

DISCUSSION OF  
“EXCHANGE RATE DISCONNECT AND  
COMMODITY PRICES”  
BY BABII AND BIDAWI

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*Inter-American Development Bank*

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# OVERVIEW

- What explains fluctuations in exchange rates (nominal or real)?
  - They are very volatile and persistent (random walks?).
  - Difficult to relate to fundamentals: the disconnect puzzle.
    - Less so for low-frequency movements.
    - Alongside other puzzles: Mussa, Backus-Smith, UIP...
- Babić and Bidawi (2022) focus on the disconnect puzzle:
  - High-frequency movements (daily variation).
  - Role of primary commodity prices (PCPs).

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# OVERVIEW

- The literature seems to distinguish two groups of economies: primary commodity exporters and the rest.
- Primary commodity exporters: exchange rate fluctuations associated with fluctuations in PCPs.
  - Not so disconnected.
- For the rest, PCPs are largely ignored (Itskhoki, 2021).
- But non-primary commodity exporters also produce/trade primary commodities to some extent. Why such discontinuity?
- Babii and Bidawi (2022) challenges that.
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Babii and Bidawi (2022)

## BABII AND BIDAWI (2022)

- Empirical paper.
- 495 simple regressions of (33) FXs on (15) PCPs.

$$\Delta s_{it} = \alpha + \beta \Delta cp_{jt} + u_t$$

- Sample period: 1980–2018 (balanced?).
- Step 1: in-sample fit.
- Step 2: out-of-sample fit.
- Step 3: out-of-sample fit in commodity exporters vs the rest.
- Step 4: time-varying connection between PCPs and FXs.

# BABII AND BIDAWI (2022)

## IN-SAMPLE FIT

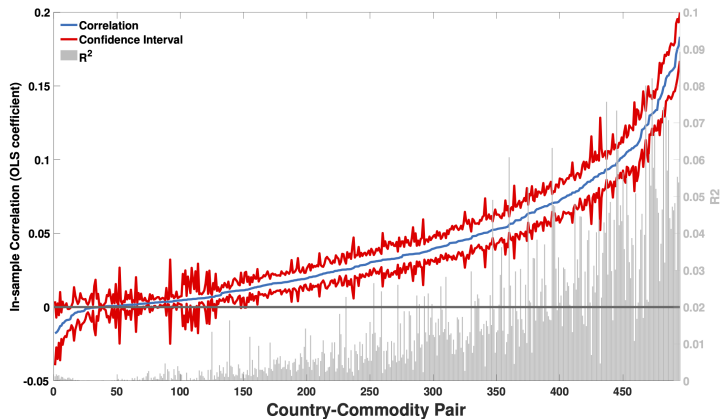


Figure 1: In-sample regressions,  $s_{it} = \alpha + \beta \Delta cp_{jt} + u_t$ , for each commodity-currency pair.

# BABII AND BIDAWI (2022)

## OUT-OF-SAMPLE FIT

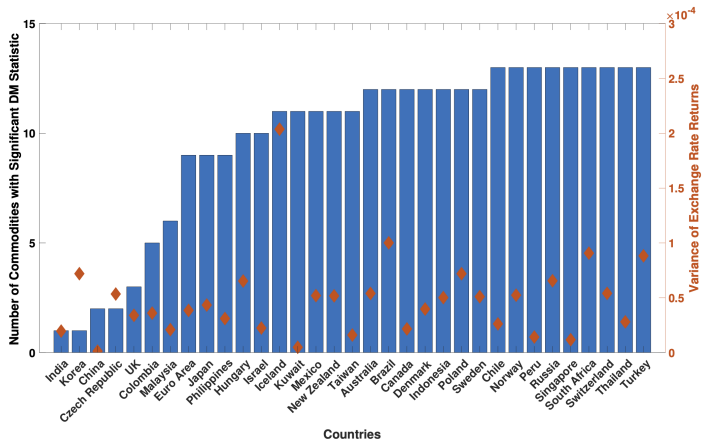


Figure 2: Number of commodities which prices outperform the random walk in forecasting the daily changes in domestic exchange rates for each country.

