

International Sanctions and Dollar Dominance

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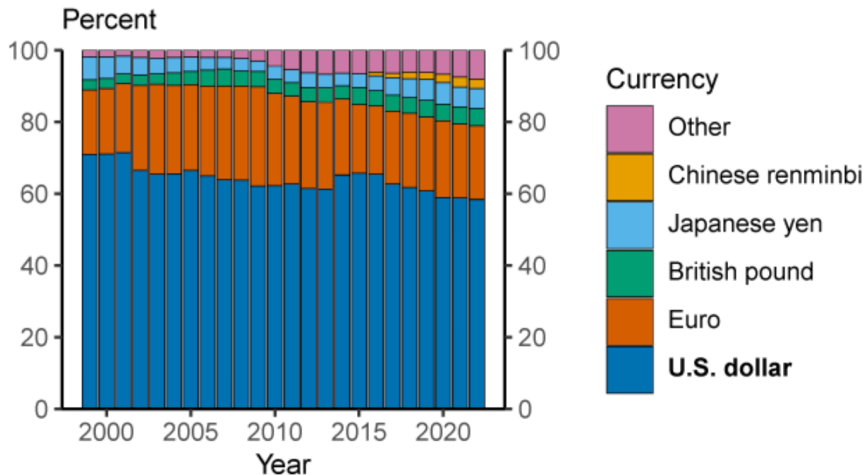
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The views expressed herein are those of the authors and not necessarily those of the Federal Reserve Bank of Minneapolis or the Federal Reserve System.

Currency Composition of FX Reserves



Decline in dollar share from 71% in 2001 to 58% in 2022

On the Hegemony of the US Dollar

- Speculation about whether the US dollar will lose its preeminent role
 - Earlier discussions in the 2000s concerned with US current account imbalances
 - Current concerns: geopolitics and financial sanctions

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 - Current concerns: **geopolitics and financial sanctions**

There is a risk when we use financial sanctions that are linked to the role of the dollar that over time it could undermine the hegemony of the dollar.

Janet Yellen, Interview on CNN April on 2023

Financial sanctions imposed on Russia threaten to gradually dilute the dominance of the U.S. dollar and could result in a more fragmented international monetary system.

Gita Gopinath, Financial Times April on 2023

This Paper

Simple monetary model to tackle two questions:

- How do sanctions affect the status of the US dollar?
- What are the welfare implications?

Literature

- **Sanctions:** Itskhoki-Mukhin (2022), Lorenzoni-Werning (2023), Ghironi-Kim-Ozhan (2022), Sturm (2022), Bachmann et al. (2022), Baqaee-Moll-Landais-Martin (2022), Bianchi and Sosa-Padilla (2024) ...
- **Reserve Currencies:** Coppola-Krishnamurthy-Xu (2023), Chahrour-Valchev (2023), Farhi-Maggiore(2018), Gopinath-Stein(2021), Bianchi-Bigio-Engel(2021), Gourinchas-Rey-Govillot (2020), Kekre-Lenel (2021), Choi-Kirpalani-Perez (2022), Jiang-Krishnamurthy-Lustig (2020) ...

Main Elements of the Model

- Two-periods, $t = 1, 2$, deterministic
- Two countries
 - Sanctioning country (US): supply dollar assets
 - Sanctioned country (China): demand dollar assets
- Investors in ROW trade real assets at rate R^*

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- Two countries
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 - Sanctioned country (China): demand dollar assets
- Investors in ROW trade real assets at rate R^*
- One good, law of one price holds
 - $P_t e_t = 1$ (price in Chinese yuans normalized to one)

e = yuan per dollar.

US: Supply of Dollar Assets

- Continuum of US households
 - Issue dollar assets B , nominal return i and buy real assets w/return R^*
 - Quadratic cost of issuing assets

$$\max_B B \left(R^* \frac{P_2}{P_1} - (1 + i) \right) - \frac{\omega}{2} \left(\frac{B}{P_1} \right)^2$$

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Downward-sloping supply of assets in R :

$$b = \frac{1}{\omega} (R^* - R), \quad R \equiv (1 + i) \frac{P_1}{P_2} \quad b \equiv \frac{B}{P_1};$$

- ω inverse-elasticity of the supply of US dollar assets.
 - When $\omega = 0$, perfectly elastic supply of US assets.

