



EUROPEAN CENTRAL BANK

EUROSYSTEM

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

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Summary

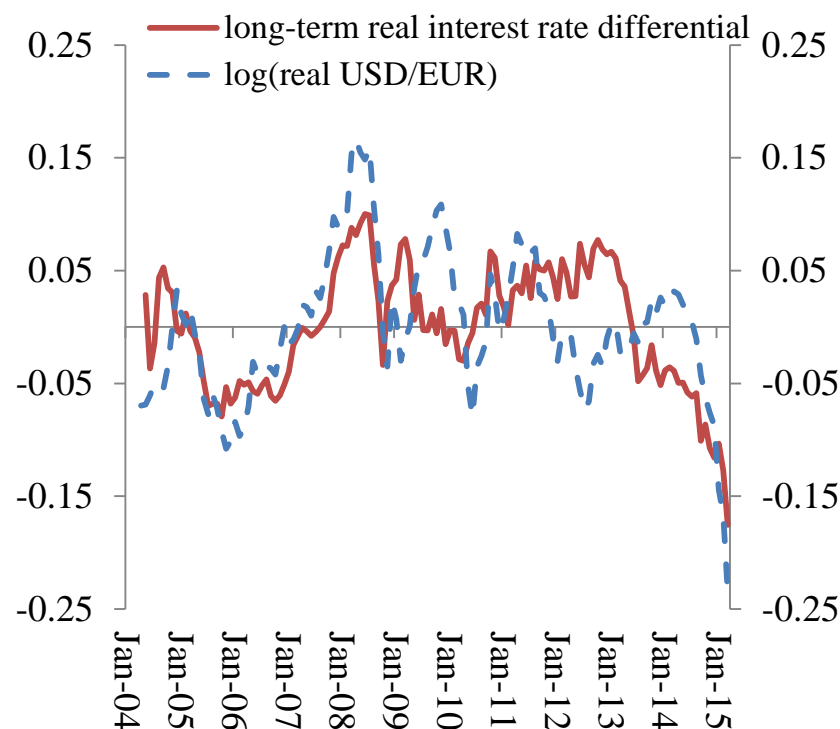
- Motivation: Recent exchange rate volatility highlighted importance of better understanding drivers of exchange rate pass-through
- New framework: Understand drivers of exchange rate movements
 - Different shocks could lead to different degrees of pass-through
- Empirical strategy: SVAR to identify 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

Main comment

- 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).

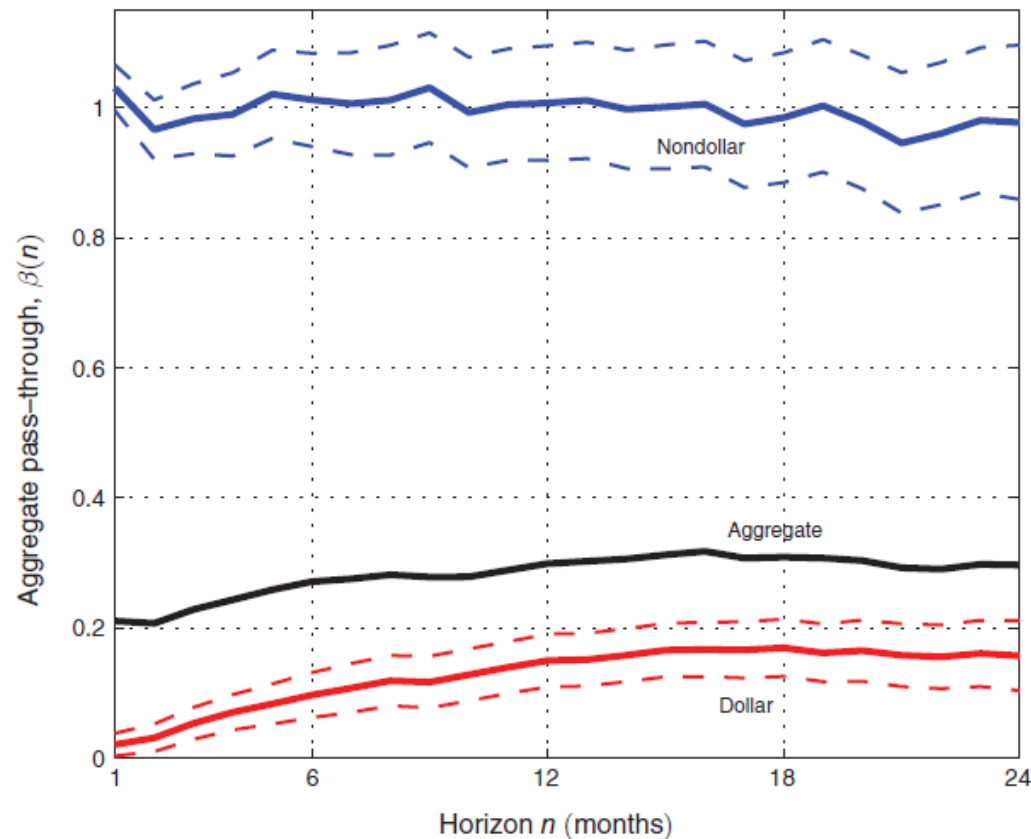
- To what degree has ERPT actually moved over time?
 - Consistent with some evidence that ERPT has gradually declined over recent decades? (Marazzi et al., 2005)
- Time variation in ERPT may also be related to changes in standard macro and micro drivers of ERPT: (Campa and Goldberg, 2005)
 - Import composition; 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

