Extracting Local and Global Shocks Indices in Emerging Exchange Rate Markets

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A paper with a number of interesting questions

What drives exchange rate shocks in emerging economies?

3-steps procedure to disentangle **global, regional, and local shocks** to FX for 20 EMEs

▶ **External factors relevant in some countries (e.g. Poland & Romania) while local factors are dominant in others (e.g. Argentina & Thailand)**

Are the shocks economically relevant?

Panel (fixed effect) regressions of country-specific characteristics on estimated shocks

▼

FX shocks reduce market capitalization & foreign holdings in local bonds (especially so when shocks are global)

How does monetary policy react to shocks?

Estimate Panel VAR which includes the global/regional/local shock indices, & policy rate

▼

Monetary policy reacts to local shocks, but not to global or regional ones

3-steps approach to estimate global, regional, and local shocks

Step 1: for each country estimate

$$s_{t+30}^i = \alpha^i + \beta_1^i f_t^i + \varepsilon_{t+30}^i$$

spot rate
(30 days ahead)

one-month
forward rate

residuals depend on local, regional, and global shocks

Step 2: estimate

$$\varepsilon_t^i = \gamma^{1i} + \theta_1^i CGF_t^{1i} + \tau_t^i$$

estimated residuals of step 1

Global factor
first principal component of estimated residuals of all countries except country *i*

residuals depend on local & regional shocks
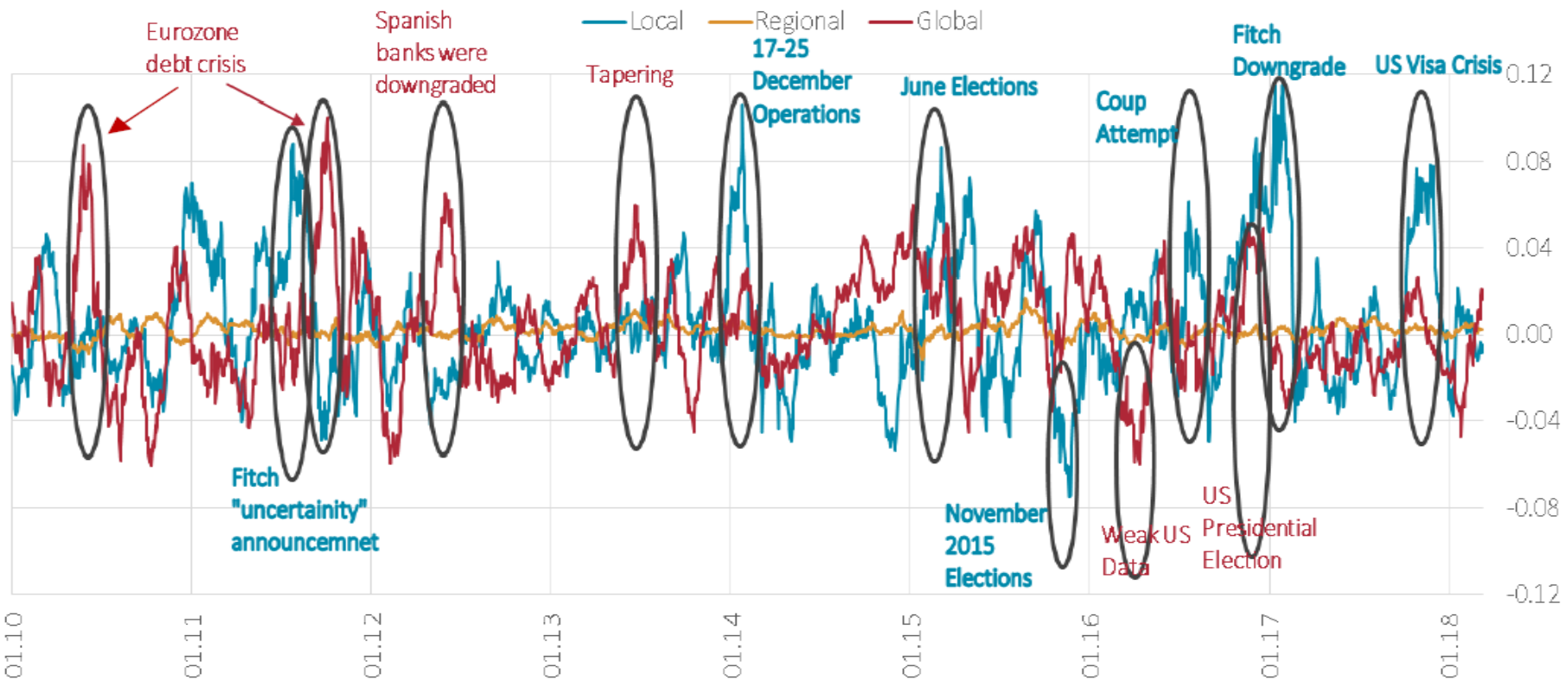
Step 3: estimate