China: Demand of Dollar Assets

- Preferences of households

$$c_1^* + \beta u(c_2^*) + v\left(\frac{B^*}{P_1}\right), \quad v' \geq 0, v'' < 0, v'(0) = \infty, \text{ and satiation}$$

- Invest in US dollar assets, B^* , and in real assets, k^*

$$c_1^* = y^* - \frac{B^*}{P_1} - k^*, \quad c_2^* = y^* + \frac{B^*}{P_2}(1 + i)(1 - \lambda) + R^* k^*$$

$0 \leq \lambda \leq 1$ denotes fraction of seized assets (wedge w/return by US)

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- Upward-sloping demand of assets in R

$$v'(b^*) = \frac{R^* - R(1 - \lambda)}{R^*}$$

Equilibrium

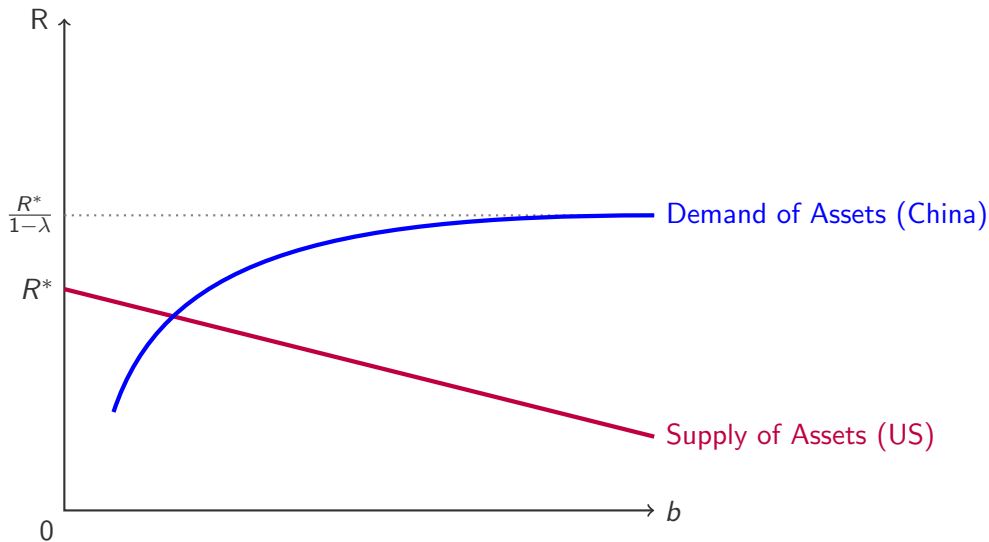
- Central bank policy (baseline):
 - Keep i , e_2 constant

$$e_1 = \frac{1+i}{R} e_2$$

- Market clearing in dollar assets $b = b^*$

Equilibrium

Convenience yield: $R < R^*$



The Effect of Sanctions

Frictionless I: No Special Value from US Dollars

Result 1. Suppose that $v(\cdot) = 0$. Then, an increase in the sanction λ has no effects on the exchange rate or portfolio of dollar assets b^* .

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 - If $R < R^*$, China does not buy dollar assets
 - If $R > R^*$, US does not supply dollar assets

