# The Rise in Foreign Currency Bonds: The Role of US Monetary Policy and Capital Controls

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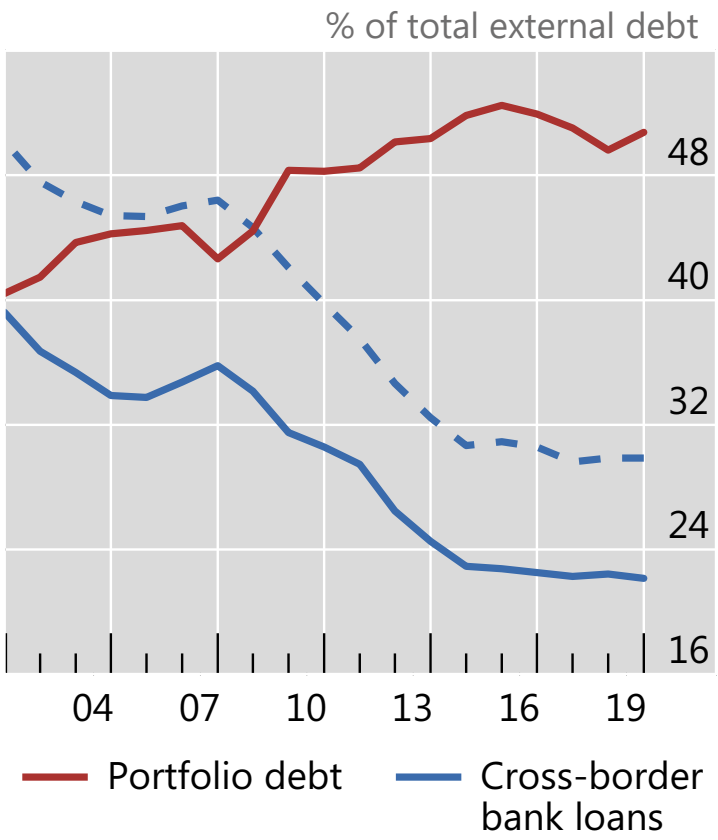
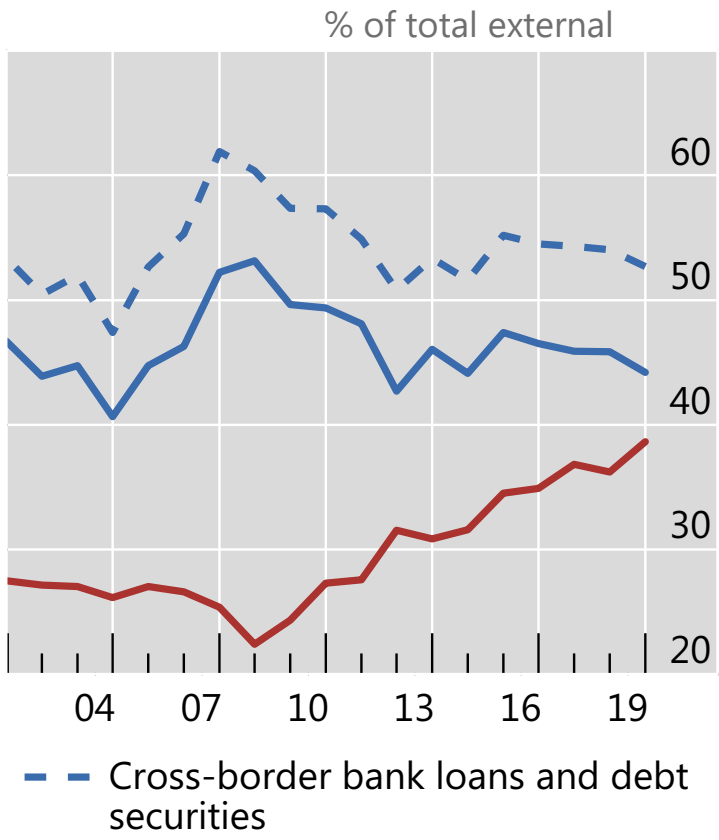
# Declining role of banks since the Great Financial Crisis

External debt of AE borrowers




External debt of EME borrowers




Committee on the Global Financial System, 2021.

