Discussion of
Exchange Rate Disconnect Revisited
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Itskhoki and Mukhin (2021)

- Consider the setup in Itskhoki and Mukhin (2021).
- Log TFP process(es)

$$\alpha_t = \rho\alpha_{t-1} + \sigma_\alpha \varepsilon_t^\alpha.$$

- Financial (noise trader asset demand) shock

$$\psi_t = \rho\psi_{t-1} + \sigma_\psi \varepsilon_t^\psi.$$

- Key ingredients:
  - home bias in the product market,
  - financial market frictions.

The Backus-Smith puzzle

- General condition in int'l macro models:

$$\Delta c_t - \Delta c_t^* = \underbrace{\kappa_\alpha(\Delta\alpha_t - \Delta\alpha_t^*)}_{\text{goods supply}} - \underbrace{\gamma\kappa_q\Delta q_t}_{\text{exp. switching}}$$

  so sign of $cov(\Delta q_t, \Delta c_t - \Delta c_t^*)$ hinges on $cov(\Delta q_t, \Delta\alpha_t - \Delta\alpha_t^*)$:

$$\frac{cov(\Delta q_t, \Delta c_t - \Delta c_t^*)}{var(\Delta q_t)} = -\gamma\kappa_q + \kappa_\alpha\frac{cov(\Delta q_t, \Delta\alpha_t - \Delta\alpha_t^*)}{var(\Delta q_t)}$$

- With complete markets:

$$\Delta q_t = \frac{\sigma\kappa_\alpha}{1+\gamma\sigma\kappa_q}(\Delta\alpha_t - \Delta\alpha_t^*), \quad \Delta c_t - \Delta c_t^* = \frac{\kappa_\alpha}{1+\gamma\sigma\kappa_q}(\Delta\alpha_t - \Delta\alpha_t^*)$$

  - $\alpha_t \uparrow \quad \rightarrow \quad q_t \uparrow$ and $c_t - c_t^* \uparrow$
- In incomplete markets models with $\frac{cov(\Delta q_t, \Delta\alpha_t - \Delta\alpha_t^*)}{var(\Delta q_t)} \approx 0$, we get $cov(\Delta q_t, \Delta c_t - \Delta c_t^*) < 0$.
  - $\psi_t \uparrow \quad \rightarrow \quad q_t \uparrow$ and $c_t - c_t^* \downarrow$

The UIP puzzle

- Furthermore, we have:

$$r_t - r_t^* = -\frac{\sigma\kappa_\alpha}{1+\gamma\sigma\kappa_q}(1-\rho)(\alpha_t - \alpha_t^*) + \frac{\gamma\sigma\kappa_q}{1+\gamma\sigma\kappa_q}\psi_t$$

$$E_t[\Delta q_{t+1}^*] = -\frac{\sigma\kappa_\alpha}{1+\gamma\sigma\kappa_q}(1-\rho)(\alpha_t - \alpha_t^*) - \frac{1}{1+\gamma\sigma\kappa_q}\psi_t,$$

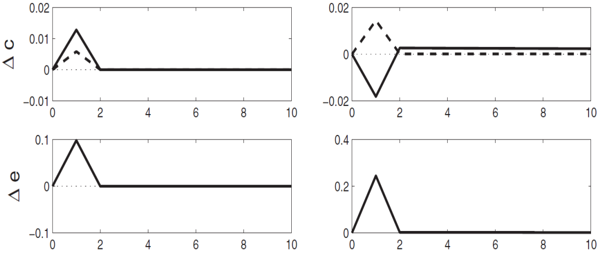
so the currency expected excess return is

$$\lambda_{t+1} = E_t[\Delta q_{t+1}^*] - [r_t - r_t^*] = -\psi_t.$$

  - $\alpha_t \uparrow \ \rightarrow E_t[\Delta q_{t+1}^*] \downarrow$ and $r_t - r_t^* \downarrow$
  - $\psi_t \uparrow \ \rightarrow E_t[\Delta q_{t+1}^*] \downarrow$ and $r_t - r_t^* \uparrow$

Colacito and Croce (2013)

- We don't necessarily need market incompleteness, just q variation arising from shocks that don't affect the current supply of goods.
- Example: Colacito and Croce (2013). Instead of having ψ shocks, they have LRR: shocks in z, the slow-moving, predictable component of consumption growth rates.



