Rethinking the Link Between Exchange Rates and Inflation: Misperceptions and New Approaches

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Summary

• Motivation: Recent exchange rate volatility highlighted importance of better understanding drivers of exchange rate pass-through

• New framework: Understand drivers of exchange rate movements
  • Different shocks could lead to different degrees of pass-through

• Empirical strategy: SVAR to identify shocks driving FX
  • Domestic shocks (supply, demand, monetary policy) vs. Global shocks (supply, demand, exogenous FX)

• Results: Pass-through differs markedly by underlying shock to FX
  • Relatively low pass-through to consumer prices when appreciation caused by (global) demand shock
  • Relatively high pass-through when appreciation caused by monetary policy shock
    – Important for monetary policy makers
• FX movements often not well explained by VAR/DSGE models
  • Domestic mon. policy shock minor determinant of FX in SVAR: consistent with UIP?
    • Movements in interest rate diff. vis-à-vis trading partners typically major driver of FX
  • Foreign mon. policy shock not considered in SVAR (may well be captured by global demand shock)
    • Sterling should be largely driven by global and regional financial cycle (US and EA mon. policy)
• General critique of VARs with sign restrictions
  • Identif. shocks may capture unobserv. shocks with same identific. restrictions

The real exchange rate of the USD/EUR and its UIP benchmark

Source: Bloomberg, ECB staff calculations.
Notes: Decomposition of real bilateral exchange rate based on the forward solution of the risk-adjusted UIP condition (see Engel and West, 2010).
– To what degree has ERPT actually moved over time?
  • Consistent with some evidence that ERPT has gradually declined over recent decades? (Marazzi et al., 2005)

– Time variation in ERPT may also be related to changes in standard macro and micro drivers of ERPT: (Campa and Goldberg, 2005)
  • Import composition; openness; local currency invoicing

– Are non-linearities considered?
  • Only sufficiently large FX movements may cause price adjustments (Bussière, 2013)
Another aspect: Cross-country heterogeneity in pass-through

- Kristin’s paper: very important contribution to our understanding of why pass-through varies over time

- Another important aspect (as recognized in the paper), in particular from an ECB perspective: Marked *cross-country heterogeneity* in pass-through
  - Exchange rate pass-through to import prices (ERPT) in estimated range of 30% to 75% across euro area member states
    - Why?

- Despite vast theoretical and empirical literature, still limited understanding of main drivers of cross-country heterogeneity
  - Standard macro and micro factors (inflationary regime, FX volatility, openness, import composition) explain only minor part of heterogeneity (Devereux et al., 2004; Campa and Goldberg, 2005; Campa and Mínguez, 2006; Bussière et al., 2014)
ERPT and currency invoicing in the US

- Recent micro-level evidence for US economy (Gopinath et al. 2010, Gopinath 2015):
  - ERPT markedly lower for US imports invoiced in US dollar than for imports invoiced in producer currency, over short and long-run
  - Long-run ERPT in US limited due to dominant role of US dollar
- Role of invoicing currency choice not yet considered for explaining cross-country differences in ERPT

Source: Gopinath et al. (2010)
Can substantial variation in relative use of euro for extra-EA imports explain cross-country heterogeneity in long-run ERPT?

Source: Gräb and Lafarguette, 2015
Relation between long-run ERPT and local currency invoicing

Member states with higher share of extra-EA imports invoiced in euro have substantially lower degree of ERPT

\[
\text{ERPT}_{LT} = 0.85016 - 0.717 \text{LCI}_M \quad R^2 = 62.8\%
\]

Source: Gräb and Lafarguette, 2015
• Micro-level US evidence on role of currency invoicing for ERPT can be extended to cross-country dimension
• Cross-country differences in relative use of euro largely explain heterogeneity in long-run ERPT across EA countries

• International currency status provides partial insulation from external disturbances, in particular from exchange rate volatility
• Relevant when importing deflation may create risks to price stability

• Research agenda: Combine shock analysis with other determinants of ERPT (currency invoicing, non-linearities) to better understand variation in ERPT, both over time and across countries (and sectors)
Background slides
Substantial heterogeneity in long-run ERPT across EA countries

Source: Gräb and Lafarguette, 2015
Empirical strategy

• Extend standard empirical framework of drivers of cross-country differences in long-run ERPT to include share of local currency invoicing (LCI)

\[ ERPT_i = \alpha + \gamma_1 Openess_{it} + \gamma_2 HICP_{it} + \gamma_3 LowTech_{it} + \gamma_4 LCI_{it} + \epsilon_{it} \]

• Draw on unique country-level dataset on share of local-currency import invoicing from International Role of the Euro report

• In order to control for possible endogeneity of invoicing currency choice, assume that importing firms choose an invoicing currency mainly to hedge exchange rate risk
  • Invoicing currency choice instrumented by measures of aggregate costs and metrics of demand for foreign exchange hedging
Cross-country differences in relative use of euro largely explain heterogeneity in long-run ERPT across EA countries.

Increase in share of euro as invoicing currency by 10 percentage points lowers ERPT by 7 percentage points.

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<td>Agric.Imp (%Import)</td>
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<td>(-12.22)</td>
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<td>Local currency share</td>
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<td>-0.71***</td>
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<td>(-29.07)</td>
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<td>(55.48)</td>
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Source: Gräb and Lafarguette, 2015
Firms more likely to invoice imports in euro when predominantly receiving revenues in euro (rely on intra-European exports)

\[ LCI_M = -0.09477 + 0.88603 \times X_{\text{europe}} \quad R^2 = 72.7\% \]

Source: Gräb and Lafarguette, 2015
Notes: Figure shows OLS regression of estimated share of local currency invoicing on share of intra-European exports in percent of total exports. Variables averaged over time.
Firms more likely to invoice imports in euro when having less access to alternative and lower-cost financial instruments

\[ \text{LCI}_M = 0.8005 - 0.23698 \text{Credit2G} - M \quad R^2 = 63.3\% \]

Source: Gräb and Lafarguette, 2015

Notes: Figure shows OLS regression of estimated share of local currency invoicing on ratio of domestic credit to GDP. Variables averaged over time.