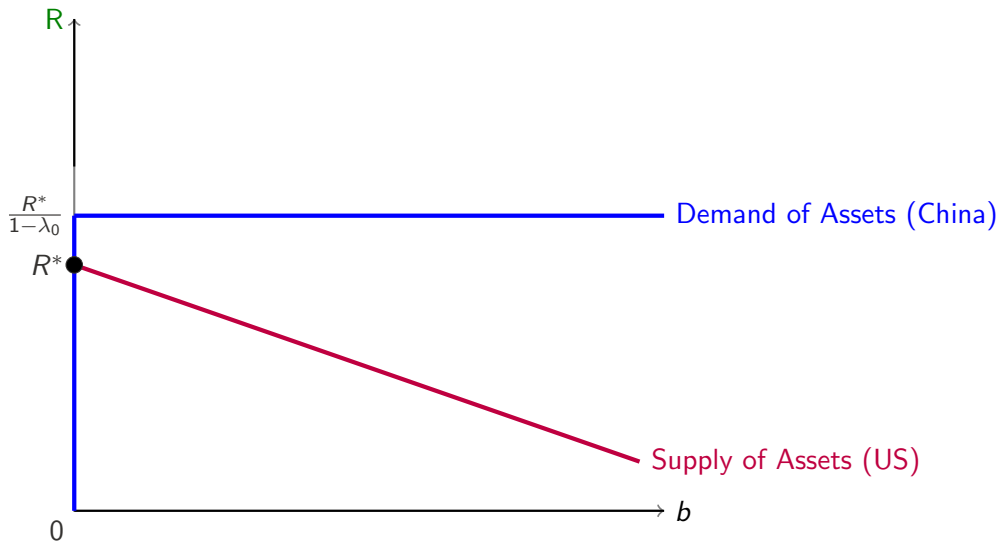
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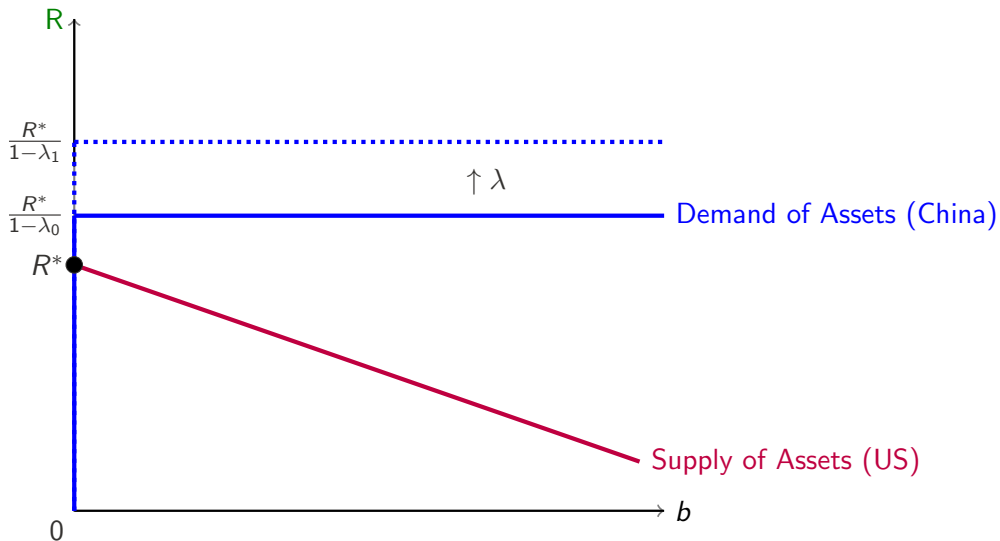
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$$\Rightarrow b = \frac{1}{\omega} (R^* - R) = 0,$$

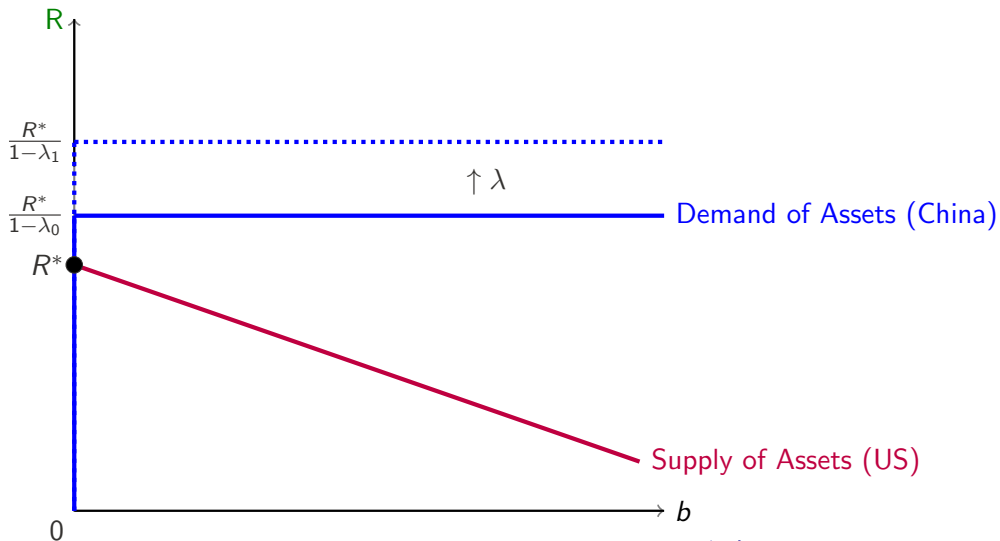
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Note: Exchange rate unaffected: $e_1 = \frac{1+i}{R} e_2$

Frictionless II: No costs from issuing safe assets

Result 2. *Suppose $\omega = 0$ (perfectly elastic supply). Then, an increase in sanctions λ lowers dollar portfolio, b , but has no effect on the exchange rate.*

