

Invoicing currencies and pricing behaviour

Lecture 3

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How does invoicing currency affect exchange rate pass through?

What factors determine the invoicing currency of a trade transaction?

How do firms' invoicing practices change when the policy environment changes?

Evidence in this talk comes from:

- "Invoicing and the Dynamics of Pricing-to-Market" by G. Corsetti, M. Crowley and L. Han, *Journal of International Economics*, 2022.
- "Dominant Currency Dynamics," by M. Crowley, L. Han and M. Son, CEPR Working Paper 15493, 2023.
- "The Swift Decline of the British Pound," by M. Crowley, L. Han, and M. Son, quantitative findings pending release by HMRC, 2024.

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International Trade and Currency of Invoicing

- The vast majority of international trade is conducted in only a small handful of currencies, with the US dollar being far and away the dominant currency globally.
- A stunning feature in the data is the disproportionately high use of US dollars to invoice global trade (Gopinath 2015):
 - world exports: dollar share 40% \gg US share 12%
 - world imports: dollar share 43% \gg US share 9%
- There are a variety of benefits associated with having a dominant currency – such as insulation against the international transmission of shocks (Gopinath et al 2020; Mukhin 2022).
- The extent to which import and export prices respond to exchange rate movements play a key role in the international transmission of shocks and the design of stabilization policy.

Pricing of internationally traded goods (1)

- For a significant share of global trade, the prices of goods are relatively flexible and the law of one price (excluding trade costs and taxes) holds. These goods include:
 - Commodities: traded in competitive markets, typically priced in a dominant currency (USD). Exchange rate movements tend to pass through such that prices in different currencies equalize.
 - Less differentiated manufactured goods, i.e. goods for which firm- or country- varieties are close substitutes for one another (with a high elasticity of substitution).

Pricing of internationally traded goods (2)

- But, a significant and increasing share of global trade is in highly differentiated manufactured goods. Pricing-to-market is common (see Lectures 1 & 2); we may expect some price 'stickiness' (infrequent adjustment of the price consumers pay), low exchange rate pass through, and failure of the law of one price. These goods are:
 - produced by firms with market power operating in oligopolistic markets, and
 - the currency in which trade is conducted may make a difference for pricing.

Price stickiness and pass through

To fix ideas, consider a firm setting the price of its (highly differentiated) goods for a period a time (e.g. two quarters). That is, the firm fixes the price at which it is willing to satisfy demand and promises to fill any orders for two quarters.

The export price can be “preset” in

- its own currency (a.k.a., producer currency pricing, **PCP**)
⇒ exchange rate pass through (ERPT) is 100%
- the currency of the destination market (a.k.a., local currency pricing, **LCP**)
⇒ ERPT into import prices is 0
- a dominant currency, i.e. the dollar (**DCP**)
⇒ ERPT into import prices depends on the DC movements vis-a-vis the local currency.

Why does it matter?

Pass through, competitiveness and markup adjustment

- With **PCP**, a depreciation of the currency of the producers makes domestic goods cheaper in international markets—there are gains in price competitiveness: global demand goes up (the exchange rate has ‘expenditure switching effects’).
 - Exporter’s terms of trade tend to worsen with a weaker currency.
- With **LCP**, domestic depreciation does not make the country’s exports more price competitive, but raises markups/profit of the exporters in domestic currency, impacting on internal income and demand.
 - Exporter’s terms of trade may improve with a weaker currency.
- With **DCP**, a depreciation of the *dominant currency*
 - improves the price competitiveness of a country’s exports, similar to the PCP case
 - raises exporters’ markups, similar to the LCP case with offsetting effects on the terms of trade. (See Gopinath, et. al., AER 2020)

Research questions

1. What can a firm's choice of an invoicing currency tell us about how prices will change when exchange rates move?

British firms implement different pricing strategies - global pricing vs. local pricing-to-market - through the choice of their invoicing currencies.

2. Which factors drive the invoicing choices of individual firms?

The currencies used by competitors, for one's own imported inputs, and for one's exports to other markets influence a firm's currency choice in a new market.

- We argue the within-firm cross-market spillover contributes to the dollar's global dominance.

3. How do changes in the policy environment affect invoicing choices?

Firms switch to dominant and local currency invoicing when future policy and governance are difficult to predict.