## BABII AND BIDAWI (2022)

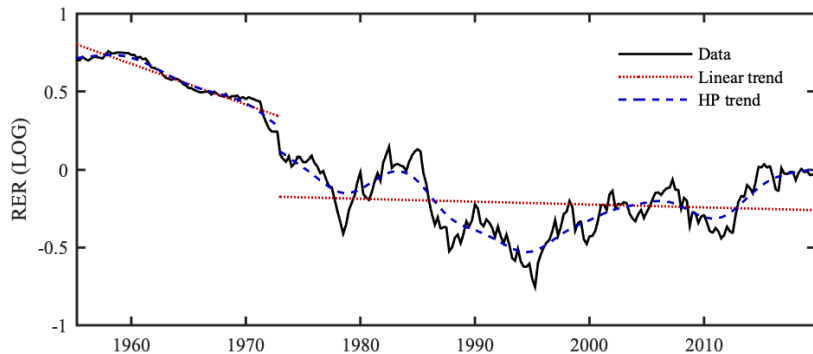
- Paper concludes:
  - PCPs overturn the disconnect puzzle.
  - Need to study FXs and PCPs beyond traditional trade framework.

# BABII AND BIDAWI (2022)

- Suggestions:
  - Separate commodity exporters from the rest in all exercises.
  - Explore different frequencies (1,3,6,12,24,48 months).
  - Allow for more commodities in the regressions.
  - Exclude countries/periods with very high inflation.