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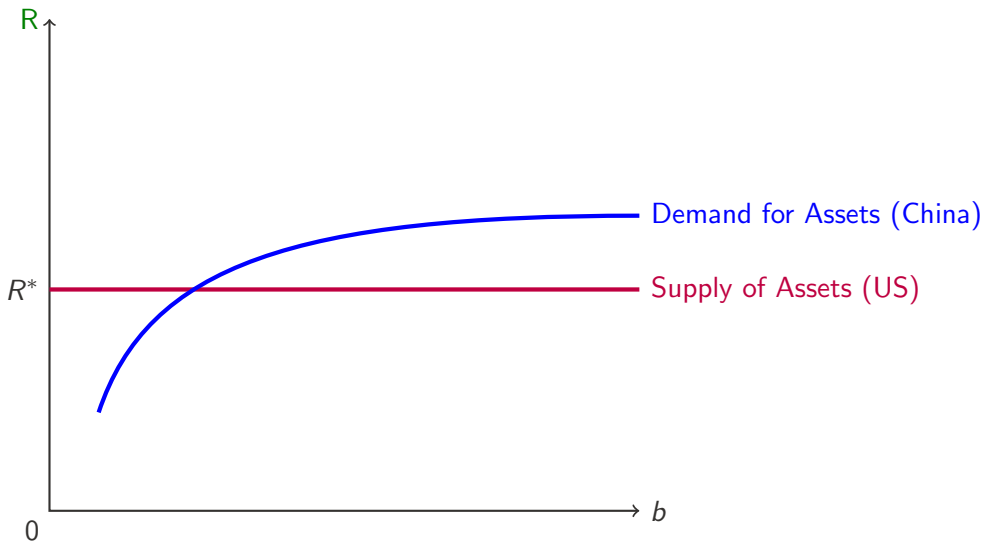
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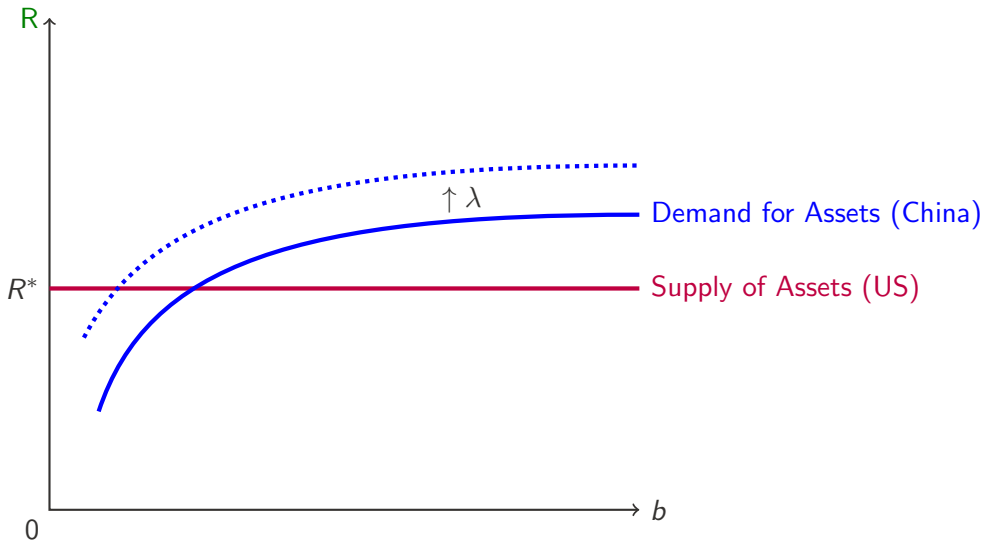
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- In equilibrium $R=R^* \Rightarrow$ exchange rate unaffected
 - If $R < R^*$, US supplies ∞
 - If $R > R^*$, US does not supply dollar assets
- US asset supply $b = [0, \infty]$
- Increase in sanction reduces Chinese demand $b^* \Rightarrow$ Lower quantity traded