Useful References

- **Invoicing currency and pass through**

Goldberg and Tille (2008, 2016); Gopinath and Rigobon (2008); Gopinath, Itskhoki and Rigobon (2010); Fitzgerald and Haller (2014); Gopinath (2015); Chung (2016); Chen, Chung and Novy (2019); Bonadio, Fisher and Saure (2020); Amiti, Itskhoki and Konings (2020); Gopinath et al. (2020); Corsetti, Crowley, and Han (2022)

- **Pricing-to-market**

Knetter (1989); Knetter (1993); Goldberg and Verboven (2001); Berman, Mayer and Martin (2012); Amit, Itskhoki and Konings (2014); Auer and Schoenle (2016); Fitzgerald and Haller (2018); Corsetti, Crowley, Han, and Song (2023)

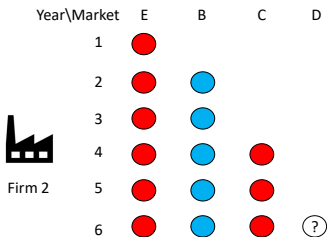
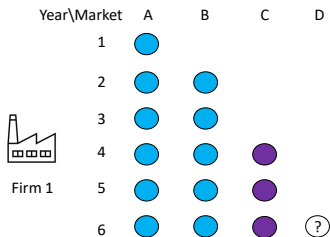
- **Dominant currency, currency shares, and changes in currency shares**

Gopinath (2015); Gopinath et al. (2020); Boz, et. al. (2022); Mukhin (2022); Crowley, Han, and Son (2023, 2024)

Analysis of British firms' trade transactions

We document:

- changes to prices of British exports (2015-2017) BY invoicing currency
- which factors lead UK firms to choose US dollars for invoicing exports
- a post-Brexit referendum broad-based switch out of sterling for invoicing exports



Sterling
(Producer Currency)



US Dollars
(Vehicle Currency)



Local Currency

Why study Britain?

1. Currency is an active margin of choice for British firms:
 - 99% of UK export value originates from firms that use 2 or more currencies for invoicing exports
 - UK firms switch their invoicing currency over time
2. The US dollar's importance in UK exports has been rising.
 - Over 2010 - 2019:
 - ★ UK extra-EU export value invoiced in US dollars rose 52.9%
 - ★ UK extra-EU import value invoiced in US dollars rose only 5.7%
 - The rise of the dollar preceded Brexit:
 - ★ 2010 - 2015: UK extra-EU export *transactions* invoiced in US dollars rose 18.7%.

Invoicing and the Dynamics of Pricing to Market

Invoicing and the Dynamics of Pricing-to-Market

Exchange Rate Pass Through into Import Prices

We classify all extra-EU export transactions according to whether they are invoiced in

- sterling (£),
- US dollars (\$), or
- the local currency used in the foreign destination (LCI – e.g., Canadian dollars, Japanese Yen)

We estimate changes to the average weekly price of exports over 3 years (2015-2017) for each currency scheme (£, \$, and LCI).

ERPT dynamics around Brexit

The Brexit Event Study Estimating Equation

Econometric analysis of weekly ERPT (see e.g. Bonadio Fisher and Saure 2020):

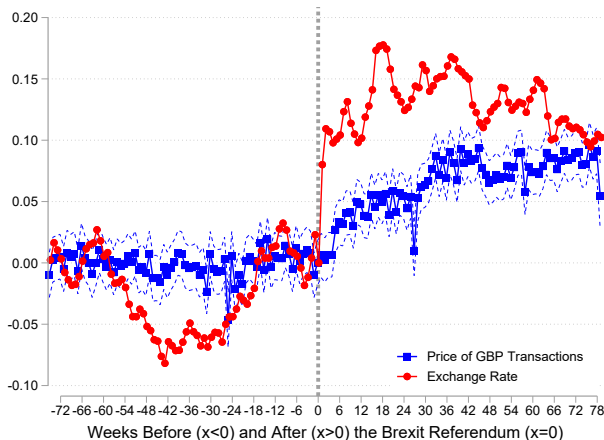
$$p_{ifdct} = \delta_{ifd} + \lambda_{ct} + u_{ifdct} \quad (1)$$

where

- i, f, d, c, t represent product, firm, destination country, **currency** and *week* respectively.
- δ_{ifd} : firm-product-destination fixed effects
- λ_{ct} is a bunch of week dummies capturing the average price/exchange rate changes

