

Fundamentals vs. Policies:

Can The US Dollar's Dominance In Global Trade Be Dented?

Discussion of Georgiadis, Le Mezo, Mehl and Tille (2021)

Simon Lloyd

Bank of England

September 2022

The views expressed here do not necessarily reflect the position of the Bank of England.

This Paper

What factors determine currency-invoicing shares in global trade?

This Paper

What factors determine currency-invoicing shares in global trade?

An important question:

What factors determine currency-invoicing shares in global trade?

An important question:

- DCP has implications for cross-border spillovers and optimal policy, so illuminating to understand its underpinnings
...why is USD dominant?

What factors determine currency-invoicing shares in global trade?

An important question:

- DCP has implications for cross-border spillovers and optimal policy, so illuminating to understand its underpinnings
...why is USD dominant?
- Currency dominance changes slowly and not at polar extremes
...what are the prospects of USD losing its dominance, and will RMB policies accelerate structural change?

This Paper

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

#1 Empirical analysis

- Complement theoretical studies of invoicing-currency choice [Bacchetta and van Wincoop, 2005; Novy, 2006; Goldberg and Tille, 2008; Gopinath, Itskhoki and Rigobon, 2010; Mukhin, 2022]

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

#1 Empirical analysis

- Complement theoretical studies of invoicing-currency choice [Bacchetta and van Wincoop, 2005; Novy, 2006; Goldberg and Tille, 2008; Gopinath, Itskhoki and Rigobon, 2010; Mukhin, 2022]

#2 Global coverage, spanning 115 countries

- Complements country-specific studies with firm-level data [Amiti, Itskhoki and Konings, 2020]

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

#1 Empirical analysis

- Complement theoretical studies of invoicing-currency choice [Bacchetta and van Wincoop, 2005; Novy, 2006; Goldberg and Tille, 2008; Gopinath, Itskhoki and Rigobon, 2010; Mukhin, 2022]

#2 Global coverage, spanning 115 countries

- Complements country-specific studies with firm-level data [Amiti, Itskhoki and Konings, 2020]
- Albeit constrained by *aggregate* data

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

#1 Empirical analysis

- Complement theoretical studies of invoicing-currency choice [Bacchetta and van Wincoop, 2005; Novy, 2006; Goldberg and Tille, 2008; Gopinath, Itskhoki and Rigobon, 2010; Mukhin, 2022]

#2 Global coverage, spanning 115 countries

- Complements country-specific studies with firm-level data [Amiti, Itskhoki and Konings, 2020]
- Albeit constrained by *aggregate* data

#3 Novel analysis of RMB and PBoC swap lines

- New dataset on RMB invoicing shares

What factors determine currency-invoicing shares in global trade?

High-level contributions (as I see them):

#1 Empirical analysis

- Complement theoretical studies of invoicing-currency choice [Bacchetta and van Wincoop, 2005; Novy, 2006; Goldberg and Tille, 2008; Gopinath, Itskhoki and Rigobon, 2010; Mukhin, 2022]

#2 Global coverage, spanning 115 countries

- Complements country-specific studies with firm-level data [Amiti, Itskhoki and Konings, 2020]
- Albeit constrained by *aggregate* data

#3 Novel analysis of RMB and PBoC swap lines

- New dataset on RMB invoicing shares
- Stylistic preference to restructure: (i) USD/EUR analysis, full dataset; (ii) RMB analysis

Empirical Specification and Key Results

Simplified specification for x and m shares with key results:

$$InvoiceShare_{i,t}^{\ell} = \alpha_i^{\ell} + \tau_t^{\ell}$$

where $\ell \in \{\$, \text{€}, \text{RMB}\}$

Empirical Specification and Key Results

Simplified specification for x and m shares with key results:

$$InvoiceShare_{i,t}^{\ell} = \alpha_i^{\ell} + \tau_t^{\ell} + \underbrace{TradeShare_{i,t}^{\ell}}_{+++}$$

where $\ell \in \{\$, \text{€}, \text{RMB}\}$

Empirical Specification and Key Results

Simplified specification for x and m shares with key results:

$$InvoiceShare_{i,t}^{\ell} = \alpha_i^{\ell} + \tau_t^{\ell} + \underbrace{TradeShare_{i,t}^{\ell}}_{+++} + \underbrace{StratCompl_{i,t}}_{+++ \text{ for } \$ / -- \text{ for } \text{€}}$$

where $\ell \in \{\$, \text{€}, \text{RMB}\}$

Empirical Specification and Key Results

Simplified specification for x and m shares with key results:

$$InvoiceShare_{i,t}^{\ell} = \alpha_i^{\ell} + \tau_t^{\ell} + \underbrace{TradeShare_{i,t}^{\ell}}_{+++} + \underbrace{StratCompl_{i,t}}_{+++ \text{ for } \$ / -- \text{ for } \text{€}} + \underbrace{GVCInt_{i,t}}_{+ \text{ but regional}} + \dots + u_{i,t}^{\ell}$$

where $\ell \in \{\$, \text{€}, \text{RMB}\}$

Empirical Specification and Key Results

Simplified specification for x and m shares with key results:

$$InvoiceShare_{i,t}^{\ell} = \alpha_i^{\ell} + \tau_t^{\ell} + \underbrace{TradeShare_{i,t}^{\ell}}_{+++} + \underbrace{StratCompl_{i,t}}_{+++ \text{ for } \$ / -- \text{ for } \text{€}} + \underbrace{GVCInt_{i,t}}_{+ \text{ but regional}} + \dots + u_{i,t}^{\ell}$$

where $\ell \in \{\$, \text{€}, \text{RMB}\}$

Three comments:

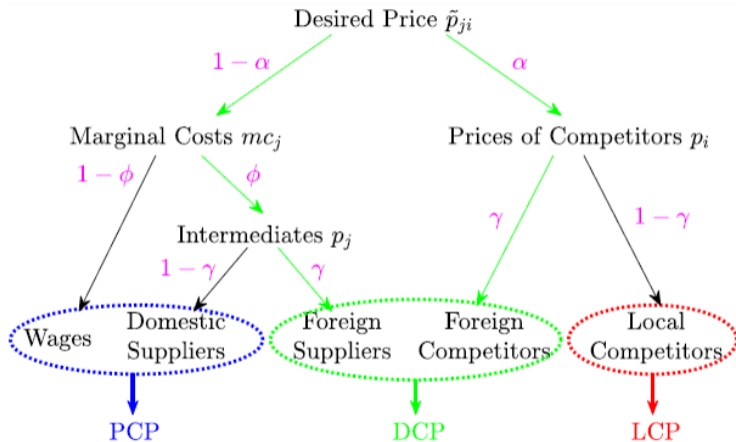
- #1 Measuring strategic complementarities and potential non-linearities
- #2 Measuring GVC integration
- #3 Other determinants of currency invoicing?

#1: Strategic Complementarities and Potential Non-Linearities

- $StratCompl_{i,t}$: country i 's exposure to strategic complementarities in price setting from sectoral composition of exports (more homogeneous \Rightarrow more compl.)
- ▶ **Is the relationship between $InvoiceShare_{i,t}^{\ell}$ and $StratCompl_{i,t}$ necessarily linear?**

Theory Suggests Potential Non-Linearities

Figure: Stylised Representation of Model in Mukhin (2022)



α degree price complementarities; ϕ intermediate input share; γ domestic exp. share

#1: Strategic Complementarities and Potential Non-Linearities

- $StratComp_{i,t}$: country i 's exposure to strategic complementarities in price setting from sectoral composition of exports (more homogeneous \Rightarrow more compl.)
- ▶ **Is the relationship between $InvoiceShare_{i,t}^{\ell}$ and $StratComp_{i,t}^{\ell}$ necessarily linear?**
Theory suggests it might not be!
- ▶ **Practical suggestion:**
 - #1 Distinguish strategic complementarities in price setting from sectoral composition of exports (i) to US(/EA) (where $LCP \equiv DCP$) $StratComp_{i,t}^{US}$ and (ii) to non-US(/EA) $StratComp_{i,t}^{nUS}$
 - #2 Include both in regression, with squared terms and hypotheses that:
 - $StratComp_{i,t}^{US}$ has linear relationship with $InvoiceShare_{i,t}^{\ell}$
 - $StratComp_{i,t}^{nUS}$ has concave quadratic relationship with $InvoiceShare_{i,t}^{\ell}$