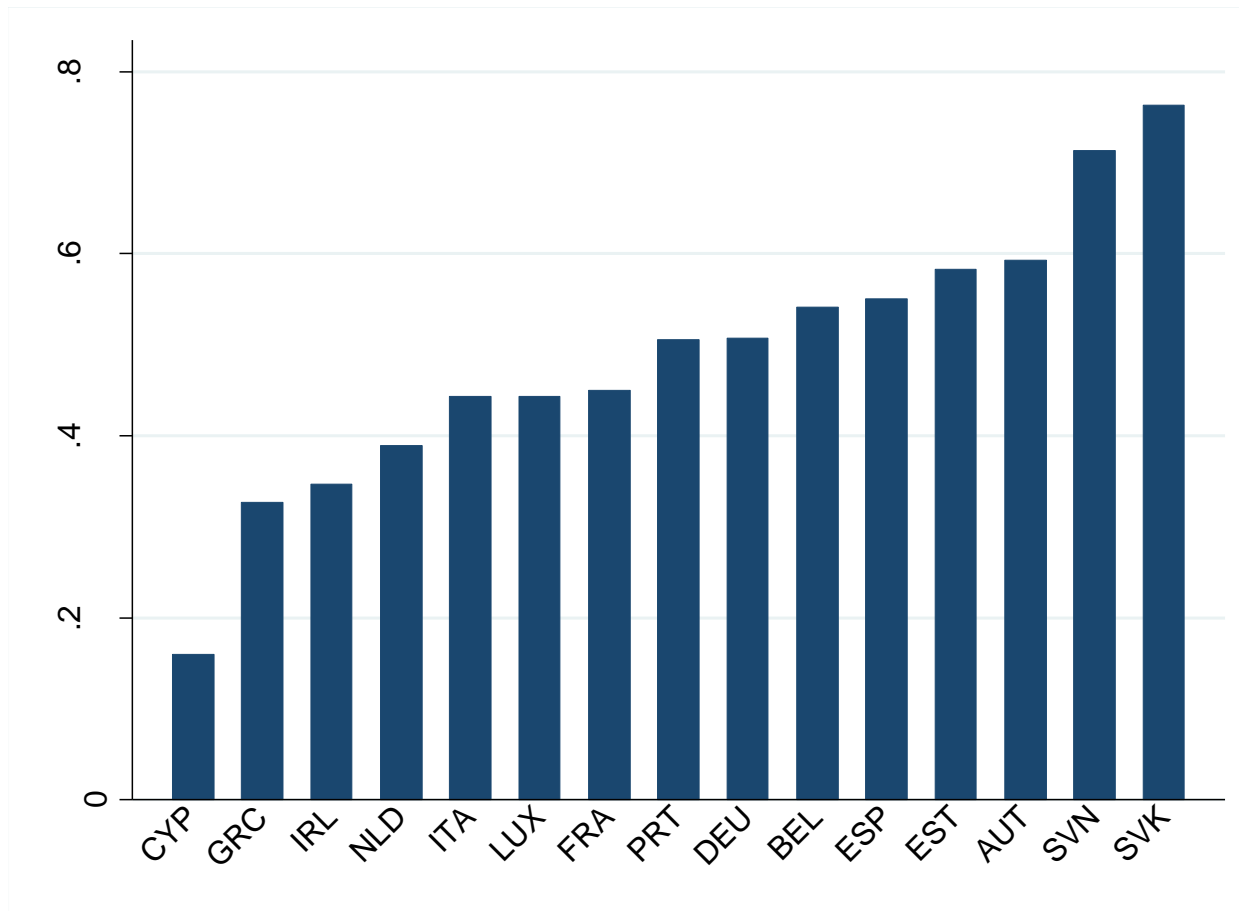
- Recent micro-level evidence for US economy (Gopinath et al. 2010, Gopinath 2015):
 - ERPT markedly lower for US imports invoiced in US dollar than for imports invoiced in producer currency, over short *and* long-run
 - Long-run ERPT in US limited due to dominant role of US dollar
- Role of invoicing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