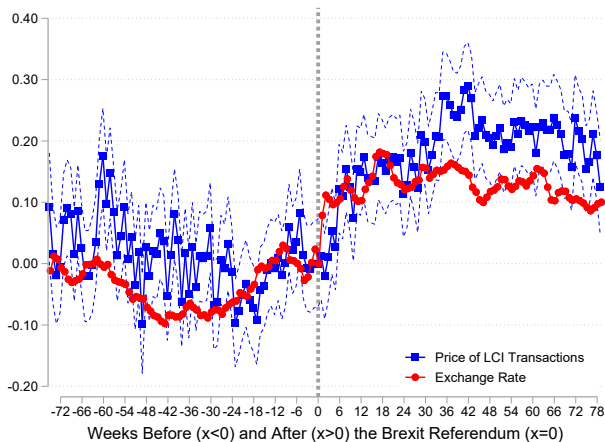
⇒ Equation (1) is estimated for each invoicing currency scheme.

Weekly Price Changes of **Sterling** Invoiced Transactions 2015-2017



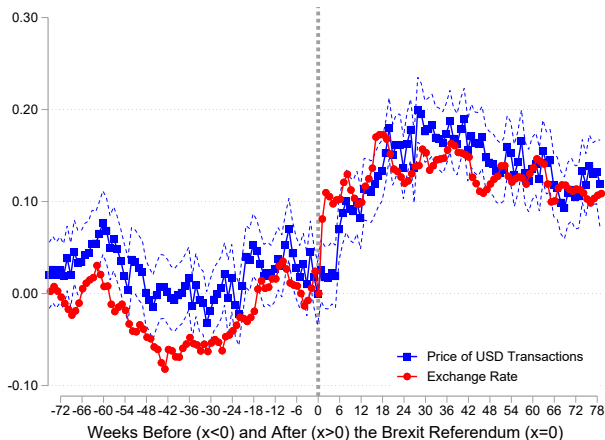
In the short run, sterling prices remained stable for £-invoiced transactions, but they gradually came to align with the weaker pound.

Weekly Price Changes of **Local Currency** Invoiced Transactions 2015-2017



In the SR, sterling prices rose quickly for LCI transactions. Over 18 months, the £price increase exceeded the appreciation of the foreign currencies.

Weekly Price Changes of Dollar Invoiced Transactions 2015-2017



Sterling prices rose quickly for \$-invoiced transactions, continuing to closely track the movement in the dollar over 18 months.

Main findings from the Brexit Event Study

- Large differences in ERPT between £-transactions v. \$ or LCI transactions.
- Over 18 months, differences across currency schemes narrowed as prices tended toward alignment with the weaker pound.
 - The alignment to higher sterling export prices likely reflects increases in the cost of imported inputs
 - (Sterling prices of imports fully adjusted to the weaker pound by week 36 after the referendum.)
 - However, the increase in the sterling export price of *local currency* transactions somewhat exceeded the appreciation of the foreign currencies—arguably pointing to “pricing to market”.

Three stylized facts on invoicing

Micro evidence suggests that firms actively manage currencies of invoice.

1. UK trade is dominated by firms invoicing in more than one currency
 - 99% of UK extra-EU exports originate from multi-currency firms
2. UK exporters invoice in multiple currencies for the same product in the same destination in the same year
 - Account for almost 50% of UK exports to extra-EU destinations
3. Some UK exporters switch currency of invoicing year-to-year
 - Among single-currency VC invoicers, 20% switch from VCI to PCI

Fact 1: Firms invoice in more than one currency

UK exports, excluding the EU, 2010-2017

		No. of Destinations	No. of Invoicing Currencies				Total
			1	2-5	6-10	10+	
by Share of Firms	1		35.2	6.4	0.0	0.0	41.6
	2-5		7.8	25.3	0.0	0.0	33.1
	6-10		0.4	10.4	0.1	0.0	10.9
	10+		0.1	12.7	1.5	0.2	14.4
	Total		43.4	54.8	1.5	0.2	100.0
by Share of Exports	1		0.4	0.6	0.0	0.0	1.0
	2-5		0.2	3.0	0.0	0.0	3.2
	6-10		0.0	3.9	0.1	0.0	4.1
	10+		0.0	30.4	26.7	34.5	91.7
	Total		0.7	38.0	26.9	34.5	100.0

⇒ **99.3% of export value originates from multi-currency exporters**

⇒ **only .7% of export value (43% of exporters) uses one currency.**

Top panel: share of UK exporters. Bottom panel: share of export value.