#2: Measuring GVC Integration

- $GVCInt_{i,t}$: country i 's backward GVC integration ('vertical specialisation'), i.e. imported input content of exports
- But many measures of GVC integration exist [see Baldwin and Freeman, 2022 for recent survey]
- ▶ **Is this the 'right' (or, at least, best) measure of GVC integration to use?**

Theory Suggests the Exact Measure May Not Be (That) Important

Within a standard open-economy macro model, various (steady-state) measures of GVC integration are function of imported intermediate share m and labour share LS . E.g.:

- **VAX Ratio:** Share of domestic value-added in gross exports [Johnson and Noguera, 2012]

$$VAX = \frac{LS}{1 - (1 - LS)(1 - m) + (1 - LS^*)m^*}$$

[Georgiadis, Gräb and Khalil, 2019]

- **Backward GVC Linkages:** Imported input content of exports [Hummels, Ishii and Yi, 2001]

$$BL = \frac{LS^*(1 - m)(1 - LS)}{[1 - m(1 - LS)][1 - m^*(1 - LS^*)] - (1 - m^*)(1 - m)(1 - LS^*)(1 - LS)}$$

[D'Aguanno, Dogan, Lloyd and Sajedi, forthcoming]

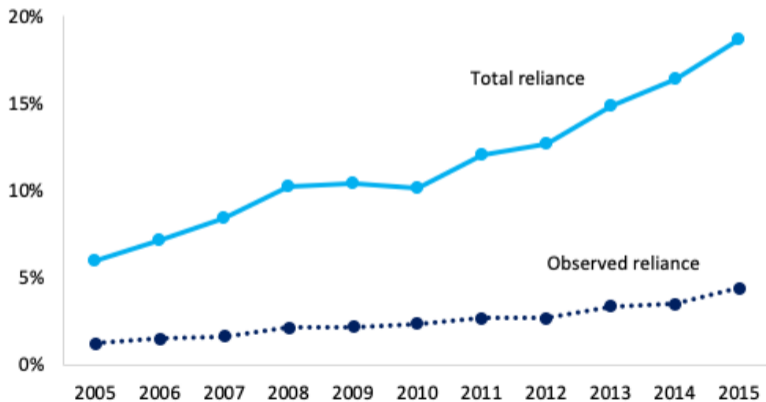
#2: Measuring GVC Integration

- $GVCInt_{i,t}$: country i 's backward GVC integration ('vertical specialisation'), i.e. imported input content of exports
- But many measures of GVC integration exist [see Baldwin and Freeman, 2022 for recent survey]
- ▶ **Is this the 'right' (or, at least, best) measure of GVC integration to use?**
Theory suggests it might well be!
- Nevertheless, empirical estimates can differ substantially

An Example

Observed and Total Reliance of US Motor Vehicle Sector on Chinese Inputs

Figure: Alternative Measures of GVC Integration from Baldwin and Freeman (2022)



#2: Measuring GVC Integration

- $GVCInt_{i,t}$: country i 's backward GVC integration ('vertical specialisation'), i.e. imported input content of exports
- But many measures of GVC integration exist [see Baldwin and Freeman, 2022 for recent survey]
- ▶ **Is this the 'right' (or, at least, best) measure of GVC integration to use?**
Theory suggests it might well be!
- Nevertheless, empirical estimates can differ substantially
- ▶ **Practical suggestion:**
 - #1 Draw on theory more explicitly to support variable definition
 - #2 Explore alternative empirical measures of GVC integration to *either* lend support to theory, *or* highlight challenges