Source: Gopinath et al. (2010)

Local currency invoicing in EA countries

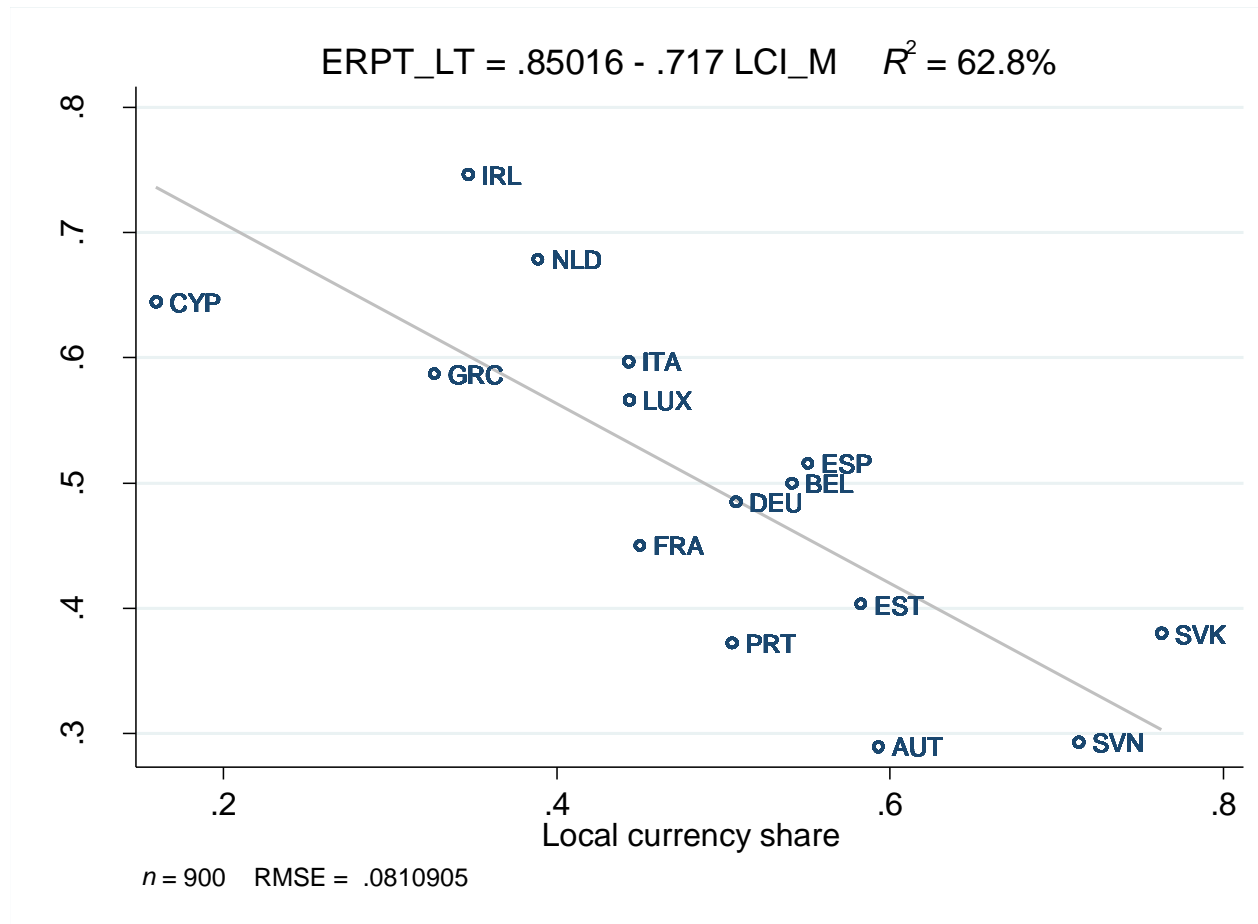
Can substantial variation in relative use of euro for extra-EA imports explain cross-country heterogeneity in long-run ERPT?