Fact 2: Firms use multiple currency for same product-firm-destination-year

UK exports, excluding the EU, 2010-2017

	No. of Currencies	No. of Transactions	Share (%) Transactions	Share (%) Trade
UK Exports	1	5,134,053	84.0	49.4
	2	872,124	14.3	41.1
	3	92,631	1.5	8.0
	4 plus	9,833	0.2	1.5
	Total	6,108,641	100.0	100.0
UK Imports	1	6,804,261	87.7	66.1
	2	793,630	10.2	22.8
	3	122,946	1.6	6.0
	4 plus	40,464	0.5	5.1
	Total	7,761,301	100.0	100.0

⇒ **50.6%** of exports of the same “ifdt” invoiced in multiple currencies

⇒ **33.9%** of imports by the same “ifdt” invoiced in multiple currencies

Fact 3: Firms switch invoicing currency

Transition matrix of invoicing schemes
UK exports, excluding EU, annual, 2010-2017

Matrix calculated based on single invoicing currency transactions at the exporter-product-destination level:

		To		
		LCI	PCI	VCI
From	LCI	76.44	18.11	5.45
	PCI	0.53	93.32	6.14
	VCI	0.52	17.07	82.41

A substantial share of UK exporters switch their invoicing scheme from year to year.

ERPT vs pricing to market

Think of a change in export price as the sum of:

Price changes = (a) global markup adjustments +
(b) destination-specific markup adjustments +
(c) changes in marginal costs

1. ERPT regressions capture (a), (b) and (c).
2. (b) defines “pricing-to-market”

Below we report estimates of the the Price elasticity (1-ERPT) and the Destination-Specific Markup Elasticity (DSME) with respect to the exchange rate. The method is developed in Corsetti, Crowley, Han and Song 2023.

ERPT and Pricing to Market: Main findings

Trade Pattern Fixed Effects Approach 2010-2017, Quarterly

- Export price elasticity to the exchange rate=1-ERPT:
 - PCI (£) transactions: $0.18^{***} \Rightarrow$ ERPT: 82%
 - VCI (\$) transactions: $0.35^{***} \Rightarrow$ ERPT: 65%
 - LCI transactions: $0.60^{***} \Rightarrow$ ERPT: 40%

Local currency invoicing \rightarrow lower ERPT.

- Destination-specific markup elasticity to exchange rate (DSME):
 - Producer currency (£) invoiced transactions: -0.01
 - Vehicle currency (\$) invoiced transactions: -0.01
 - Local currency invoiced transactions: 0.39^{***}

There is evidence of pricing to market only for LCI

Dominant Currency Dynamics

Changes in UK trade-invoicing over time

- International trade is disproportionately invoiced in US dollars (Gopinath 2015):
 - world exports: dollar share 40% \gg US share 12%
 - world imports: dollar share 43% \gg US share 9%
- The share of UK (extra-EU) trade invoiced in US dollars has risen over time:
 - Share of dollar invoiced UK exports: 31.4% (2010) to 48.0% (2020)
 - Share of dollar-invoiced UK imports: 66.2% (2010) to 71.0% (2020)
- Questions:
 - Which factors drive the invoicing choices of British firms?
 - How do firms' choices respond to major shocks to political/institutional structures?

Dominant Currency Dynamics

Empirically, using UK trade transactions data (2010-2016), we document

- within-firm spillovers of dollar usage **over time** and **across markets**
- ⇒ dollar invo. prob. in **a new market** increases in prior dollar experience

Theoretical Contribution

We introduce a firm-level fixed cost of using a foreign currency into a model featuring:

- Oligopolistic competition à la Atkeson and Burstein (2008)
- Preset prices and invoicing choice à la Engel (2006) and Amiti, Itskhoki and Konings (2020)
- Cobb-Douglas production with multiple imported inputs

The model economy embodies:

- **scale effect:** the more destinations using a currency, the lower the cost
- **joint market decisions:** the pricing and invoicing choices are inter-dependent across markets due to the firm-level cost of currency usage
- **path dependence:** a firm's invoicing choice in a new market depends on its past invoicing choices in existing markets

