Discussion: International Currency Dominance

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Question and Approach

- Central question: which currencies become internationally dominant, and when can dominance flip?

- Modeling tool: New-Monetarist (Lagos–Wright) framework with two markets
  - Centralized Market (CM): frictionless portfolio rebalancing
  - Decentralized Market (DM): bilateral, anonymous trade where money is essential

- Key mechanism:
  - Government nominal bonds act as medium of exchange in DM
  - Sellers incur a cost to recognize foreign currency
  - Strategic complementarities between acceptance and holdings generate persistence and history dependence

Main Results

- Equilibria
  - Three regimes: classical, dominant currency, multipolar
  - Classical unstable; outcomes tilt to dominance or multipolarity
- Determinants
  - Larger issuers and higher real returns on bonds foster internationalization
  - Triffin logic: supply of safe assets supports dominance
- Quantitative experiments
  - Dollar dominance robust in baseline calibration (US–EU–RoW)
  - Tariff war (20% for 8 years) can flip dominance to the euro
  - Real effects modest: convenience yield only about 30 bps
- Fiscal constraint ("Triffin" logic)
  - Even with US debt constraints and lower real returns, the dollar remains dominant

Structure of the Discussion

- Brief overview of the model and framework
- Comparison with other approaches
- Short comments and suggestions
- Comparison with money-in-the-utility-function
- Broader picture: relevance for today's international monetary system

Background and Question

- Central question: why do some currencies become dominant internationally, and why does dominance persist?

- Historical sequence:
  - Spanish silver dollar (16th–18th centuries)
  - Pound sterling (19th century, London at the center)
  - U.S. dollar (20th century, Bretton Woods and beyond)

- Today: U.S. dollar is central in
  - Trade invoicing
  - Cross-border payments
  - Official reserves

Dimensions of Currency Dominance

- Medium of exchange
  - Currency used directly in settlement and trade
  - Linked to trade centrality and network externalities
- Unit of account
  - Currency used to denominate prices and contracts
  - Depends on credibility and pricing power of issuer
- Store of value
  - Currency held to preserve wealth
  - Relies on stability, low inflation, and policy openness
- Safe asset
  - Government securities as highly liquid, risk-free assets
  - Requires deep and liquid financial markets
- Network and institutional role
  - Clearing, collateral, and payment system functions
  - Reinforced by geopolitical power and institutional infrastructure

Actors and Markets

- Centralized Market (CM)
  - Walrasian trading of goods and assets
  - Households rebalance portfolios: choose currency shares $\{a_n\}$ to carry into DM
- Decentralized Market (DM)
  - Bilateral, anonymous matches; money essential for trade
  - Trade succeeds only if seller recognizes the currency $\Rightarrow$ surplus Ψ realized
  - Friction: lack of record-keeping/enforcement prevents credit $\Rightarrow$ need for universally accepted object (currency)
- Assets
  - Governments issue nominal bonds (return r_n) usable in DM
  - Private illiquid risk-free asset yields r_I
  - Liquidity premium:

$$\ell_n \equiv r_I - r_n$$

Recognizability and Strategic Complementarities

- Recognizability
  - Domestic currency always accepted
  - Foreign currency requires utility cost κ at Poisson rate ζ
  - Share of sellers accepting foreign currency: $\delta_{nj}(t)$
- Buyers' condition (Euler inequality)
  - Hold currency n if
$$\delta_{nj}\,\Psi \;\geq\; \ell_n$$
  - Intuition: expected match probability δ_{nj} times surplus Ψ must cover the liquidity premium ℓ_n
- Sellers' adoption rule
  - Pay κ if
$$\mathbb{E}\left[\int_0^\infty e^{-\rho t}\,\delta_{nj}(t)\,\Psi\,dt\right] \;\geq\; \kappa$$
  - More buyers holding the currency $\Rightarrow$ higher expected surplus
  - Strategic complementarity: buyers follow sellers, sellers follow buyers

Main theoretical takeaways

- Comparative statics
  - Buyers' condition: $\delta \Psi \geq \ell_n$, with liquidity premium $\ell_n \equiv r_I - r_n$
  - Lower ℓ_n (higher bond return) $\Rightarrow$ stronger demand for currency n
  - Larger issuer size $\Rightarrow$ more buyers $\Rightarrow$ more profitable to pay cost $\kappa \Rightarrow$ higher δ
  - Greater recognizability (δ) $\Rightarrow$ higher expected liquidity benefits $\delta\Psi$
  - Multipolarity only if recognition costs are very small; otherwise dominance prevails