#3: Other Determinants of Currency Invoicing

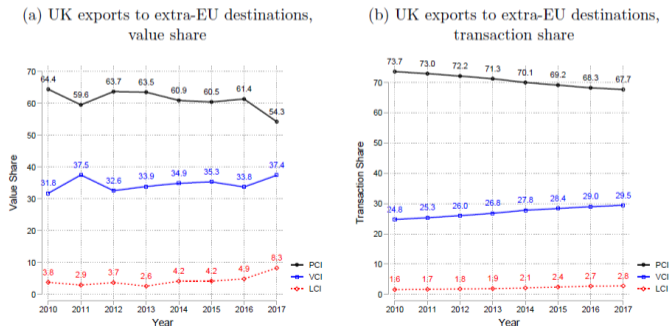
- Paper focuses on trade-based determinants of currency invoicing (as well as PBoC policy)
- But other factors likely to play a role
- ▶ **What about the role for financial development, and financial integration?**

UK, and the GBP, is an Interesting Example

- UK is leading international financial centre
- PCP is prevalent in UK exports, with firms often invoicing in more than one currency

[Corsetti, Crowley and Han, 2022]

Figure: Aggregate Composition of Invoicing Schemes in Corsetti et al. (2022)



#3: Other Determinants of Currency Invoicing?

- Paper focuses on trade-based determinants of currency invoicing (as well as PBoC policy)
- But other factors likely to play a role
- ▶ **What about the role for financial development, and financial integration?**
- ▶ **What about commodities? Are these factors really accounted for by fixed effects?**
 - Several commodity exporters are price takers on global markets [Tenreyro, 2019]
 - ⇒ Strategic complementarities and backward GVC integration unlikely to govern currency choice
 - ⇒ With wages sticky in domestic prices, constraints for exporters on supply side [Drechsel, McLeay and Tenreyro, 2019]

To Sum Up

- ★ Welcome and timely empirical analysis of determinants of currency invoicing, spanning broad set of countries
- ★ Novel early analysis of RMB invoicing, and role of PBoC policies
 - Should we expect the relationships to be linear?
 - Can the link to theory be made more explicit (in places)?
 - What else matters for currency invoicing?

References

- Amiti, M., Itskhoki, O., Konings, J., 2020. Dominant Currencies: How Firms Choose Currency Invoicing and Why it Matters. NBER Working Papers 27926.
- Bacchetta, P., van Wincoop, E., 2005. A Theory of the Currency Denomination of International Trade. *Journal of International Economics* 67, 295-319.
- Baldwin, R., Freeman, R., 2022. Risks and Global Supply Chains: What We Know and What We Need to Know. *Annual Review of Economics* 14, 153-180.
- Corsetti, G., Crowley, M., Han, L., 2022. Invoicing and the Dynamics of Pricing-to-Market: Evidence from UK Export Prices around the Brexit Referendum. *Journal of International Economics* 135.
- Drechsel, T., McLeay, M., Tenreyro, S., 2019. Monetary policy for commodity booms and busts. Jackson Hole Economic Symposium.
- Georgiadis, G., Gräß, J., Khalil, M., 2019. Global Value Chain Participation and Exchange Rate Pass-through. ECB Working Papers 2327.
- Goldberg, L., Tille, C., 2008. Vehicle-Currency Use in International Trade. *Journal of International Economics* 76, 177-192.
- Gopinath, G., Itskhoki, O., Rigobon, R., 2010. Currency Choice and Exchange Rate Pass-Through. *American Economic Review* 100, 304-336.
- Hummels, D., Ishii, J., Yi, K.M., 2001. The Nature and Growth of Vertical Specialization in World Trade. *Journal of International Economics* 54, 75-96.
- Johnson, R., Noguera, G., 2012. Accounting for intermediates: Production sharing and trade in value added. *Journal of International Economics* 86, 224-236.
- Mukhin, D., 2022. An Equilibrium Model of the International Price System. *American Economic Review* 112, 650-688.
- Novy, D., 2006. Hedge Your Costs: Exchange Rate Risk and Endogenous Currency Invoicing. Warwick Economics Research Paper 765.
- Tenreyro, S., 2019. Monetary policy and open questions in international macroeconomics. Speech at John Flemming Memorial Lecture.