Optimal invoicing currency choice

The expected profit difference of choosing dollars relative to currency c is:

$$\mathbb{E}[\Pi_{fd}^{\text{USD}}] - \mathbb{E}[\Pi_{fd}^c] \propto \lambda_{fd} \left[\underbrace{\frac{\Gamma_{fd}}{1 + \Gamma_{fd}} (\zeta_{(-f)d}^{\text{USD}} - \zeta_{(-f)d}^c)}_{\text{Strategic complementarity}} + \underbrace{\frac{1}{1 + \Gamma_{fd}} (\psi_f^{\text{USD}} - \psi_f^c)}_{\text{Operational hedging}} \right] - \underbrace{(F_{fd}^{\text{USD}} - F_{fd}^c)}_{\text{Invoicing cost}}$$

where

- $\mathbb{E}[\Pi_{fd}^c]$: expected profit from invoicing in currency c
- $\zeta_{(-f)d}^c$: firm f 's competitors' invoicing share of currency c
- ψ_f^c : the firm's share of imports invoiced in currency c
- F_{fd}^c : the cost of invoicing in a foreign currency c
- Γ_{fd} : markup elasticity

The firm is more likely to use dollars if

- (1) more competitors use dollars - to keep its relative prices stable
- (2) it has a larger dollar-invoiced import share - to hedge the exchange rate risk
- (3) the cost of using dollars is low relative to alternatives

Empirical specification

Using a sample of entrants into new destinations, we estimate a linear prob. model:

$$\mathbb{1}_{fhd t}^{\text{USD}} = \beta_1 \zeta_{(-f)idt}^{\text{USD}} + \beta_2 \psi_{ft}^{\text{USD}} + \beta_3 \psi_{ft}^{\text{Euro}} + \beta_4 \psi_{ft}^{\text{LCI}} + \delta \omega_{ft-1}^{\text{USD}} + \gamma \text{size}_{ft} + \text{FEs} + v_{fhd t}$$

- f (firm), h (product), i (industry), d (destination), t (year)
- $\mathbb{1}_{fhd t}^{\text{USD}}$: equals one if dollar-invoicing and zero otherwise
- $\zeta_{(-f)idt}^{\text{USD}}$: competitors' dollar-invoicing share instrument
- ψ_{ft}^{USD} , ψ_{ft}^{Euro} , ψ_{ft}^{LCI} : dollar-, euro- and destination- currency invoiced import shares
- $\omega_{ft-1}^{\text{USD}}$: dollar share in the firm's total exports prior to entry
- size_{ft} : total export value (in logs) to proxy for firm size

Determinants of dollar-invoicing in new export markets:

Dep. Var.	$\frac{USD}{fhd}$
Competitors' dollar inv. share	0.069*** (0.007)
Dollar import share	0.093*** (0.001)
Euro import share	-0.014*** (0.002)
Destination cur. import share	0.022*** (0.002)
Firm size	0.013*** (0.000)
Dollar share in total exports (t-1)	0.292*** (0.002)
Observations	1,181,074
Country-Year FE	✓
Product-Year FE	✓
Weak IV F-stat	15,143

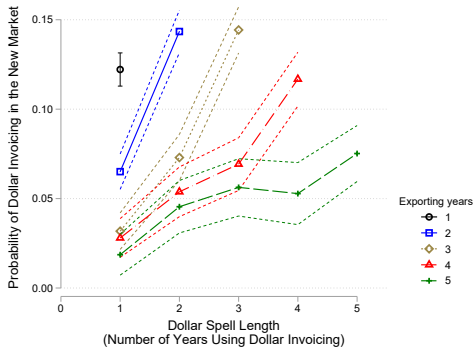
Using UK trade transactions data (2010-2016), we document a UK firm is more likely to use dollars in a new market if

- (1) more competitors use dollars \Rightarrow to keep its price stable relative to competitors,
- (2) it has a larger dollar-invoiced import share \Rightarrow to hedge the exchange rate risk,
- (3) the firm previously invoiced a larger share of exports in dollars

Note: Observations are of the first-year of exporting in each firm-destination pair. All results are based on 2SLS. Competitors' dollar invoicing export share is instrumented using competitors' dollar-invoiced import shares.

