What drives the Exchange Rate?

by

Oleg Itskhoki and Dmitry Mukhin

Discussion

Harald Hau
University of Geneva
Swiss Finance Institute

Structure of Discussion

- Summary of the Paper
- General Appraisal
- Comment I: “Financial Disconnect”
- Comment II: Future research
- Comment III: Volatility variation

Summary of the Paper

Which candidates shocks can we eliminate?

	Shocks
p_t	monetary shock to price level
a_t	productivity shock
κ_t	labor wedge (sticky wages)
ξ_t	international good demand shock
g_t	government spending shock
μ_t	markup shock (sticky prices)
η_t	law-of-one-price shock (LCP/DCP, trade costs)
ψ_t^j	financial (asset demand) shocks

- **Consider a candidate set of shocks for FX effects**
- **But which ones are compatible in the autarky limit with**

i) Macro disconnect $lim_{\gamma \to 0} \frac{dMacro\ Variable}{dShock} = 0$

ii) FX effect $lim_{\gamma \to 0} \frac{dExchange\ Rate}{dShock} \neq 0$

Prop. 1: Disconnect Violations

	Shocks
p_t	monetary shock to price level
a_t	productivity shock
κ_t	labor wedge (sticky wages)
ξ_t	international good demand shock
g_t	government spending shock
μ_t	markup shock (sticky prices)
η_t	law-of-one-price shock (LCP/DCP, trade costs)
ψ_t^j	financial (asset demand) shocks

- Price, productivity, labour wedge, government spending and mark-up shocks all impact output or consumption and the exchange rate.
- They do not pass the disconnect test!
- These shocks do not become irrelevant to macro variables in the autarky limit $lim_{\gamma \to 0}$

Prop. 2: Sign Restrictions

Shocks	
ξ_t	international good demand shock
η_t	law-of-one-price shock (LCP/DCP, trade costs)
ψ_t^j	financial (asset demand) shocks

- Only asset demand shocks imply in the autarky limit
  - i) a positive correlation between the terms of trade and the real exchange rate
  - ii) a negative correlation between relative consumption growth and the real exchange rate
  - iii) a UIP deviations.

Prop. 3: Financial Disconnect as Selection Criterium

- Financial Disconnect:

$$lim_{\gamma \to 0} \frac{dAsset\ Price}{dShock} = 0 \quad and \quad lim_{\gamma \to 0} \frac{dExchange\ Rate}{dShock} \neq 0$$

- Most news shocks about persistent dividend or discount factor changes does not fulfil this condition.
- Contemporaneous asset demand shocks ψ_t^j (under domestic asset price determination) are accommodate by adverse exchange rate change.
- Euler eq.:

$$\Theta_t^j = \mathbb{E}_t \sum_{\tau=1}^{\infty} \mathcal{M}_{t,t+\tau} \mathcal{D}_{t+\tau}^j e^{-\Psi_{t,t+\tau}^j},$$

$$\frac{\Theta_t^j}{\mathcal{E}_t} = \mathbb{E}_t \sum_{\tau=1}^{\infty} \mathcal{M}_{t,t+\tau}^* \frac{\mathcal{D}_{t+\tau}^j}{\mathcal{E}_{t+\tau}} e^{-\Psi_{t,t+\tau}^{*j}},$$

$$\mathcal{M}_{t,t+\tau} \equiv \beta^\tau \left(\frac{C_{t+\tau}}{C_t}\right)^{-\sigma} \frac{P_t}{P_{t+\tau}} \text{ and } \mathcal{M}_{t,t+\tau}^* \equiv \beta^\tau \left(\frac{C_{t+\tau}^*}{C_t^*}\right)^{-\sigma} \frac{P_t^*}{P_{t+\tau}^*}$$

Appraisal and Comments

General Appraisal

- GE research often fail to have a clear message
- Sharp focus on autarky limit cuts through a lot of complexity

- **Message:** Asset demand shocks only suitable candidate for explaining exchange rate disconnect and volatility “near” autarky
- Provocative and insightful
- Helpful simplicity like in the “Redux Paper”

Specific Comment I: "Financial Disconnect"