# Motivation

- Growing role for market corporate financing in Emerging Markets (EME), partly in foreign currency (FX)
- Literature has focused on bank loans, but the rise in foreign currency bonds may raise different issues
- Foreign bond flows appear more sensitive to global financial conditions
  - Dominance of dollar issuance
  - Search for yield
  - Cheaper to borrow in dollars (convenience yield)
- Different policy issues, e.g., macroprudential regulation and supervision. Role for capital controls

# Objectives

- Analyze determinants of EME corporate bond FX borrowing
- In particular risk factors and US monetary policy
- Examine role of capital controls and macroprudential policies
- Use firm-level data on corporate bond issuances

# Data

- 16 EME (including China). Quarterly 2003- 2017. Private non-financial sector
- Publicly issued corporate bonds (SDC Platinum)
- Match with firm-level characteristics: Worldcope and Orbis
- 1647 companies, 4697 bond issuances
- Capital controls (Fernandez et al., 2016) and macroprudential policies (Anhert et al., 2021, Cerutti et al., 2017)

# Methodology

- Consider share of issued bonds denominated in foreign currency, conditional on issuance in a given quarter
- $FX_{fijt}$: share for firm $f$, in country $i$, in industry $j$, and quarter $t$
- Fractional logistic model:

$$E(FX_{fijt}) = \Lambda\left[\alpha_{ij} + \beta_F F_{fit} + \beta_I I_{jt} + \beta_L L_{it} + \beta_G G_t\right]$$

- $\Lambda$: logistic function
- 
  - $F_{fit}$: firm level
  - $I_{jt}$: industry control
  - $L_{it}$: country macro control
  - $G_t$: global variables

# Variables

- $F_{fit}$: High-yield flag, leverage (debt/total assets), size (log total assets), cash, book-to-market value, profitability (ROA), Collaterals (tangible assets/total assets), income exchange rate correlation
- $L_{it}$: Real GDP growth, real effective exchange rate volatility, fixed exchange rate dummy, local interest rate, inflation volatility, CPI inflation, derivatives market depth, real GDP per capital, regulatory quality index, reserves/GDP, stock market capitalization, capital controls on bond inflows
- $G_t$: Shadow Fed funds rate, VIX, World GDP growth rate, Global uncertainty (EPU), MOVE,...

# Results

- Firm-level variables: positive impact of high-yield flag, cash, profitability (ROA)
- Country-level variables: Fixed exchange rate dummy, local interest rate, derivatives market depth, real GDP per capital, regulatory quality index, stock market capitalization
- FX debt more prevalent in countries that are less developed, have a higher interest rate, have strong regulatory quality or derivative market depth
- Focus on global variables and capital controls

# Impact of Global Variables

## Table 1: The impact of global financial conditions

| Share of FX bond issuances (%) | Baseline | LT gov. average yield | Post-crisis dummy | MOVE | Global uncertainty |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| ShadowFFR/Alt variable | -0.068** | -0.115* | 0.244* | -0.065** | -0.076*** |
| | (0.027) | (0.059) | (0.127) | (0.028) | (0.028) |
| VIX/Alt variable | -0.018** | -0.016** | | -0.006*** | -0.002* |
| | (0.008) | (0.007) | | (0.002) | (0.001) |
| CC on bond inflows (dummy) | -0.153*** | -0.154** | -0.202** | -0.147*** | -0.183** |
| | (0.056) | (0.075) | (0.092) | (0.057) | (0.075) |
| Observations | 4697 | 4697 | 4697 | 4697 | 4697 |
| Pseudo $R^2$ | 0.581 | 0.578 | 0.573 | 0.581 | 0.579 |

NOTE: Marginal effects (all variables evaluated at their means) obtained from a fractional logistic regression with robust standard errors clustered at the country level in parentheses.
Estimations include country and industry fixed effects, as well as firm-level and country-level controls. All explanatory variables are lagged.