The importance of previous experience invoicing in dollars

Focusing on the role of a firm's **export tenure** in all foreign markets and **prior years of experience with dollar-invoicing**...



The probability a UK firm will use dollars in a new market increases in

- the firm's **prior years of dollar-invoicing to other markets**, for all export tenures.

Modelling shared fixed cost and joint decisions

- Shared **global** fixed cost of using each currency c

$$F_{ft}^c = \begin{cases} \frac{\kappa_0^c}{\sum_d \mathbb{1}_{fdt}^c} & \text{if } \sum_d \mathbb{1}_{fdt}^c > 0 \\ 0 & \text{if } \sum_d \mathbb{1}_{fdt}^c = 0 \end{cases}$$

where $\sum_d \mathbb{1}_{fdt}^c =$ number of markets where the firm uses invoicing currency c . \Rightarrow The cost of using dollars F_{ft}^{USD} decreases as the firm adds more dollar markets.

- Joint market decisions**

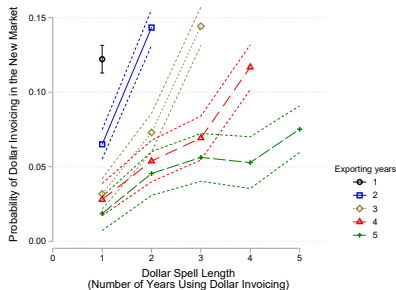
$$\max_{c_{1t}, \dots, c_{dt}, \dots, c_{Dt}} \left\{ \sum_{d \in \mathcal{D}_{ft}} \left[\max_{\bar{p}_{fdt}^{c_{dt}}} \mathbb{E} \pi_{fdt}(\bar{p}_{fdt}^{c_{dt}}) - F_{ft}^{c_{dt}}(c_{1t}, \dots, c_{dt}, \dots, c_{Dt}) \right] \right\}$$

\Rightarrow Invoicing and pricing choices are inter-dependent across markets.

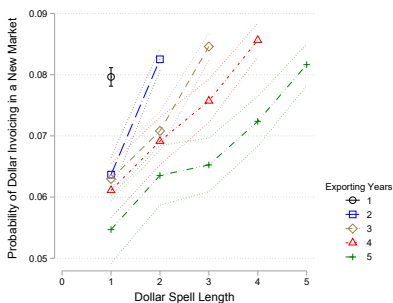
- Deterministic entry for simplicity: Assume firms expand globally by adding one foreign market in each period.

Empirical vs model: dollar invoicing by export tenure

(a) Empirical Estimates



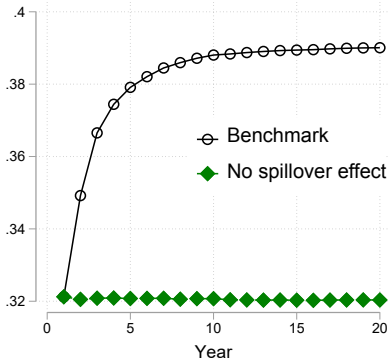
(b) Model Estimates



The shared global cost does a reasonably good job in replicating the patterns:

- The dollar spell length within an export tenure is indicative of the profitability of dollar usage in the firm's existing markets
- The higher the profitability of using dollars in other markets
 - the higher the probability the cost of using dollars can be shared
 - the higher the probability of using dollars in a new market

Counterfactual: Evolution of aggregate dollar invoicing share in absence of any external shock



- Recall in data: Aggregate dollar invoicing share of non-EU British exports increased from 0.32 in 2010 to 0.48 in 2019
- Dynamic spillovers explain $\approx 44\%$ ($= \frac{0.39-0.32}{0.48-0.32}$) of the increase

Summary: Dominant Currency Dynamics

Using transaction-level data for UK exporters over 2010-2016, we uncover a new dynamic channel for dollar-invoicing choices:

- Firms entering a new destination are more likely to adopt dollars if they used dollars more intensively and persistently in their existing markets
⇒ Strong spillovers of a firm's invo. choices across mkts and over time
- Propose a model that introduces a fixed cost of currency use at the firm level and features joint invoicing decisions across markets
⇒ Dynamic spillovers explain more than 40% of the recent increase in the aggregate dollar invoicing share of UK exporters