# WHAT FREQUENCY DO WE WANT TO EXPLAIN?

FIGURE: RER between US and Japan

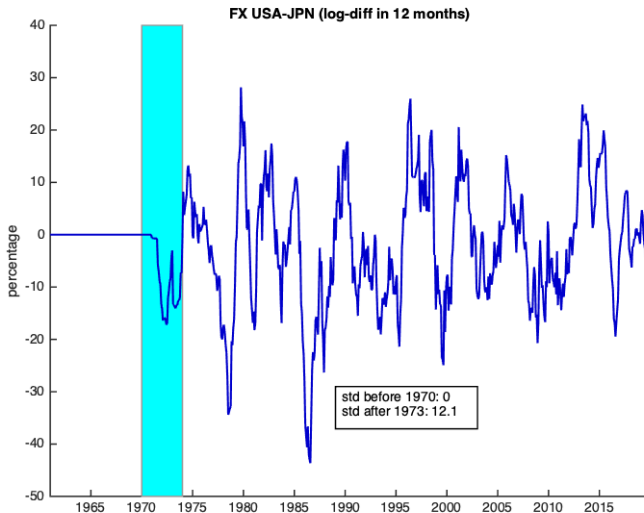




# PCPs and Other Exchange Rate Puzzles

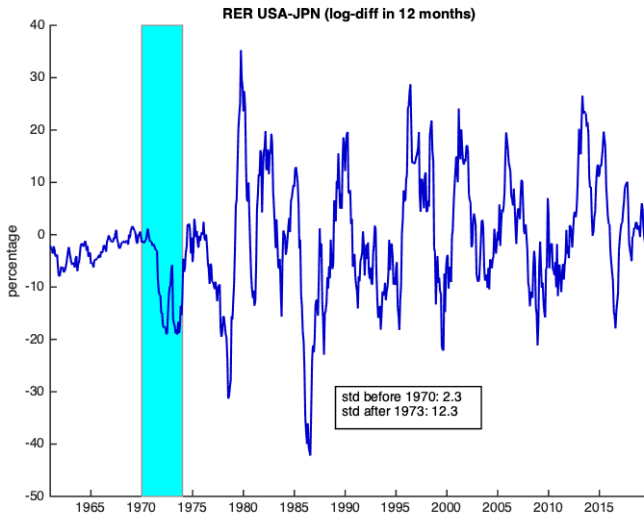
# PCPs AND THE MUSSA PUZZLE

## THE END OF BRETTON-WOODS



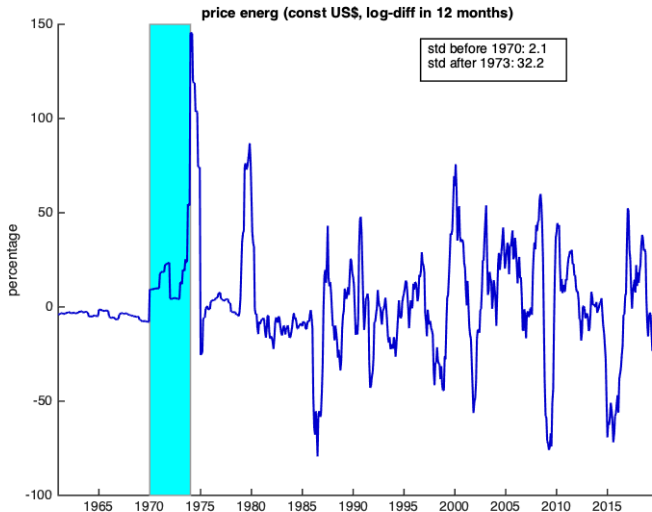
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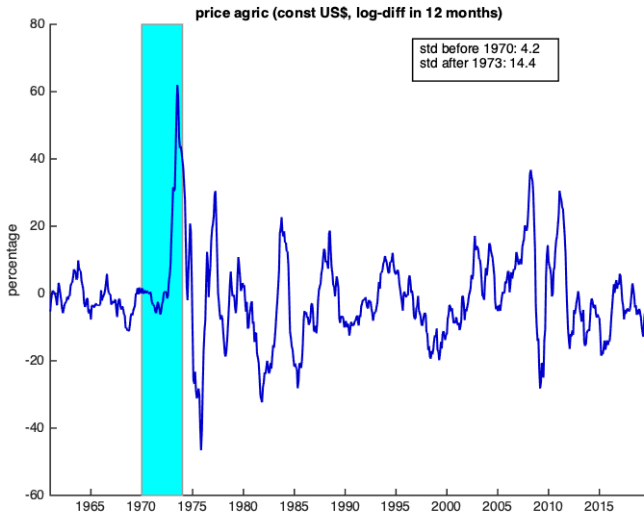
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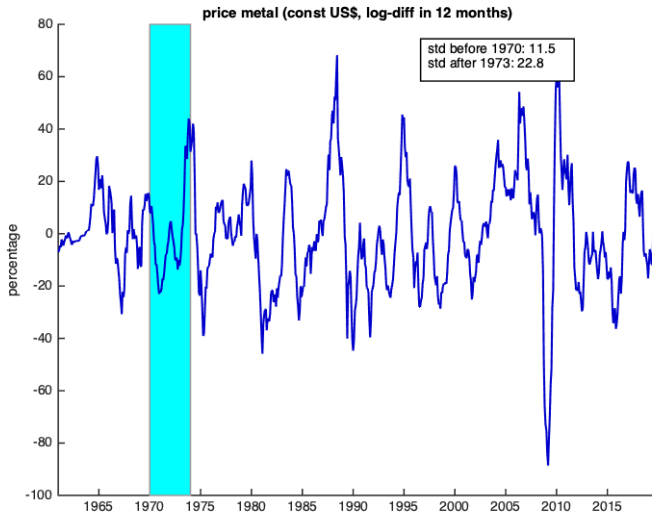
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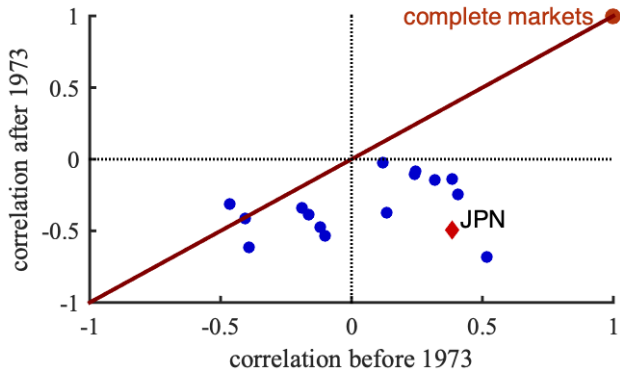
# PCPs AND THE MUSSA PUZZLE

## THE END OF BRETTON-WOODS



# PCPs AND THE BACKUS-SMITH PUZZLE

FIGURE: Correlation between exchange rates and consumption ratios



# A simple model connecting RERs to PCPs



# CONNECTING RERs TO PCPs

## MODEL

- Financial autarky.
- $I$  countries.
- $I$  (nontradable) final goods.
- $K$  layers of intermediate goods.
- $I \times K$  intermediate goods.
- $J$  primary commodities.