# Impact of Global Variables

1. Decrease in US Fed funds rate $\Rightarrow$ increase in FX borrowing
   - Increase in shadow FFR by one std dev raises FX issuance by 13.6 pp

2. Decrease in global risk (VIX) $\Rightarrow$ increase in FX borrowing
   - Increase in VIX by one std dev raises FX issuance by 12 pp

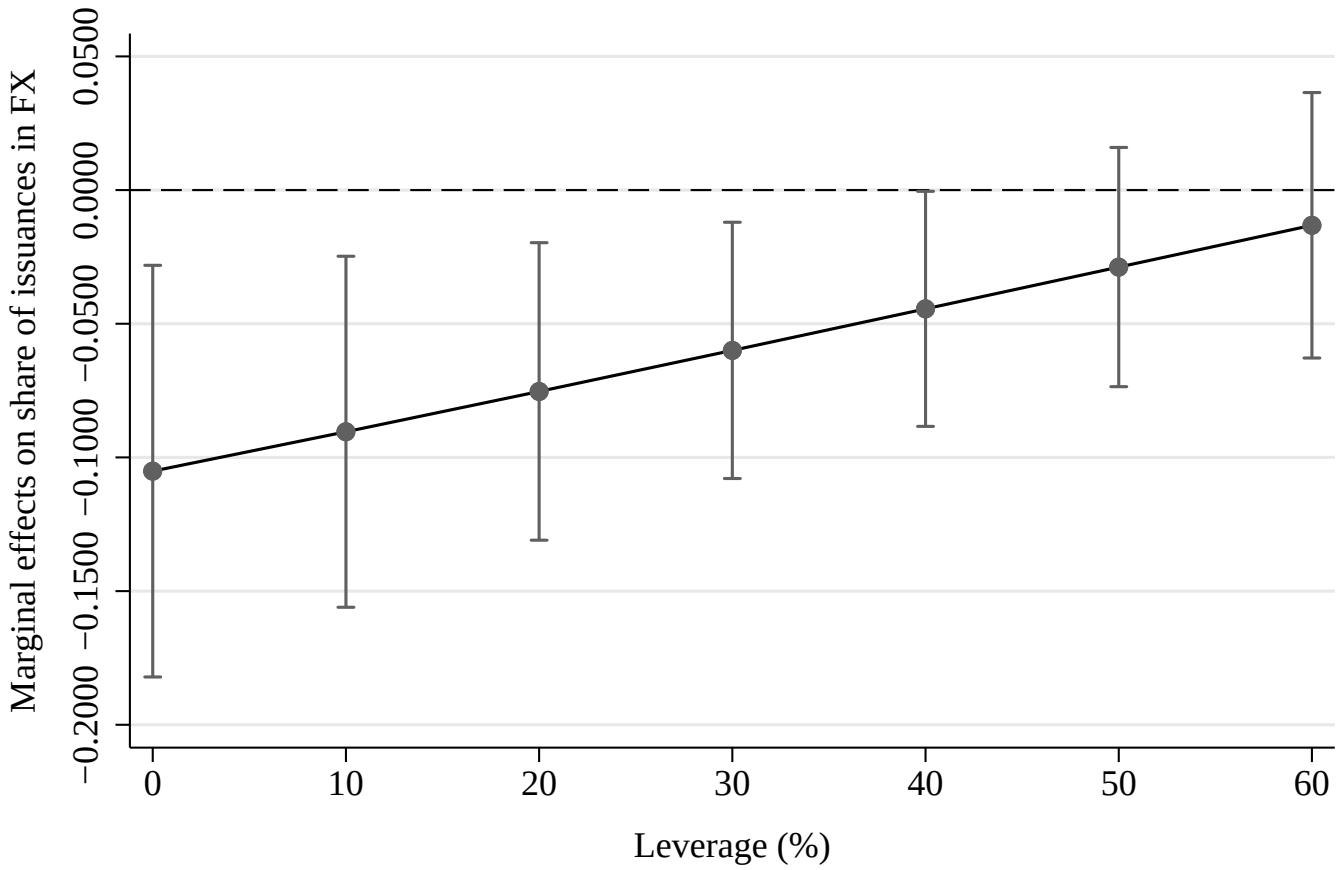
- Result 1. also with LT US interest rates

