Dollar Erosion: Understanding the Loss of Reserve Currency Status

Hoover Economic Policy Working Group

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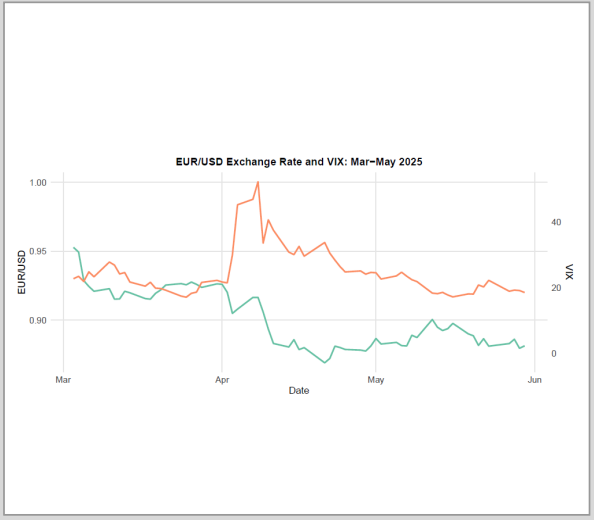
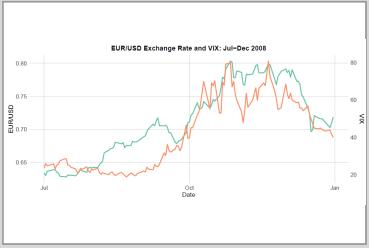
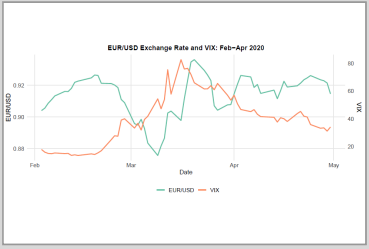
Outline

1. Data:
   - Shift in correlations: behavior of the dollar and Treasurys after the tariff shock
2. Model and calibration:
   - How much has the dollar been appreciated because of dollar reserve asset demand?
   - How much will the dollar depreciate if dollar reserve asset demand disappears?
   - What is the wealth loss to the U.S. in this last case?

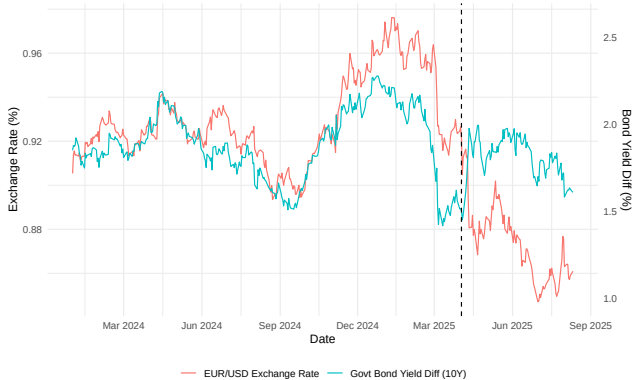
Flight to dollar?





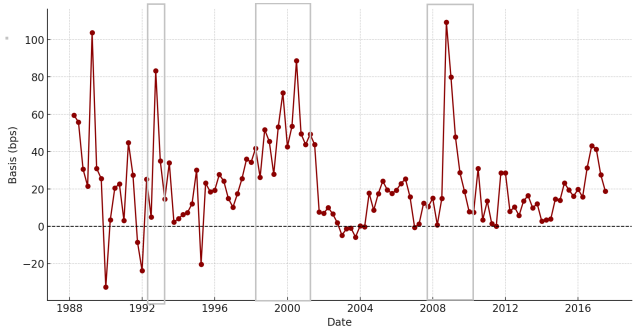


Flight to Treasuries? 10 year Euro-USD yield differences vs Euro/USD exchange rate



- Back-of-envelope: 10-year yield differences widen by 50 bps; LR UIP for 10 years $\Rightarrow$ dollar should appreciate at least 5%
- Dollar depreciates 6.5%

