. India), you want to keep exchange rate stable for stability of bilateral trade relations.

# putting it back together

EME policy rate loads on US rate

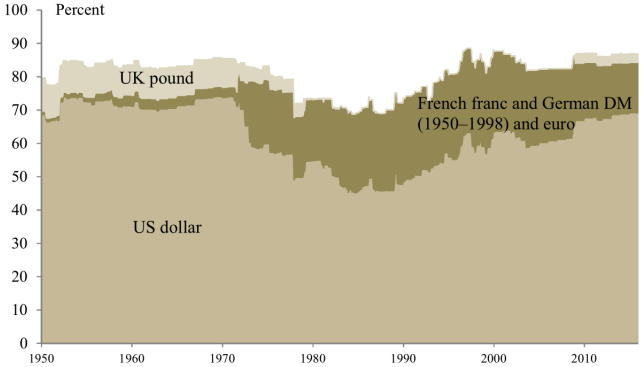
- in Georgiadis (2016) (+ Iacoviello & Navarro (2018), Vicondoa (2019), Kalemli-Özcan (2019) ...) + all of yesterday and today

quantifying the foreign currency exposure channel is the main object

- Georgios and Feng have taken seriously this task. Lots of details in the paper
- As the much-admired referee #2 says, they are still scratching the surface
- How do we obtain causal quantitative import of foreign currency exposure?

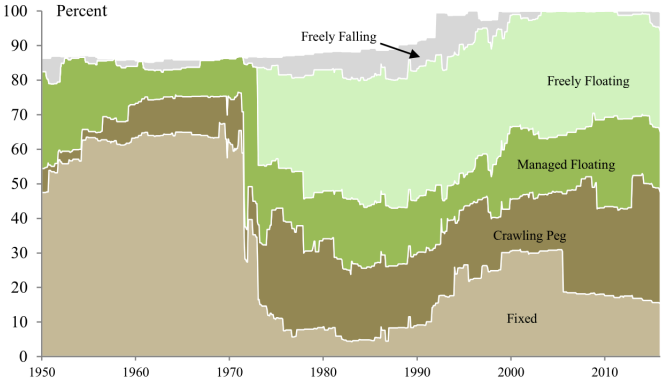
# Exchange rate arrangements

*Number of countries weighted by their share in world GDP, 1950–2015, excludes freely falling cases*




Ilzetzki Reinhart & Rogoff, QJE 2019

# Share of world GDP in arrangements...

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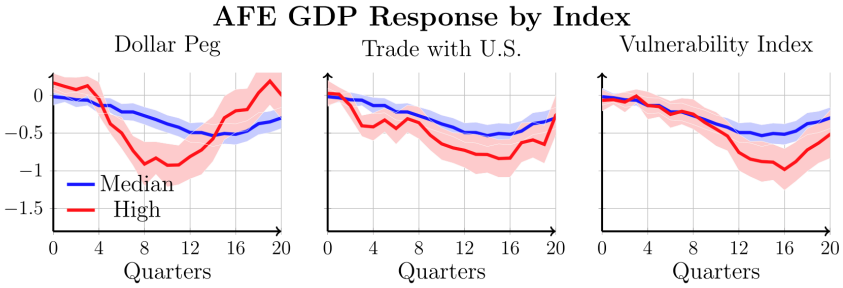
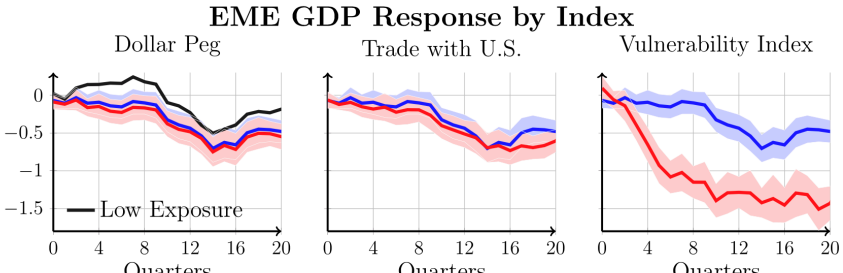
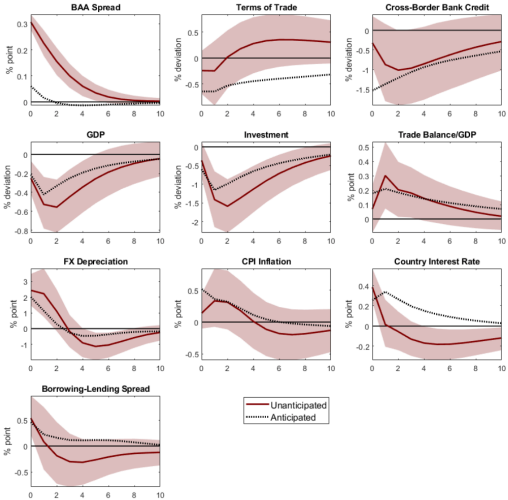
# appendix