- Stability
  - With endogenous δ, "everyone-holds-both" (classical regime) is unstable
  - Stable steady states: (i) autarky, (ii) single dominant currency, (iii) multipolarity if costs are tiny
  - Sellers adopt if expected discounted surplus covers adoption cost:

$$\mathbb{E}\left[\int_0^\infty e^{-\rho t}\, \delta(t)\, \Psi\, dt\right] \;\geq\; \kappa$$

  - Strategic complementarities ensure persistence: once dominant, hard to reverse

Experiments: Tariffs and Fiscal Triffin

- Tariffs
  - Need a 20% tariff with expected duration ≥ 7.7 years to flip dominance from dollar to euro
  - Mechanism: tariffs reduce Ψ (gains from trade); only large, persistent shocks make $\delta\Psi < \ell_\$$
  - Real effects are small: convenience yield ~ 30 bp $\Rightarrow$ exorbitant privilege about 0.25% of GDP
- Fiscal Triffin
  - As RoW grows, US hits fiscal capacity $\Rightarrow \ell_\$$ rises (lower real returns)
  - Despite higher $\ell_\$$, strong acceptance inertia δ keeps $\delta\Psi \geq \ell_\$$
  - Result: dollar remains dominant even under tighter US fiscal constraints

How does this compare?

- Sticky-price / Dominant Currency Paradigm (DCP) *Goldberg and Tille (2008); Gopinath et al. (2018)*
  - Focus: unit-of-account role and invoicing in trade
  - Strength: explains dollar pricing and pass-through asymmetries
  - Limitation: money not essential; ignores payment frictions
- Portfolio choice / safe asset models *Krishnamurthy & Vissing-Jorgensen (2012); Maggiori, Neiman, Schreger (2020)*
  - Focus: store-of-value role, demand for Treasuries
  - Strength: captures "exorbitant privilege," dollar as safe asset
  - Limitation: explains asset demand, not actual circulation
- New Monetarist approach *Lagos and Wright (2005); this paper*
  - Focus: medium-of-exchange role; government bonds as money in DM
  - Strength: micro-founded payments channel; captures tipping, persistence, multiple equilibria
  - Limitation: narrower margin of dominance compared with invoicing or safe-asset roles

Suggestions

- Policy objective and welfare
  - Governments face a trade-off: maintain dominance with lower returns (higher ℓ) vs. accept multipolarity with more fiscal space
  - A simple welfare calculation would clarify which path is optimal
- Shock channels
  - Current model: tariffs reduce DM gains-from-trade (Ψ)
  - Other shocks: sanctions or KYC raise κ, digital clearing lowers κ
  - Question: how sensitive are dominance thresholds to κ-shocks vs. Ψ-shocks?
- Heterogeneity
  - Sectoral variation in κ and λ could generate partial dominance
  - Examples: dollar in commodities, euro in regional supply chains
  - Adds realism and helps explain observed multi-currency patterns

Money in the Utility Function

- Obstfeld–Rogoff setup (ch. 8): utility from home and foreign money

$$U_t = u(c_t) + v\left(\frac{M_t}{P_t}\right) + g\left(\frac{E_t M_t^*}{P_t}\right)$$

  - M_t/P_t: home real balances
  - $E_t M_t^*/P_t$: foreign balances in home goods
  - $g(\cdot)$ quadratic: $g(x) = a_0 x - \frac{a_1}{2}x^2$

- Foreign money demand

$$\frac{M_t^*}{P_t^*} = \frac{1}{a_1}\left[a_0 - \frac{1-\beta\frac{P_t^*}{P_{t+1}^*}}{1-\beta\frac{P_t}{P_{t+1}}}\right]$$

- Limitations of OR setup
  - Recognizability penalty a_0 is fixed and exogenous
  - No feedback from the fraction of sellers accepting foreign money
  - Captures carry/return differentials, but misses network effects and tipping

Endogenous Adoption in MIU

- Make liquidity benefit endogenous to acceptance share

$$U_t = u(c_t) + v\left(\frac{M_t}{P_t}\right) + \phi(A_t)\, v\left(\frac{M_t^*}{P_t^*}\right)$$