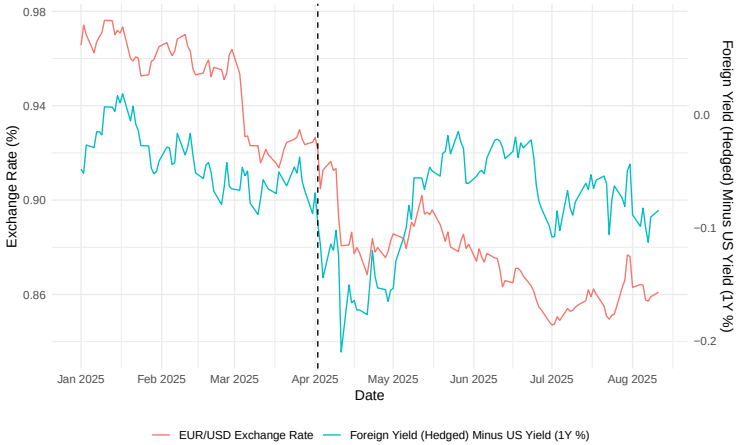
US Treasury vs G10 1-year Government Bond CIP wedge



- $\hat{y}_{G10,1year} = y_{G10,1year} + logF_{G10,1year} - logX_{G10,1year} \quad \Rightarrow \quad$ CIP-wedge $= \hat{y}_{G10,1year} - y_{\$Tbill,1year}$

Note: sign flipped relative to Du, Im, Schreger (2018) and Jiang, Krishnamurthy, Lustig (2021)

Flight away from Treasury: 1-year Government Bond Basis

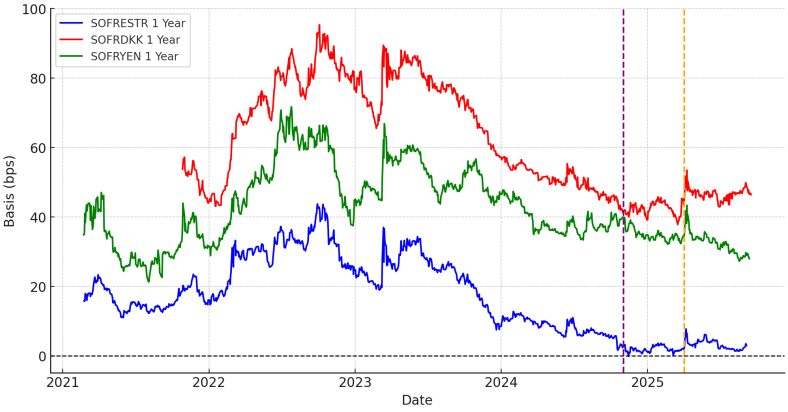


- spread = 1-year Bund FX swapped to dollars − US 1 year Treasury

Euro/USD Safe Asset Basis

- Premium on short-term Treasury relative to Euro short-term safe asset rate (Euro ESTR)
- spread = Euro ESTR FX swapped to dollars − US 1 year Treasury

1-year Euro, DKK, Yen Asset Basis



- $v_t^{(1)}$ = Foreign short-term swapped to dollars − short-term US$ repo

Taking stock

1. Dollar depreciated after April 2 – not appreciated!
2. Flight away from Treasurys
3. The richness of dollar short-term safe assets relative to Euro safe assets has fallen over the last 5 years to near zero over the last 6 months.
4. Also fallen relative to other currency safe assets, but less so

Model-based computation

- Model where U.S. exports "liquidity services" to the rest of the world
- What happens if demand for those services go to zero?

$$x_t = \sum_{j=0}^{9} \mathbb{E}_t[r_{t+j}^{US} - r_{t+j}^{EU}] + \sum_{j=0}^{9} \mathbb{E}_t[cy_{t+j}] - \sum_{j=0}^{9} \mathbb{E}_t[rp_{t+j}] + \mathbb{E}_t[x_{t+10}].$$