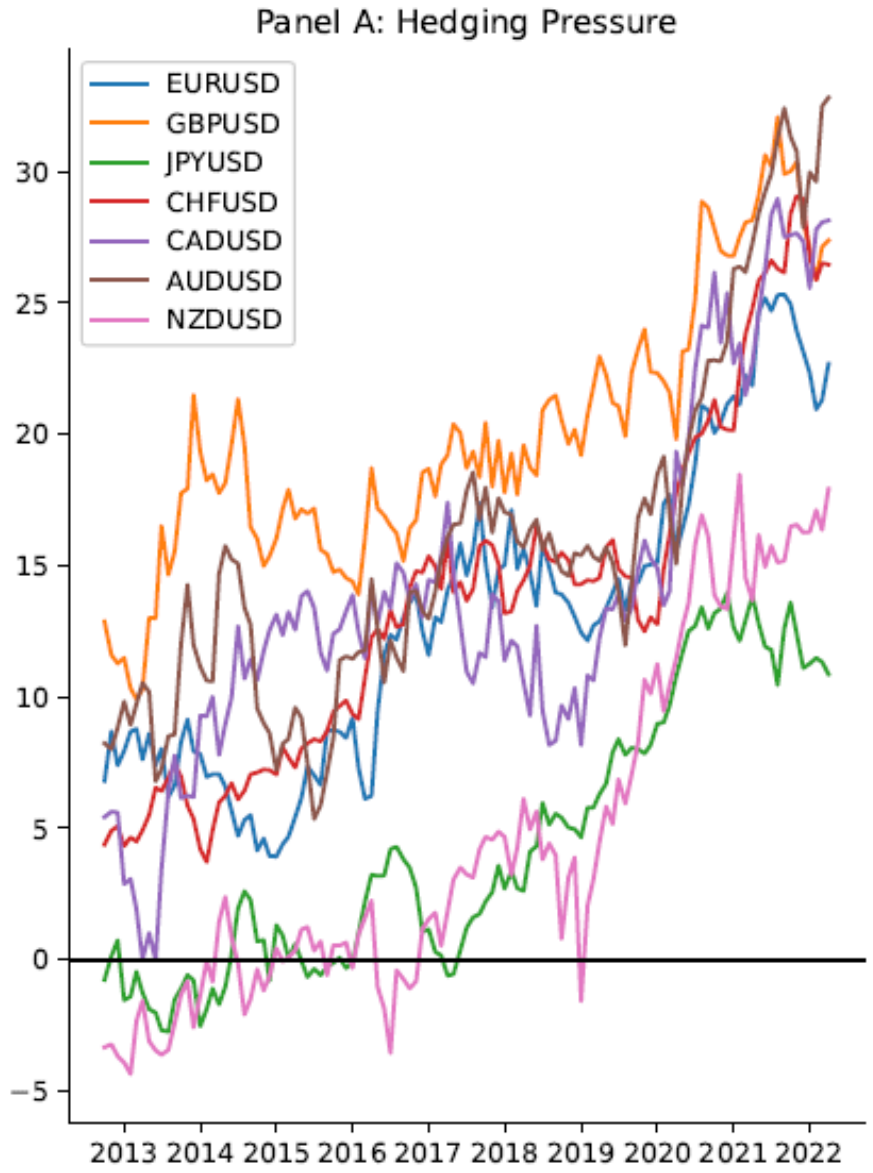
- Financial Disconnect is <u>not a stylized fact</u>
- Example: **Covered Equity Parity**
  - International equity return differences relate to nominal exchange rate movement (Hau and Rey, 2006, 2022)
  - Globalization of asset markets: Many asset markets have large participation of foreign investors, which suggests that foreign investors matter for asset price
- Which shocks do create the observed financial correlations?

$$\operatorname{corr}\left[-dE_t, \left(dR_t^{f^*} - dR_t^h\right)/\overline{P}\right]$$

	(a) January 1980–December 2001
Australia	0.1796***
Austria	−0.1020
Belgium-Luxembourg	−0.2508***
Denmark	−0.2179***
Finland	−0.1580**
France	−0.1230**
Germany	−0.1409**
Ireland	−0.2710***
Italy	−0.1308**
Japan	0.6590
Netherlands	−0.3403***
Norway	−0.0936
Portugal	−0.0763
Spain	−0.1250**
Sweden	−0.2287***
Switzerland	−0.1761***
U.K.	−0.1187*
Mean	−0.1009
SD	0.2248
Pooled data	−0.1232***