The Swift Decline of the British Pound

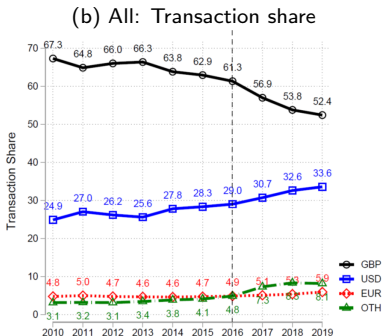
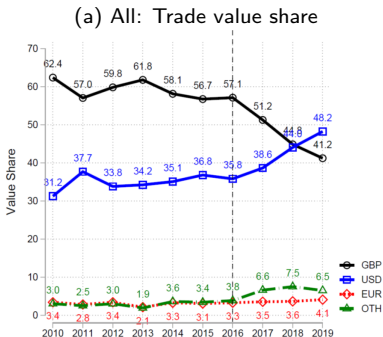
The aggregate share of UK exports invoiced in sterling declined after Brexit.

Along which margins did British firms' invoicing practices change?

The Swift Decline of the British Pound

Invoicing currencies in UK exports (2010-2019)

The aggregate share of UK exports invoiced in sterling declined after Brexit.



Note: The figure plots the shares of the UK's extra-EU exports invoiced in each currency from 2010 to 2019. Data source: HMRC administrative datasets.

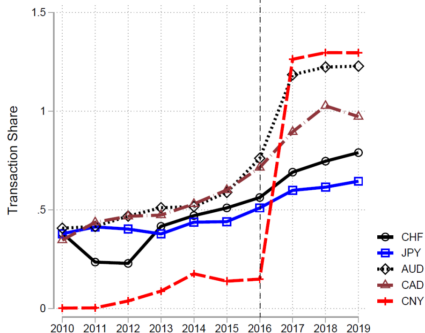
Transaction share does not mechanically change when a currency depreciates.

⇒ Fewer firms using sterling over time, especially after the Brexit referendum.

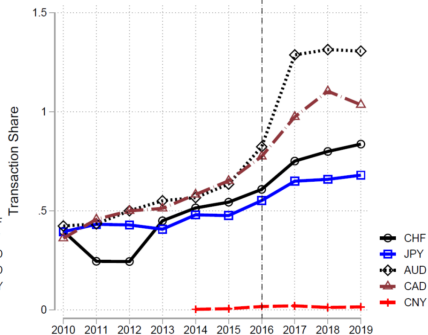
Other invoicing currencies in UK exports (2010-2019)

The aggregate transaction share of UK exports invoiced in all other currencies rose after Brexit.

(c) Others: Transaction share



(b) Others: Transaction share (no CHN)



Note: The figure plots the shares of the UK's extra-EU exports invoiced in each currency from 2010 to 2019. Data source: HMRC administrative datasets.

Along which margins did British firms' invoicing practices change?

Decomposing British invoicing currency choices

Using the universe of export transactions, 2010-2019, we decompose the change in the share of transactions invoiced in multiple currencies.

Firm margin: Entering, exiting and continuing firms

Foreign country margin Among continuing firms: foreign market entry, exit, and continuation

Product margin Among continuing markets of continuing firms: introduction, removal and continuation of products

Currency switch and transaction frequency margins Among continuing products in stable markets of continuing firms: currency switches and counts of the number of transactions within a time period

Which margins matter? Decomposing the swift decline

$$\Delta_s x_t^k = \underbrace{\sum_{f \in \mathcal{E}} x_{f,t}^k - \sum_{f \in \mathcal{X}} x_{f,t-s}^k}_{\text{Net firm entry}} + \underbrace{\sum_{f \in \mathcal{C}} \Delta_s x_{f,t}^k}_{\text{Continuing firm margin}},$$

$$\Delta_s x_{f,t}^k = \underbrace{\sum_{d \in \mathcal{E}_f} x_{f,d,t}^k - \sum_{d \in \mathcal{X}_f} x_{f,d,t-s}^k}_{\text{Net market entry}} + \underbrace{\sum_{d \in \mathcal{C}_f} \Delta_s x_{f,d,t}^k}_{\text{Continuing market margin}} \quad \forall f \in \mathcal{C},$$