- Result 2. also with crisis dummy, MOVE, or EPU index

# Financial Stability Implications

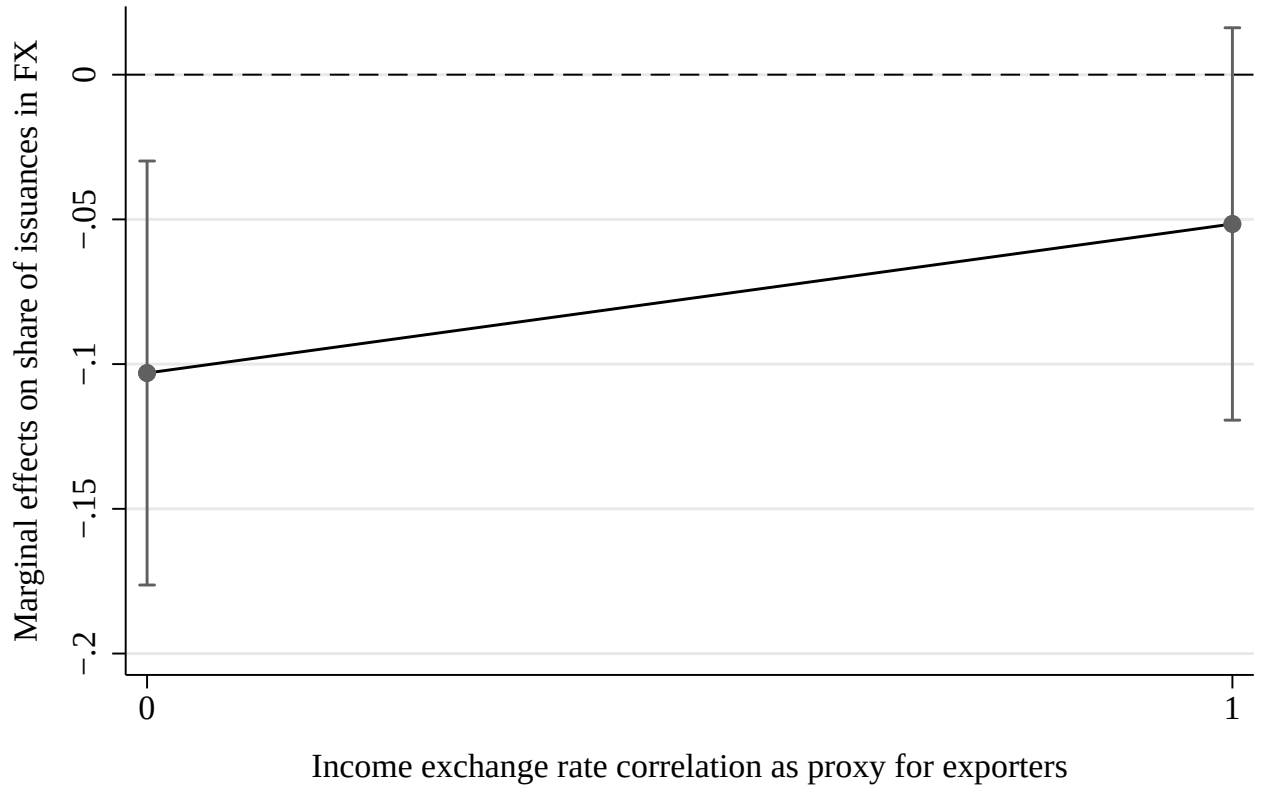
- Heterogenous impact of low US interest rates
- Stronger marginal impact for low leverage firms, but still significant for relatively high leverage (35%)
- Stronger impact for larger firms and for domestic-oriented firms: vulnerability
- Result 2. also with crisis dummy, MOVE, or EPU index