  - A_t: fraction of agents/countries recognizing foreign money
  - $\phi(\cdot)$ increasing, possibly S-shaped
  - A_t evolves via costly adoption

$$A_{t+1} = (1-\delta)A_t + \delta \mathbf{1}\{\text{pay } \kappa_t\}$$

- Buyers' Euler condition: hold foreign money if

$$\phi(A_t)\, v'\left(\frac{M_t^*}{P_t^*}\right) \;\geq\; \ell^*$$

- Strategic complementarity
  - Higher $A_t \Rightarrow$ more value to buyers $\Rightarrow$ more holdings
  - More holdings $\Rightarrow$ higher incentive for sellers/platforms to adopt

Static MIU Toy with Adoption

- Log utility, linear budget with carry costs

$$\max \; u(c) + \eta \ln m + \eta^* \phi(A) \ln m^* \quad s.t. \quad c + \ell m + \ell^* m^* = y$$

- Closed-form demands

$$m = \tfrac{\eta}{\ell}, \quad m^* = \tfrac{\eta^* \phi(A)}{\ell^*}$$

- Adoption threshold

$$\frac{\eta^*}{\ell^*} \cdot \frac{\Phi(1) - \Phi(0)}{1 - \beta} \; \geq \; \kappa$$

  - Adoption occurs if present value of extra liquidity services outweighs cost κ
  - Captures threshold dynamics, but without seller-side microfoundations

Background: Factors Behind Dominance

- Economic size and trade centrality
  - Britain in the 19th century, United States after WWII
  - Large trade networks create network externalities
- Financial market depth and liquidity
  - London bill market (sterling), U.S. Treasury market (dollar)
  - Safe, liquid, and open capital markets
- Credibility, stability, and policy openness
  - Low inflation, convertibility, absence of controls
  - Sterling lost ground with postwar restrictions
- Geopolitical power and institutional infrastructure
  - Military capacity, global banks, payment systems
  - IMF, World Bank, dollar clearing in New York
- Path dependence and network effects
  - Sterling lingered despite decline; dollar remains strong despite falling U.S. trade share

Lessons for Today

- Dominance is not just about size
  - Requires deep, liquid, credible financial markets
  - U.S. Treasuries as the global safe asset at the core
- Persistence and path dependence
  - Once established, dominance is hard to dislodge
  - Sterling lingered after UK decline; dollar remains strong despite shrinking U.S. trade share
- Shocks that flip dominance are rare
  - Typically require both economic decline and institutional or geopolitical failures
  - Model echoes this: large and persistent shocks are needed to switch equilibria
- Connection to the paper
  - Captures persistence through recognizability and network externalities
  - Abstracts from geopolitics, infrastructure, and the broader safe-asset role

Broader Perspective (I)

- A financialized Bretton Woods II
  - Emerging markets accumulate U.S. Treasuries for reserves and exchange-rate stabilization
  - Adjustment operates mainly through capital flows and safe-asset demand, not trade balances

- Dominance not primarily from medium of exchange
  - Invoicing shares (50–90% in USD) matter, but largely a derived feature
  - Central driver is demand for Treasuries as global safe assets
  - Convenience yield: $\ell \equiv r_I - r_{USD} \approx$ 30–50 bp (Krishnamurthy–Vissing-Jorgensen, 2012)

Broader Perspective (II)

- Broader role of the dollar in financial plumbing
  - Collateral in global repo and derivatives markets
  - Benchmark in FX swaps and cross-border banking
- Implications for theory
  - New Monetarist models: focus on medium-of-exchange for tractable tipping and multiplicity
  - In practice: store-of-value and safe-asset functions dominate, tied to fiscal capacity and balance-sheet use
  - Shocks to ℓ (safe-asset supply, credibility) matter more than invoicing frictions
- Empirical anchors
  - Reserve shares: dollar $\approx 60\%$, euro $\approx 20\%$, RMB $\approx 3\%$
  - Persistence driven by collateral and reserve-network externalities

Conclusion

- Contribution of the paper
  - Provides an elegant mechanism for international currency dominance via recognizability costs
- Key insights
  - Persistence and history dependence make dominance hard to flip
- Limitations
  - Medium-of-exchange channel narrower in today's financialized global system
- Broader perspective
  - Dominance today is tied to financial depth, the safe-asset role of Treasuries, and global network infrastructure