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



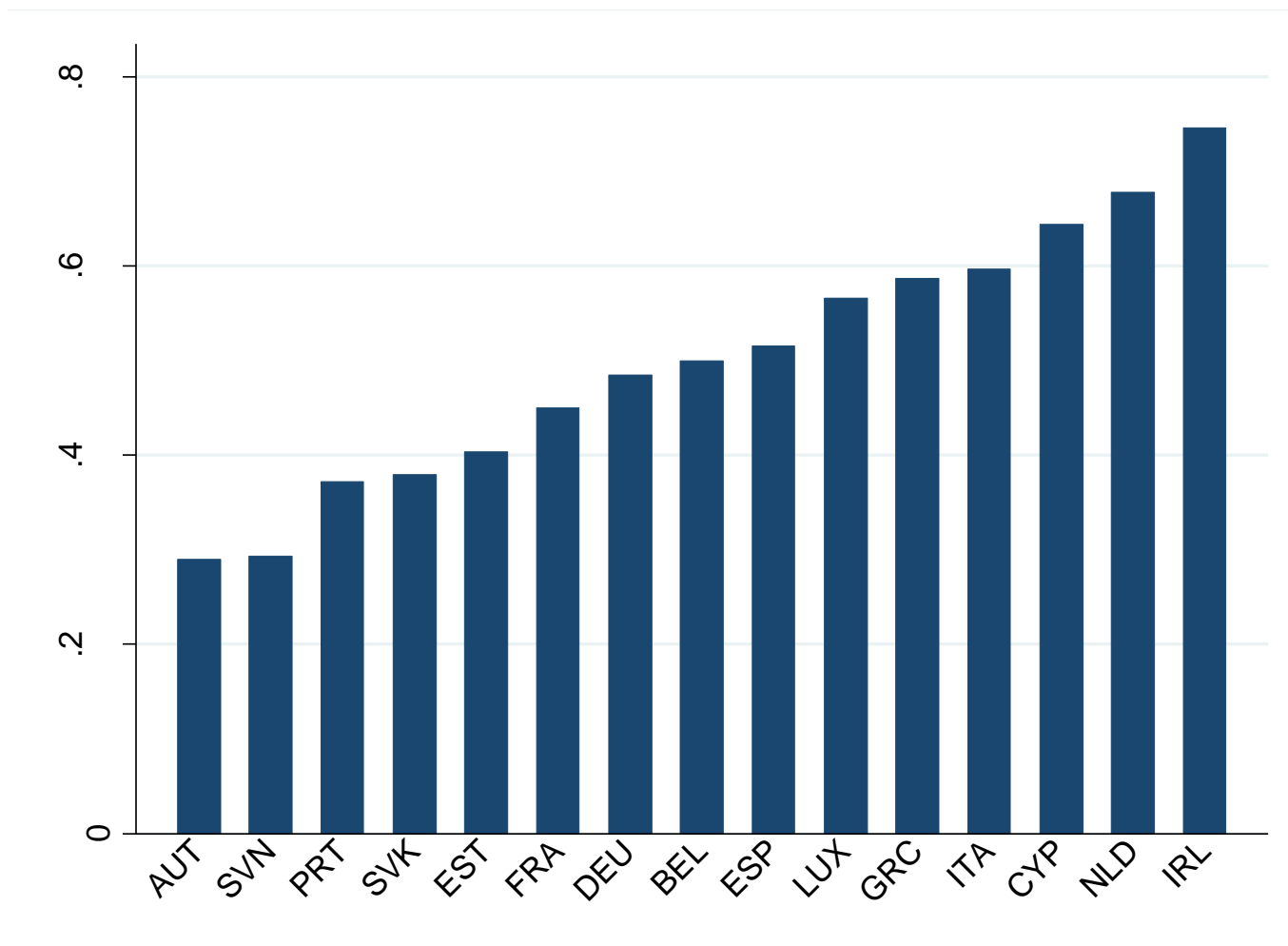
Source: Gräb and Lafarguette, 2015

Conclusion and research agenda

- 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

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

$$ERPT_i = \alpha + \gamma_1 Openess_{it} + \gamma_2 HICP_{it} + \gamma_3 LowTech_{it} + \gamma_4 LCI_{it} + \varepsilon_{it}$$