**Figure 3:** Marginal effects of shadow FFR on probability of issuing in foreign currency across various leverage levels




Note: 95% confidence intervals, other control variables evaluated at their means

**Figure 5:** Marginal effects of shadow FFR on probability of issuing in foreign currency at high or low trade intensity



# The Role of Capital Controls

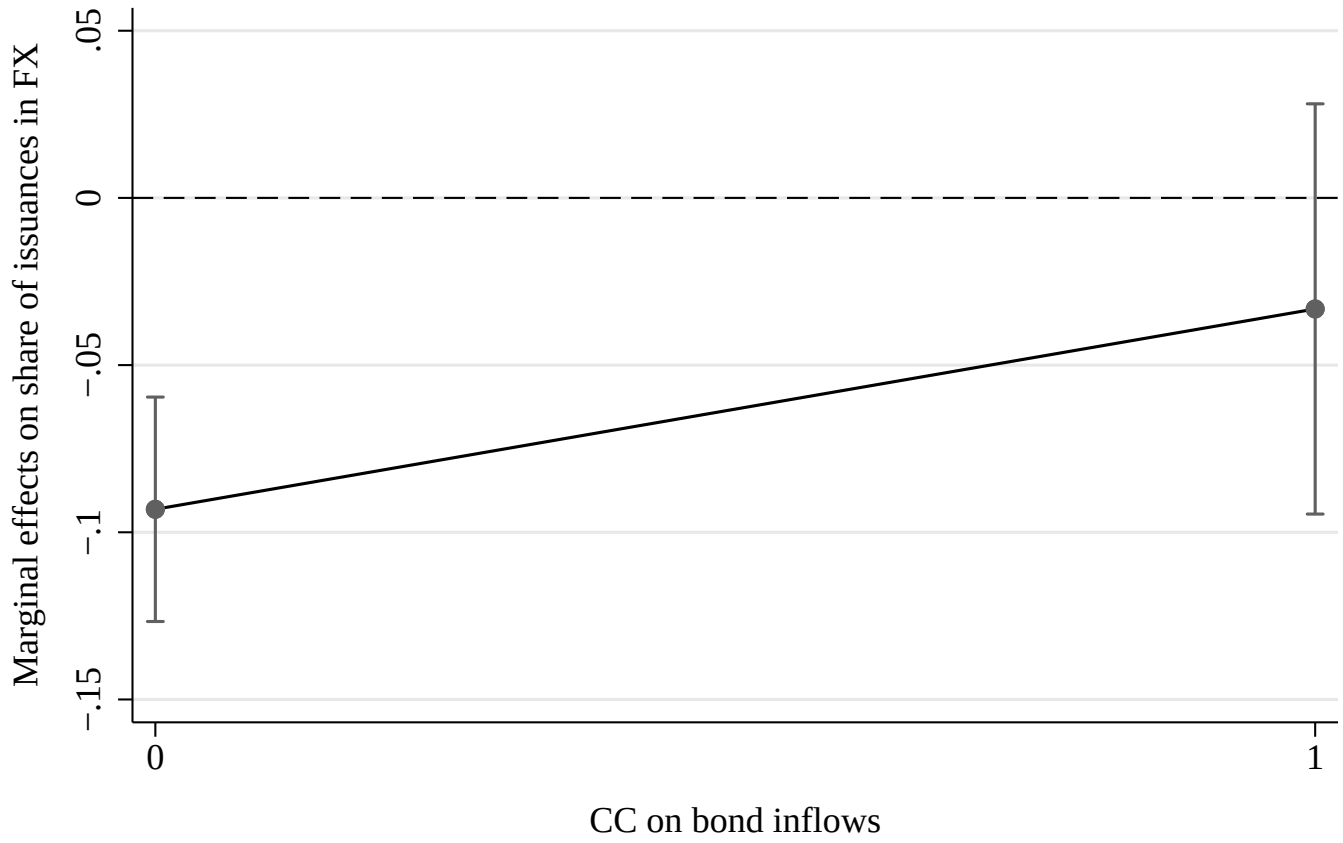
- Fernandez, Klein, Rebucci, Schindler, Uribe, IMF ER 2016

