

Discussion of
“Asymmetries and Non-Linearities
in Exchange Rate Pass-Through”

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Summary

- ▶ **Motivation:**

- ▶ nominal exchange rates are important drivers of domestic inflation

- ▶ **Question:**

- ▶ how homogeneous is exchange rate pass-through to import prices?

- ▶ **This paper:** empirical analysis using detailed micro-data on import prices in the US

- ▶ **Novel results:**

- ▶ foreign currency appreciations pass-through more than depreciations
 - ▶ more pronounced for consumer goods
- ▶ results not driven by price stickiness nor product exit

- ▶ Interesting contribution to an important agenda

Discussion

1. Summary of results
2. Discussion of empirical findings
3. Suggestion for model analysis

Some context in the literature

- ▶ Extent of pass-through depends on pricing model
- ▶ **Producer currency pricing (PCP)**
 - ▶ exporters preset prices in their own currency
 - ▶ full pass-through and LOP holds
- ▶ **Local currency pricing (LCP)**
 - ▶ prices set in currency of destination country
 - ▶ zero pass-through and LOP fails
- ▶ Evidence in the US:
 - ▶ 90% of imports and 97% of exports priced in dollars
 - ▶ median price duration in currency of pricing \sim 11 months

Contribution: empirical evidence

- ▶ Data: product-level US import prices at the dock 1994-2014

$$\Delta p_{i,j,t} = \sum_{k=0}^{18} \left\{ \beta_k^+ \Delta e_{j,t-k}^+ + \beta_k^- \Delta e_{j,t-k}^- \right\} + \gamma \Delta P_{j,t} + \alpha_t + s_j + \varepsilon_{i,j,t}$$

- ▶ **Result 1:** foreign currency appreciations pass through more quickly and completely than depreciations
 - ▶ result stronger for differentiated goods
- ▶ **Result 2:** asymmetry not driven by nominal rigidities nor product exit
- ▶ **Result 3:** no evidence in favor of non-linear pass-through

Contribution: theory

▶ Model featuring

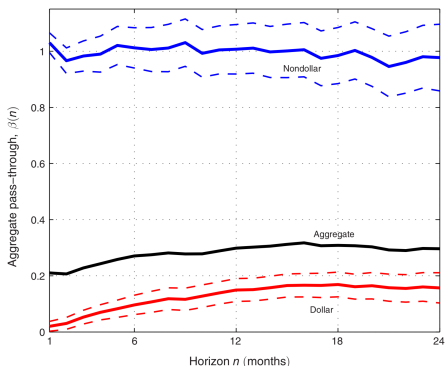
1. strategic complementarities
2. menu cost of price adjustment
3. convex adjustment cost to increasing output

generates asymmetry observed in the data

- ▶ depreciation of LC \Rightarrow mg. cost in FC $\downarrow \Rightarrow$ export price \downarrow
- ▶ induced increase in demand increases mg. cost due to convex costs
- ▶ price decrease is dampened
- ▶ mechanism only present for depreciation of LC

Source of asymmetry

- ▶ Heterogeneous pass-through by currency (Gopinath, et al. (2010))



- ▶ Heterogeneous medium-run pass-through by exporting country
 - ▶ from 0.01 to 0.46

Heterogeneous asymmetry

- ▶ Decomposition of the aggregate asymmetry to shed light on its source
 - ▶ is it currency-dependent?
 - ▶ is it heterogeneous at the good/sector or country level?

$$\Delta p_{i,j,t} = \sum_s \sum_{k=0}^{18} \left\{ \beta_{s,k}^+ \Delta e_{j,t-k}^+ + \beta_{s,k}^- \Delta e_{j,t-k}^- \right\} \\ + \sum_j \sum_{k=0}^{18} \left\{ \beta_{j,k}^+ \Delta e_{j,t-k}^+ + \beta_{j,k}^- \Delta e_{j,t-k}^- \right\} + \gamma \Delta P_{j,t} + \alpha_t + s_j + \varepsilon_{i,j,t}$$

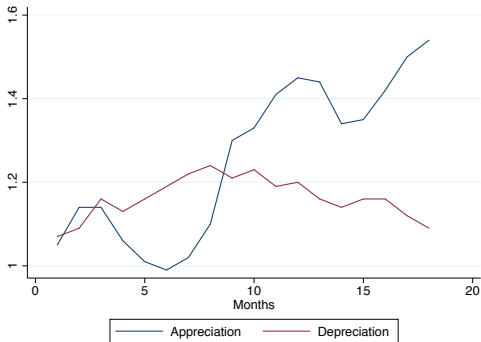
- ▶ Asymmetry not caused by nominal rigidities, what about real rigidities?
 - ▶ estimate “lifelong pass-through” by allowing for several rounds of price adjustments

Asymmetric exchange rates

- ▶ What if exchange rates themselves behave asymmetrically?

$$e_{j,t+h} - e_{j,t-1} = \beta_h^+ \Delta e_{j,t}^+ + \beta_h^- \Delta e_{j,t}^- + \dots$$

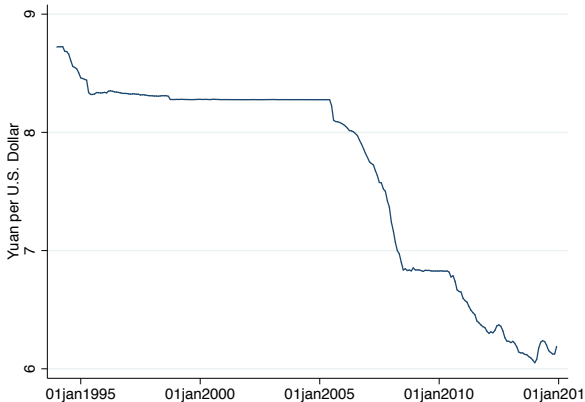
Figure 1: IRF to Exchange Rate Appreciation and Depreciation



- ▶ FC appreciation is expected to be followed by further appreciations (although standard errors are large)

The Role of China

- ▶ Imports from China account for 21.2% of overall US imports



- ▶ Explore cross-country heterogeneity
 - ▶ estimated asymm. pass-through vs deviations from random walk for e

Comments about model

Empirical

- ▶ Model results rely upon increasing mg. costs for higher output
 - ▶ does asymmetry vanish when the economy has slack capacity?
 - ▶ is it less severe in industries with “constant” mg. costs (e.g. capital intensive)?

Quantitative

- ▶ Does model with asymmetric process for e generate asymmetric PT?
- ▶ Analyze implications of model with asymmetric and persistent process for Δe

$$\Delta e_t = \rho^+ \Delta e_{t-1}^+ + \rho^- \Delta e_{t-1}^- + \varepsilon_t$$

- ▶ How to explain differences in asymmetry across groups of products?

Conclusion

- ▶ Important new evidence on exchange rate pass-through
- ▶ Main contribution:
 - ▶ foreign currency appreciations pass-through more than depreciations
- ▶ What is the source of this asymmetry?
 - ▶ further decomposition by sectors, countries and currencies
 - ▶ role of exchange rate expectations?