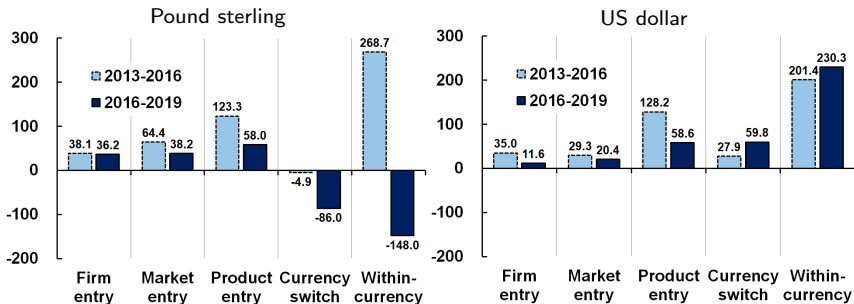
$$\Delta_s x_{f,d,t}^k = \underbrace{\sum_{p \in \mathcal{E}_{f,d}} x_{f,p,d,t}^k - \sum_{p \in \mathcal{X}_{f,d}} x_{f,p,d,t-s}^k}_{\text{Net product entry}} + \underbrace{\sum_{p \in \mathcal{C}_{f,d}} \Delta_s x_{f,p,d,t}^k}_{\text{Continuing product margin}} \quad \forall d \in \mathcal{C}_f, f \in \mathcal{C},$$

$$\Delta_s x_{f,p,d,t}^k = \underbrace{x_{f,p,d,t}^k \mathbb{1}(\mathcal{A}_{f,p,d}^k) - x_{f,p,d,t-s}^k \mathbb{1}(\mathcal{B}_{f,p,d}^k)}_{\text{Currency switch margin}} + \underbrace{\Delta_s x_{f,p,d,t}^k \mathbb{1}(\mathcal{C}_{f,p,d}^k)}_{\text{W/in-currency transaction margin}}$$

$$\forall p \in \mathcal{C}_{f,d}, d \in \mathcal{C}_f, f \in \mathcal{C}.$$

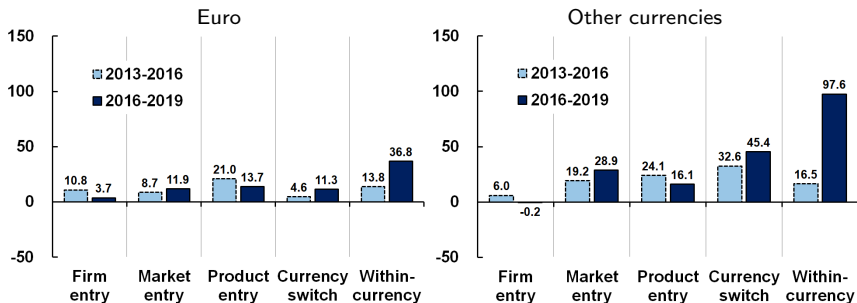
Firm margin Foreign country margin Product margin
 Currency switch and transaction frequency margins

Comparing the contribution of micro margins during 2013-2016 vs 2016-2019



Note: This figure compares the decomposition for pre- (2013-2016) and post-Brexit vote (2016-2019) periods. The bars represent the net change in number of export transactions for the stated currency during the specified period. Data source: HMRC administrative datasets.

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Decomposing British invoicing currency choices

New exporters to foreign markets continued to favour sterling, but their positive contribution to the sterling transaction share was swamped by other channels.

The quantitatively most important contributors to the decline of the sterling transaction share were:

- firms continuously operating in foreign product markets which switched from sterling into US dollars and local currencies
- sterling-loyal firms which continued operations in foreign product markets but reduced their total number of sterling transactions.

Summary: Implications of changing currency choices

This research shows that:

1. As British firms gain experience in exporting in dollars, they are more likely to increase their use of dollars – this means firms increasingly absorb exchange rate shocks into their own profit margins (rather than pass them on to customers) as they gain dollar experience.
2. After the Brexit referendum vote, there was a substantial switch out of sterling transactions, suggesting that British firms stepped up their role in stabilizing prices for their customers (in local currencies) during this period of political/institutional upheaval.

Conclusions about invoicing currency and pricing

1. British firms implement different pricing strategies - global pricing vs. local pricing-to-market - through the choice of their invoicing currencies.
2. The currencies used by competitors, for one's own imported inputs, and for one's exports to other markets influence a firm's currency choice in a new market.
 - We argue the within-firm cross-market spillover contributes to the dollar's global dominance.
3. Firms switch to dominant and local currency invoicing when future policy and governance are difficult to predict.