

Real Exchange Rates and Primary Commodity Prices

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The Paper

- ▶ A long-standing puzzle
 - ▶ RERs are volatile, persistent, unrelated to fundamentals
- ▶ This paper
 - ▶ Shocks to PCPs can account for large fraction of RER variation
 - ▶ Holds for developed countries, not just for “commodity” currencies
 - ▶ Relationship robust, works out of sample
 - ▶ Calibration of simple model matches key RER moments
- ▶ Proposed mechanism
 - ▶ PCPs affect RER via pass-through from inputs to final goods prices

Discussion Outline

- ▶ Review paper
 - ▶ Context
 - ▶ Empirics
 - ▶ Theory

- ▶ Ask two main questions
 - ▶ test theory mechanism in the data
 - ▶ quantitative performance of (extended) model

Exchange Rate Disconnect

$$RER_t := \frac{S_t P_t^*}{P_t} \quad \text{in logs: } rer_t = s_t + p_t^* - p_t$$

RER puzzles:

1. \approx random walk process, very persistent
2. very volatile, 10x more than macro fundamentals, mostly driven by E_t
3. not robustly correlated with fundamentals

Context

Classic arguments

1. Volatility driven by monetary/financial shocks + nominal rigidities
 - ▶ financial shocks should die out in long-run, \neq high *RER* persistence
 - ▶ additional frictions in s_t pass-through:
 - ▶ trade barriers
 - ▶ home bias
 - ▶ pricing to market

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 - ▶ real shocks hardly volatile enough to explain short-term fluctuations

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2. Persistence driven by real shocks
 - ▶ real shocks hardly volatile enough to explain short-term fluctuations
 - ▶ this paper: PCPs are volatile *and* persistent real shocks!

Empirical Result

Estimate

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	<u>1960–2014</u>	<u>1960–1972</u>	<u>1973–1985</u>	<u>1986–1998</u>	<u>1999–2014</u>
(a) 10 commodities, 4-year differences					
United Kingdom	0.48	0.90	0.90	0.81	0.60
Germany	0.63	0.95	0.87	0.83	0.75
Japan	0.57	0.92	0.84	0.92	0.82
(b) 4 commodities (best fit), 4-year differences					
United Kingdom	0.33	0.72	0.82	0.63	0.58
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- ▶ Works well out of sample
- ▶ Robust to parametric bootstrap test of orthogonality

Theory

CPI decomposition

- ▶ Typically, on final goods $p_t = (1 - \alpha)p_t^T + \alpha p_t^N$
- ▶ Write RER as

$$rer_t = \overbrace{s_t + p_t^{T*} - p_t^T}^{\text{Tradable component}} + \overbrace{\alpha^*(p_t^{N*} - p_t^{T*}) - \alpha(p_t^N - p_t^T)}^{\text{Relative T-N Price}}$$

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- ▶ CPI decomposition on **inputs**: $p_t = (1 - \gamma)p_t^{PC} + \gamma p_t^{OI}$
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⇒ test for unobserved factor, common to p_t^{PC} and rer_t

Model Testable Implications

- ▶ Empirical result: rer_t and p_t^{PC} are correlated...
- ▶ Theory: ...via pass-through input prices \rightarrow CPI
 - ▶ **real common factors = shocks to commodity endowments & TFP**
 - ▶ $rer_t = s_t + p_t^* - p_t$
- ▶ Calibration shows theory can work quantitatively
 - ▶ replicates moments of RER
 - ▶ without large movements in quantities

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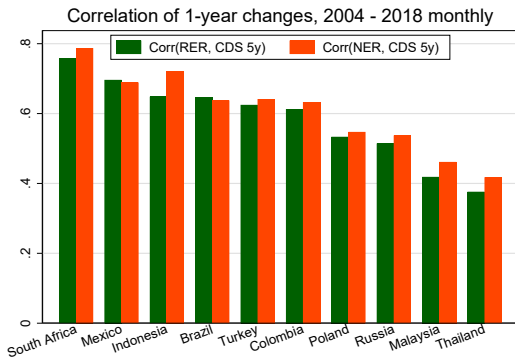
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- Q Can we test theory implications further?
- ▶ model is real and static, mechanism goes through CPI
 - ▶ producer prices, commodity-heavy price categories
 - ▶ how far could full dynamic model go in explaining remaining menu of puzzles?

Financial Shocks

- ▶ Itskhoki and Mukhin (2019)
 - ▶ financial (UIP) shocks $\rightarrow s_t$ more volatile than macro variables
 - ▶ no direct effect on product/labour markets
 - ▶ muted pass-through to CPI & output \rightarrow “disconnect”

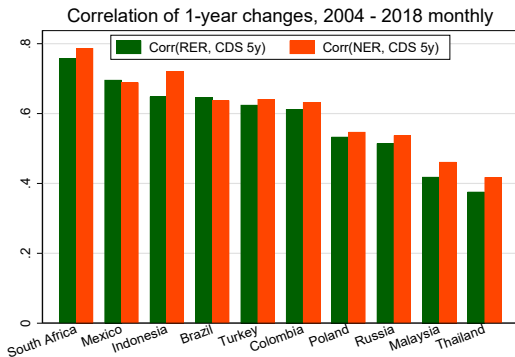
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- Q What are the common factors driving PCPs and RER?
Real or financial?

Conclusion

- ▶ Great paper: clear question, solid result, provocative conclusion

- ▶ Two main comments
 - ▶ test implications of the theory
 - ▶ quantitative performance in extended model