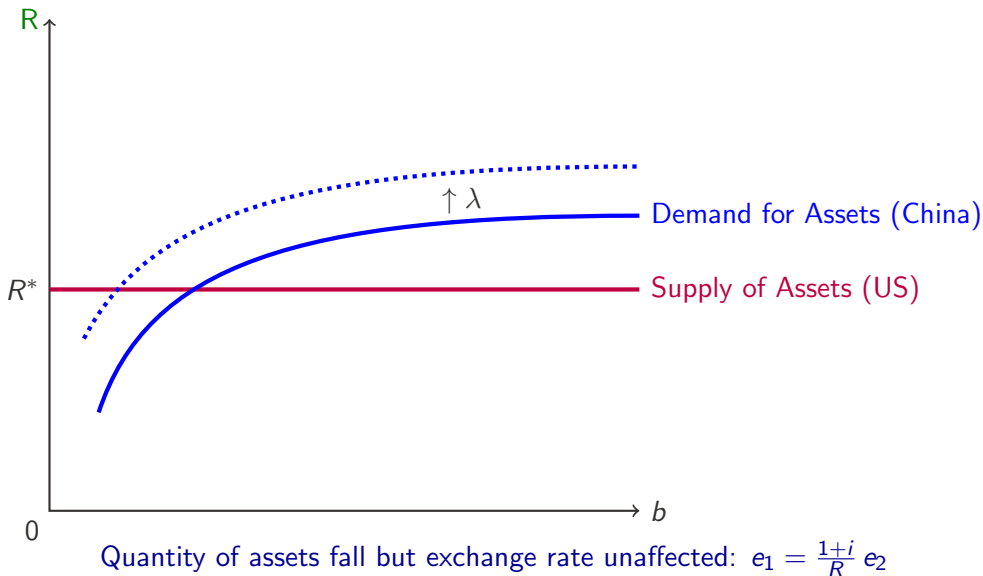
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Benchmark Model with Friction

Weakening of the Dollar

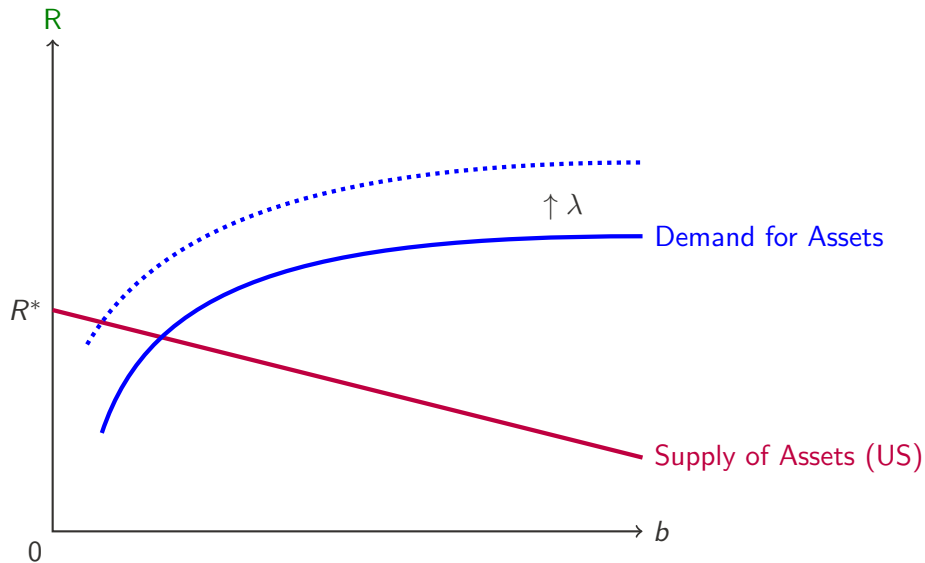
Result 3. Assume $\omega > 0$ and $v(\cdot) > 0$. An increase in sanctions λ increases R , decreases $R(1 - \lambda)$, depreciates the dollar, and lowers dollar portfolio b^* .

Benchmark Model with Friction

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Weakening of the Dollar



Welfare Implications

- China always loses from sanctions
- US loses from higher interest rate (lower exorbitant privilege)
 - Loss = $\Delta R \times$ new issuances

Welfare (ctd): Valuation effects

- Extend model with **non-zero** initial portfolio
 - China is further hurt by dilution of its real assets
- Could US gain?

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Answer depends on monetary policy:

- If monetary policy can achieve efficient allocation, US always loses
 - Envelope argument: If the US chooses optimally e , it cannot gain from a depreciation induced from the effect of sanctions
- **If monetary policy is constrained** (e.g. ZLB), sanctions do not necessarily hurt US

Role of Monetary Policy

Baseline analysis assumes that i is constant

- Extension of the model with non-tradables and inflation targeting
- Lower exorbitant privilege lowers demand $\Rightarrow$ real depreciation
 $\Rightarrow$ calls for $\downarrow i \Rightarrow$ reinforce depreciation

Conclusions

Simple theory that articulates how sanctions can weaken the US dollar

- Key ingredients: (i) non-pecuniary value of US dollars; (ii) downward sloping supply of assets

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One caveat:

- Sanctions may act as deterrents and raise dollar demand through other channels

Agenda:

- How geopolitical tensions can increase capital flows between aligned countries (Bianchi and Sosa-Padilla, 2023)