$$\tau_t^i = \partial^{1i} + \rho_1^i Regional_t^{1i} + \varphi_t^i$$

estimated residuals of step 2

Regional factor
first PC of estimated residuals (3 regions: Asia LATAM, CEE)

residuals just depend on local shocks

Estimated shocks fit well the narrative (example for Turkey)

A6: Local, Regional and Global Factors in Turkey

What about factor models to extract global/regional/local shocks?

Multi-level dynamic factor model in the spirit of Kose, Otrok, and Whiteman (2003)

$$y_i = a_i + b_i^{world} f_t^{world} + c_i^{region} f_{r,t}^{region} + f_{i,t}^{local}$$

Spot rate (in first differences)	**Global factor**	**Regional factor**	**Local factor**

where for instance

$$(1 - \alpha(L)) f_t^{world} = u_t$$
$$(1 - \beta_r(L)) f_{r,t}^{region} = v_{r,t} \qquad r = 1, \ldots, R$$
$$(1 - \gamma_i(L)) f_{i,t}^{local} = \varepsilon_{i,t} \qquad i = 1, \ldots, N$$
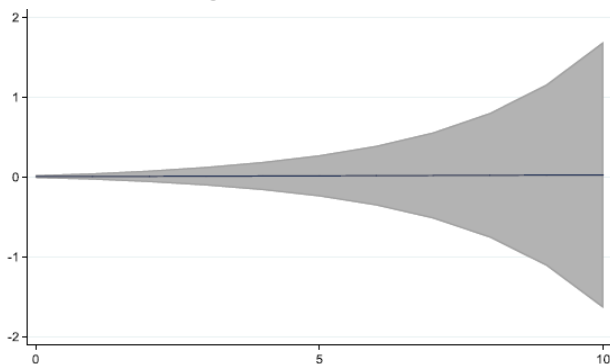
(it can accommodate time-varying volatility of shocks)
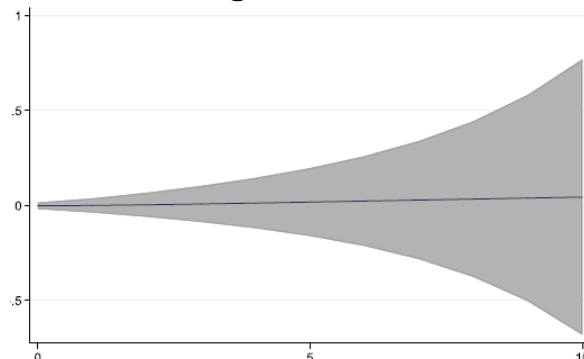
Possibly clarify Panel VAR results

$$X_{it} = \Gamma_0 + \Gamma_1 X_{it-1} + f_i + e_{it}$$
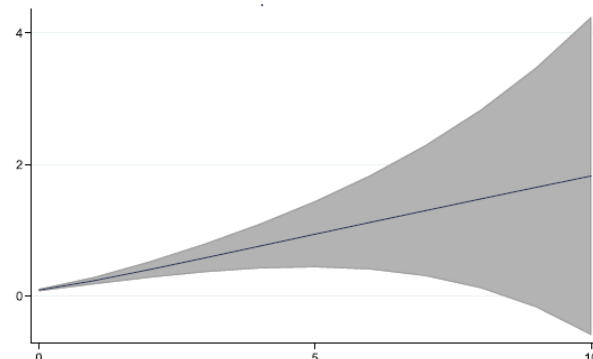
Responses of policy rate:

global shock

regional shock

local shock

- o **Monetary policy does not react at all to external shocks (clash with motivation of the paper?)**

- o **Explosive behavior of responses (is the VAR stable?)**

Thank you very much for your attention!