# Iacoviello Navarro

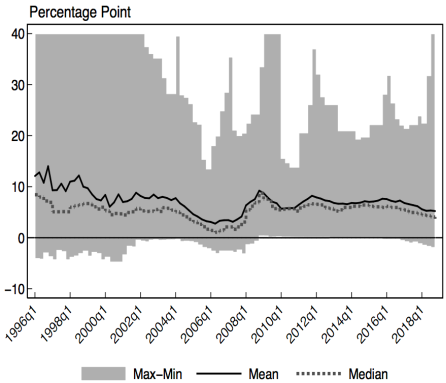


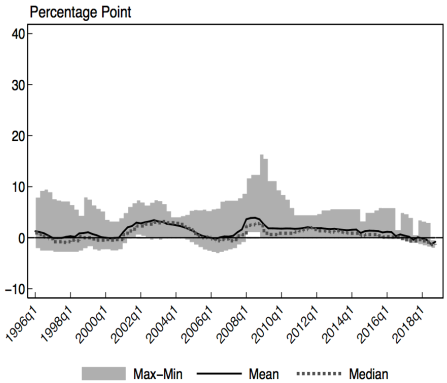



# Vicondoa: 25 bp shock to US policy rate



# Kalemli-Özcan

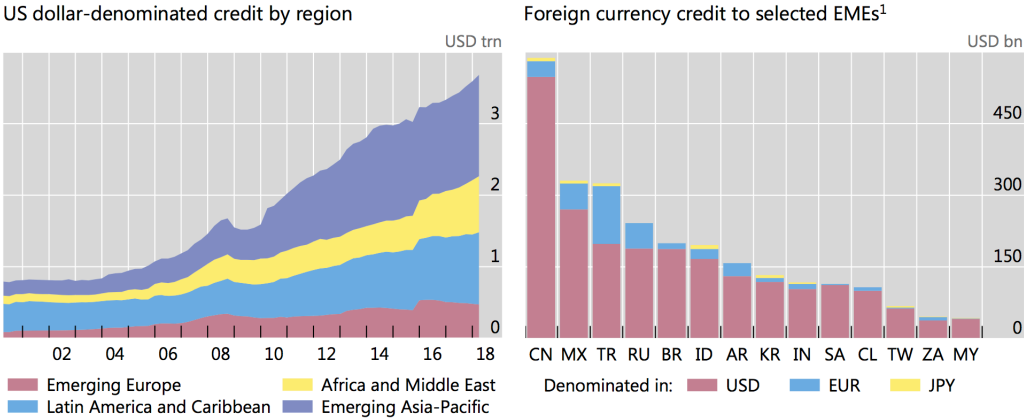


# EME exposure

## Foreign currency credit to non-banks in EMEs

Graph A5

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[1] Amounts outstanding for the latest available data.

Sources: Datastream; Dealogic; Euroclear; Thomson Reuters; Xtrakter Ltd; national data; BIS locational banking statistics; BIS calculations.