| Share of FX bond issuances (%) | Baseline | LT gov. average yield | Post-crisis dummy | MOVE | Global uncertainty |
|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) |
| ShadowFFR/Alt variable | -0.068** | -0.115* | 0.244* | -0.065** | -0.076*** |
| | (0.027) | (0.059) | (0.127) | (0.028) | (0.028) |
| VIX/Alt variable | -0.018** | -0.016** | | -0.006*** | -0.002* |
| | (0.008) | (0.007) | | (0.002) | (0.001) |
| CC on bond inflows (dummy) | -0.153*** | -0.154** | -0.202** | -0.147*** | -0.183** |
| | (0.056) | (0.075) | (0.092) | (0.057) | (0.075) |
| Observations | 4697 | 4697 | 4697 | 4697 | 4697 |
| Pseudo $R^2$ | 0.581 | 0.578 | 0.573 | 0.581 | 0.579 |

# The Role of Capital Controls

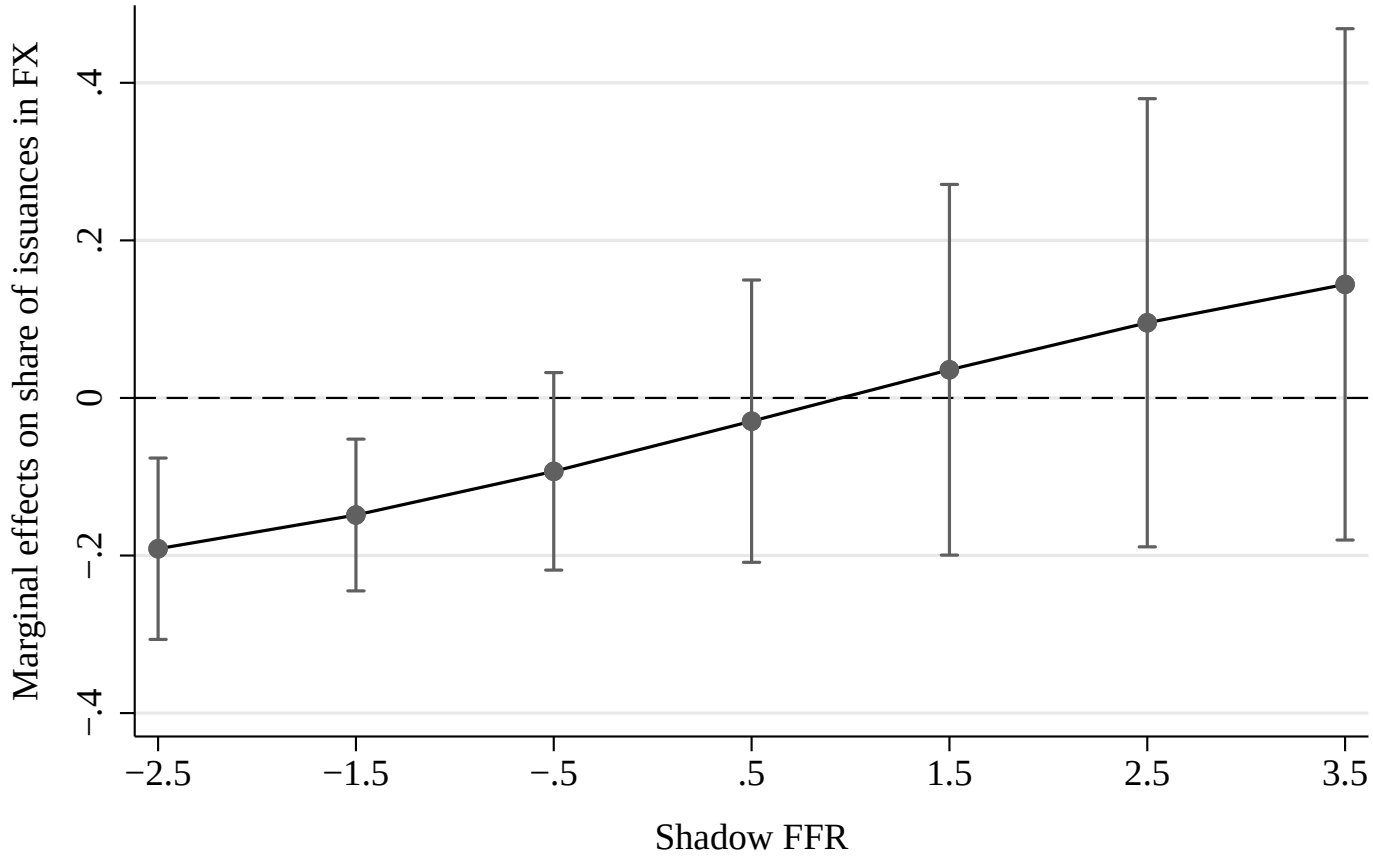
- Controls on capital inflows reduce propensity to borrow FX by 15 pp
- Can neutralize the impact of US interest rate
- Capital controls are effective at low values of US interest rate
- Capital controls could be used as prudential instrument when US interest rates are low