- 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

Relation between long-run ERPT and local currency invoicing

- Cross-country differences in relative use of euro largely explain heterogeneity in long-run ERPT across EA countries

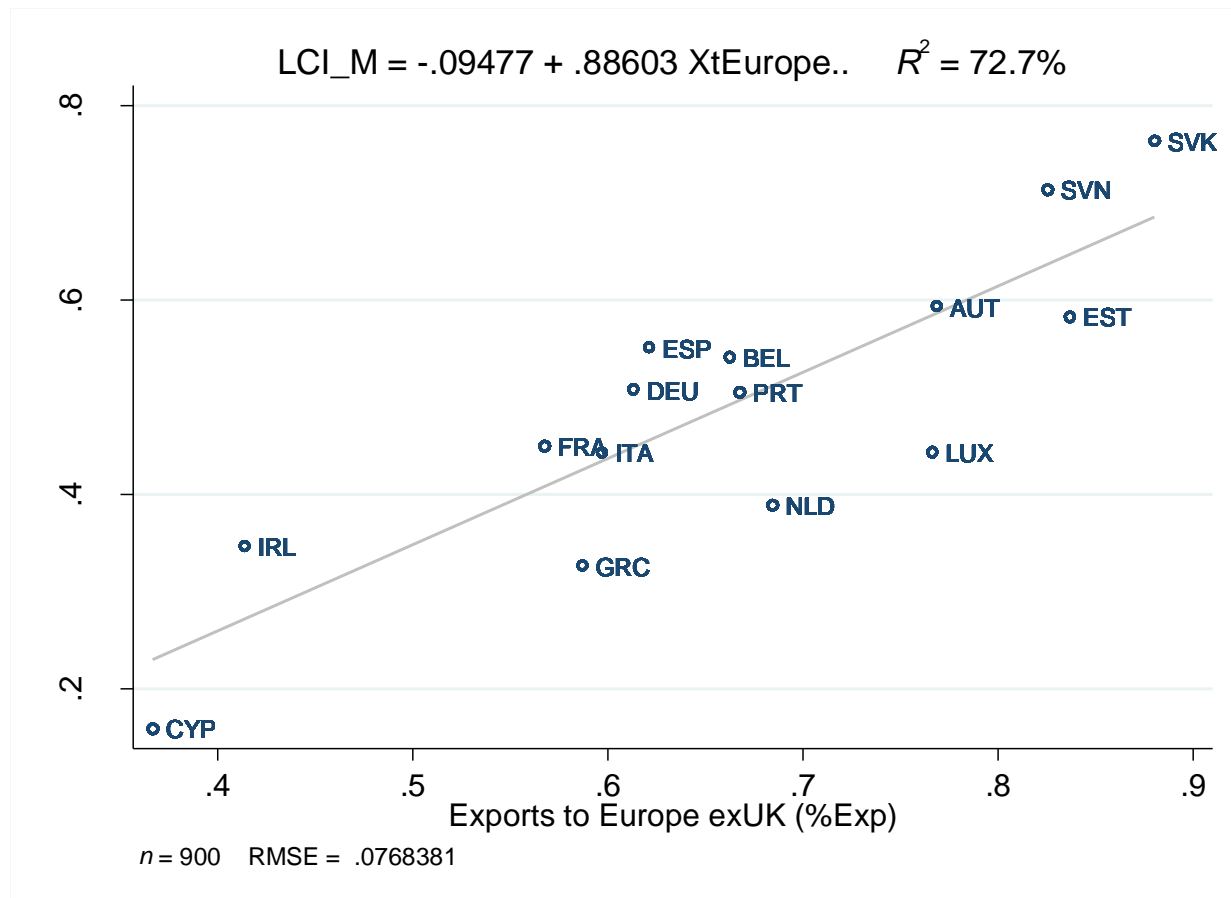
Increase in share of euro as invoicing currency by 10 percentage points lowers ERPT by 7 percentage points