Specific Comment II: Future FX Research

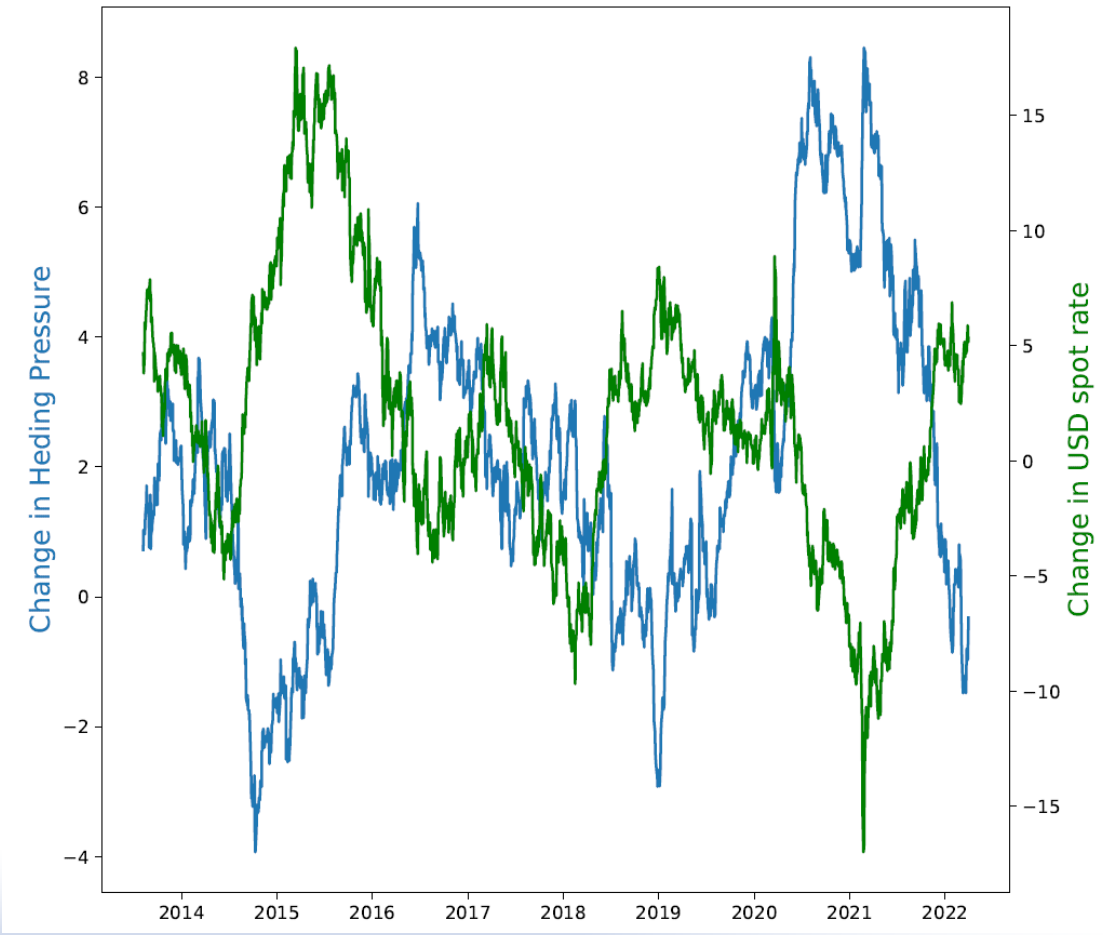
- **Which type of financial asset demand shocks matters most?**
  - Time varying hedging by funds in FX derivative markets (FX swaps, FX forwards)?
  - Positive net dollar bond positions by foreign funds create large (time-varying) net hedging demands for dollar short positions
  - Liao and Zhang (2020), Bräuer and Hau (2022)



Specific Comment II: Future FX Research

- Global dealer banks accommodate foreign demand for FX dollar hedge, but cover their risk by dollar selling in spot market (synthetic hedge)
- High correlation of

  -0.66 between hedging pressure and dollar spot rate index



Specific Comment III: Volatility Variation

- Uncertainty and asset volatility play a role in known FX transmission channels:
  - VIX => Portfolio rebalancing
  - VIX => Hedging demand by funds
  - VIX => Flight to quality (EM)

- Main variables in GE models are *not* VIX sensitive: model variable disconnect
- Difficult to incorporate time-varying uncertainty into GE models

Thank you!

References

- Bräuer, Leonie, and Harald Hau (2020) “Can Time-Varying Currency Risk Hedging Explain Exchange Rates?,” SSRN working paper https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4273439

- Camanho, Nelson, Harald Hau, and Hélène Rey (2022) “Global Portfolio Rebalancing and the Exchange Rates,” *The Review of Financial Studies*, Vol. 35, pp. 5228–5274.

- Hau, Harald and Hélène Rey (2006) “Exchange rates, equity prices, and capital flows,” *The Review of Financial Studies*, Vol. 19, pp. 273–317.

- Liao, Gordon and Tony Zhang (2021) “The hedging channel of exchange rate determination,” International Finance Discussion Paper 1283.