**Figure 6:** Marginal effects of shadow FFR with or without bond inflows capital controls




Note: 95% confidence intervals, other control variables evaluated at their means

**Figure 7:** Marginal effects of CC on bond inflows for various values of shadow FFR




Note: 95% confidence intervals, other control variables evaluated at their means

# Macroprudential policies

- Consider macroprudential FX policies from Anhert, Forbes, Friedrich, and Reinhardt, JFE 2021
- Positive impact on FX bonds
- Capital controls could be used as complement to macropru on the banking sector

**Table 4:** The impact of capital controls and macroprudential policies

| Share of FX bond issuances (%) | CC as dummy | | CC as index | Adding macroprudential policies | | |
|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Shadow FED funds rate | -0.068** | | -0.070*** | -0.067*** | | |
| | (0.027) | | (0.027) | (0.015) | | |
| VIX | -0.018** | | -0.018** | -0.012** | | |
| | (0.008) | | (0.008) | (0.006) | | |
| Capital Controls | -0.153*** | -0.368*** | -0.244** | -0.201** | -0.481*** | -0.128** |
| | (0.056) | (0.141) | (0.109) | (0.081) | (0.130) | (0.065) |
| FX regulations (t to t-3) | | | | 4.317** | 4.374 ** | 4.236 |
| p-value | | | | 0.024 | 0.087 | 0.317 |
| Country FE | Yes | No | Yes | Yes | No | Yes |
| Industry FE | Yes | Yes | Yes | Yes | Yes | Yes |
| Quarter FE | No | Yes | No | No | Yes | Yes |
| Country/Firms controls | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 4697 | 4697 | 4697 | 3194 | 3194 | 3194 |
| Pseudo $R^2$ | 0.581 | 0.506 | 0.582 | 0.582 | 0.474 | 0.614 |

# Capital Controls and Firm Performance

- We then examine the impact of exchange rate fluctuations on firms stock returns in the spirit of Adler and Dumas (1984)
- We find that capital controls dampen vulnerability of firms to exchange rate fluctuations
  - Opposite result for macropru policy
- We also examine the real impact of capital controls
- Negative impact on employment, especially for large firms that appear more impacted by capital controls
- Domestically orientated firms have also negative impact on cash and sales and positive impact on debt

# Conclusion

- Low US interest rate increases EM FX corporate bonds issuance. Makes EM markets more vulnerable to increase in US rate
- Impact can be dampened by controls on capital inflows
  - Especially for control on bonds purchased by nonresidents
- Capital controls also reduce the impact of exchange rate fluctuations
- Capital controls can be used in combination with macroprudential policies
- Open question is whether capital controls are desirable as they limit firm-level employment growth