Final (nontradable) good:  $Y_i = (y_i^T)^{\alpha_i} (y_i^{NT})^{1-\alpha_i}$

Basket of tradables:  $y_i^T = \prod_{l=1}^I (q_{il}^K)^{\beta_{il}^K}$

Intermediate goods ( $K$  layers):

$$\begin{aligned} Q_i^K &= \prod_{l=1}^I (q_{il}^{K-1})^{\beta_{il}^{K-1}} \\ Q_i^{K-1} &= \prod_{l=1}^I (q_{il}^{K-2})^{\beta_{il}^{K-2}} \\ &\vdots \\ Q_i^1 &= \prod_{j=1}^J (x_{ij}^1)^{\beta_{ij}^1} \end{aligned}$$

Exogenous endowments of commodities in each country ( $X_{ij}$ ).

Fixed endowment of  $y_i^{NT}$ .

# CONNECTING RERs TO PCPs

## MODEL

Relative consumption and RER between countries 1 and 2.

$$\frac{Y_2}{Y_1} = \frac{(y_2^T)^{\alpha_2} (y_2^{NT})^{1-\alpha_2}}{(y_1^T)^{\alpha_1} (y_1^{NT})^{1-\alpha_1}}$$

And:

$$\frac{P_1^y}{P_2^y} \propto \frac{(P_1^T)^{\alpha_1} (P_1^{NT})^{1-\alpha_1}}{(P_2^T)^{\alpha_2} (P_2^{NT})^{1-\alpha_2}}$$

# CONNECTING RERs TO PCPs

## MODEL

FOC in the final good sector:

$$\begin{aligned}P^T y_1^T &= \alpha_1 P^{y_1} Y_1 \\P^{NT} y_1^{NT} &= (1 - \alpha_1) P^{y_1} Y_1\end{aligned}$$

Using the FOC:

$$\begin{aligned}\frac{P_1^y}{P_2^y} &\propto \frac{(y_2^T)^{\alpha_2} (y_2^{NT})^{1-\alpha_2}}{(y_1^T)^{\alpha_1} (y_1^{NT})^{1-\alpha_1}} \times \frac{P_1^T y_1^T}{P_2^T y_2^T} \\ \frac{Y_2}{Y_1} &= \frac{(y_2^T)^{\alpha_2} (y_2^{NT})^{1-\alpha_2}}{(y_1^T)^{\alpha_1} (y_1^{NT})^{1-\alpha_1}}\end{aligned}$$

# CONNECTING RERs TO PCPs

## MODEL

Using the financial autarky assumption and zero-profit condition:

$$\frac{P_1^Y}{P_2^Y} \propto \frac{(y_2^T)^{\alpha_2} (y_2^{NT})^{1-\alpha_2}}{(y_1^T)^{\alpha_1} (y_1^{NT})^{1-\alpha_1}} \times \frac{\sum_{j=1}^J P^{X_j} X_{1j}}{\sum_{j=1}^J P^{X_j} X_{2j}}$$

$$\frac{Y_2}{Y_1} = \frac{(y_2^T)^{\alpha_2} (y_2^{NT})^{1-\alpha_2}}{(y_1^T)^{\alpha_1} (y_1^{NT})^{1-\alpha_1}}$$

- PCPs can have large effects on RERs:
  - even if  $\alpha$  is close to zero.
  - even if commodities have low share in trade.
  - even if economies are large.
- What matters is the fluctuation in the relative value of commodity endowments (heterogeneity in endowments).

# CONCLUSION

- Very interesting paper!
- It expands our understanding of the connection between FXs and PCPs.
- Things to keep in mind:
  - Does the evidence in the paper really implies a finance story for the exchange rate?
  - And even if does, is the daily variation in FXs something meaningful?
  - What drives the fluctuations in PCPs?

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**THANK YOU!**