This paper: disturbances of interest

- Productivity process driven by tech disturbances ε^{α}:

$$\alpha_t = \sum_{k=0}^{\infty} a_k \varepsilon^{\alpha}_{t-k}$$

- Signal η that contains information about **future** ε^{α}, but contaminated by noisy disturbances ε^{v}:

$$\eta_t = \sum_{k=1}^{\infty} \zeta_k \varepsilon^{\alpha}_{t+k} + \underbrace{\sum_{k=0}^{\infty} \nu_k \varepsilon^{v}_{t-k}}_{v_t}$$

- Assume that process α is observable, but process η is not. How to recover ε^{α} and ε^{v}?

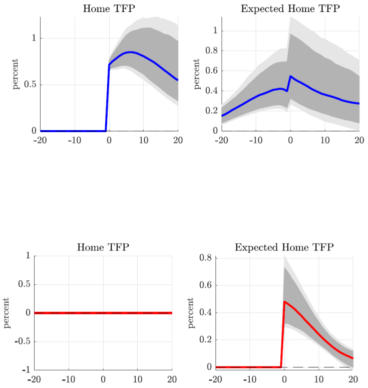
This paper: recovering the disturbances

- To recover ε^{α} and ε^{v}, follow Chahrour and Jurado (2022).
- Instead of using unobservable signal η_t, use $b_t = E_t[\alpha_{t+h}]$, adopting the assumption that agents' expectations are optimal econometric forecasts:

$$b_t = E_t[\alpha_{t+h}] = E[\alpha_{t+h}|\mathcal{H}_t(y)]$$

- Two-stage procedure:
  1. Fit an unstructured VAR model.
  2. Recover the disturbances by using the identifying restrictions.
     - Recover ε^{α} from α: fundamental disturbances in α.
     - Recover ε^{v} from α and b: fundamental disturbances in the part of b that is independent of α at all leads and lags.

IR



- The tech disturbance ε^{α} is (partly) anticipated.
- The noise disturbance ε^{v} does not affect α.

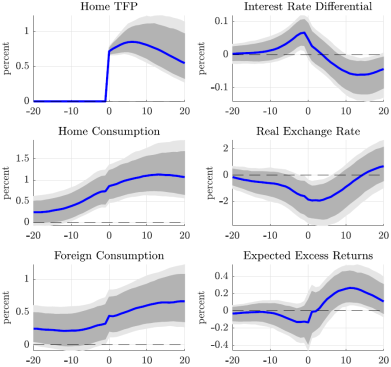
This paper: the real exchange rate

- The authors find that, together, ε^{α} and ε^{v} account for 64% (36%) of the wide-band (business cycle) variation in q.

- Furthermore, q is driven mainly by shocks that do not affect the **current** supply of goods:

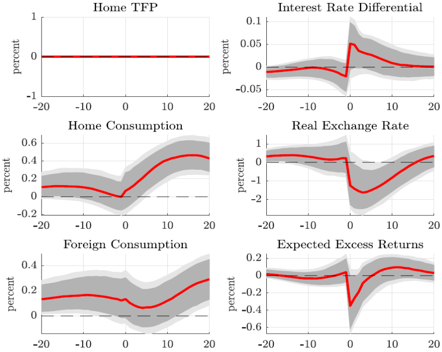
  "*We find that 85% of the exchange rate variation due to our two types of shocks is generated by anticipation of future outcomes (both accurate and in error), and only about 15% of our results can be attributed to current and past productivity disturbances.*"

IR to tech disturbance (ε^{α})



- $q_t \downarrow, \quad c_t - c_t^* \uparrow$
- $E_t[\Delta q_{t+1}^*] \downarrow, \quad r_t - r_t^* \uparrow$

IR to noise disturbance (ε^v)



- $q_t \downarrow, \quad c_t - c_t^* \uparrow$
- $E_t[\Delta q_{t+1}^*] \downarrow, \quad r_t - r_t^* \uparrow$

Interpretation

- Tech disturbances ε^{α} are recovered only using α. Finding anticipation enhances the credibility of LRR-type models.

- Noise disturbances ε^{v} are recovered using both α and b.
  - Are expectations b consistent with any survey data?
  - If ε^{v} is correctly recovered, what can we learn about it?
  - In particular, are they ψ-type shocks? Suggestive evidence in Lilley, Maggiori, Neiman and Schreger (2022).

Summary

- Very interesting empirical exercise, using state-of-the-art econometric methods to identify disturbances of interest.
- In my view, provides some evidence in support of mechanisms in both LRR models and models with financial frictions.
- Need to understand better:
  - the nature of signals about future technology shocks,
  - the nature of noise disturbances.