	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	(IV-2SLS)
Openness	0.06*** (6.98)	0.04*** (3.17)	0.07*** (10.80)	0.07*** (10.32)
Inflation	-0.02*** (-3.16)	-0.01 (-1.41)	0.01 (1.29)	0.00 (1.17)
Agric.Imp (% Import)		-9.35*** (-12.22)	-2.68*** (-5.62)	-2.92*** (-5.91)
Local currency share			-0.71*** (-29.07)	-0.68*** (-18.56)
Constant	0.49*** (55.48)	0.65*** (51.27)	0.85*** (77.61)	0.84*** (58.43)
Observations	777	777	777	777
R-squared	0.03	0.27	0.68	0.68
Hansen-J(p-value)				0.11
K-P-Test(p-value)				0.00
First-stage-F-Stat				308.55

Source: Gräb and Lafarguette, 2015

Demand for hedging

Firms more likely to invoice imports in euro when predominantly receiving revenues in euro (rely on intra-European exports)

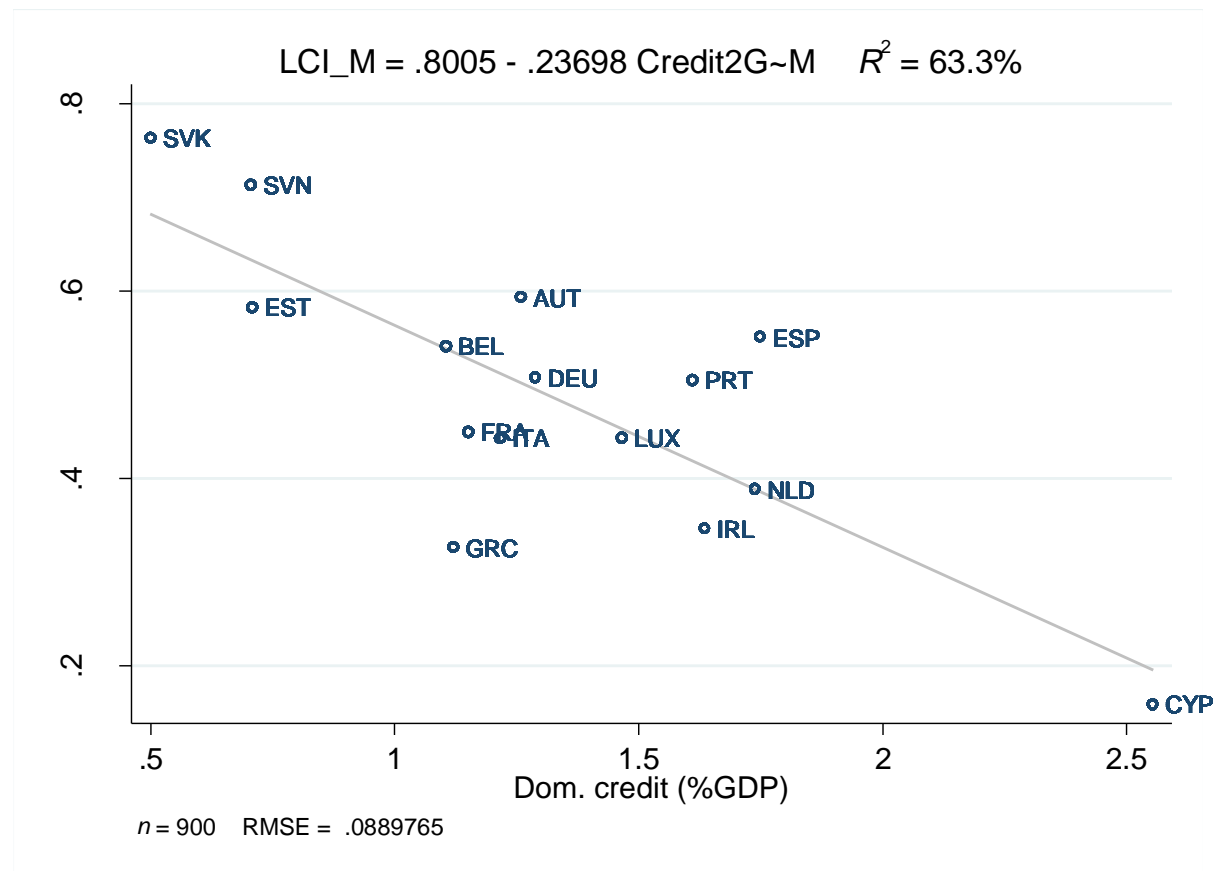


Source: Gräb and Lafarguette, 2015

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.

Costs of hedging

Firms more likely to invoice imports in euro when having less access to alternative and lower-cost financial instruments



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.