- How much has the dollar been appreciated because of dollar reserve asset demand?
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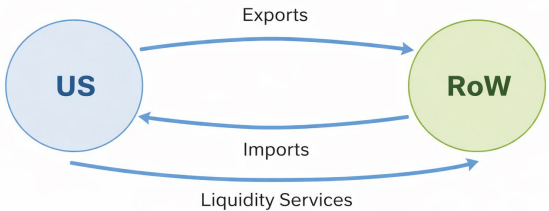
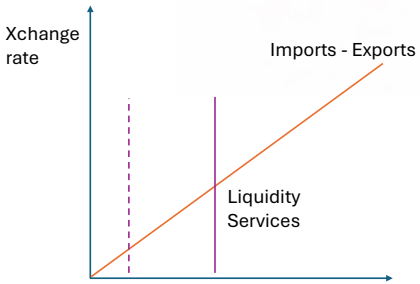
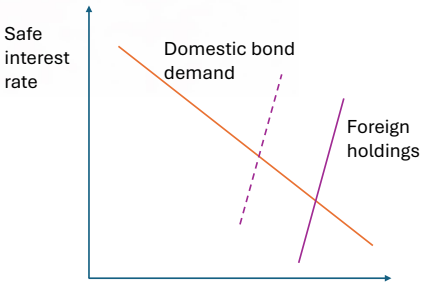
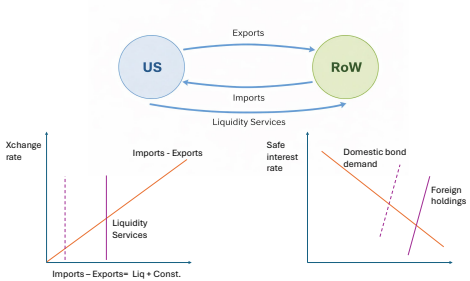
Model


Exports
US
RoW
Imports
Liquidity Services


Xchange rate
Imports - Exports
Liquidity Services
Imports – Exports= Liq + Const.


Safe interest rate
Domestic bond demand
Foreign holdings

Quantification



- U.S. safe bond/GDP ratio (2016) 150%
- Share held by foreign investors 30%
- Convenience yield on dollar safe assets: 2%
- Export, import elasticities: trade literature 0.3
- Bond demand curve elasticity: Krishnamurthy-Vissing-Jorgensen (JPE 2012)

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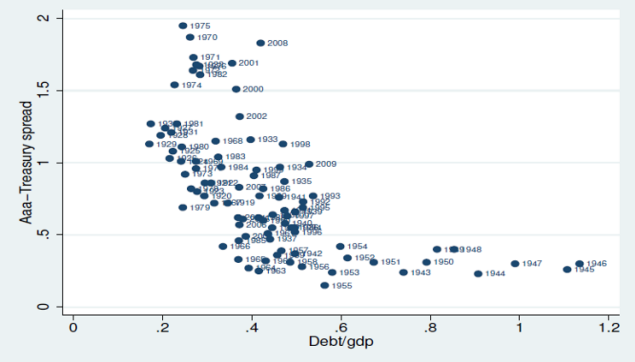
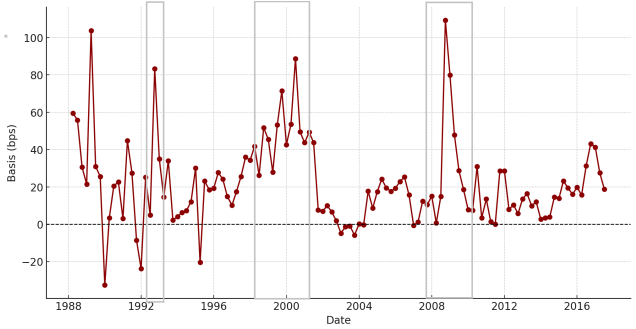


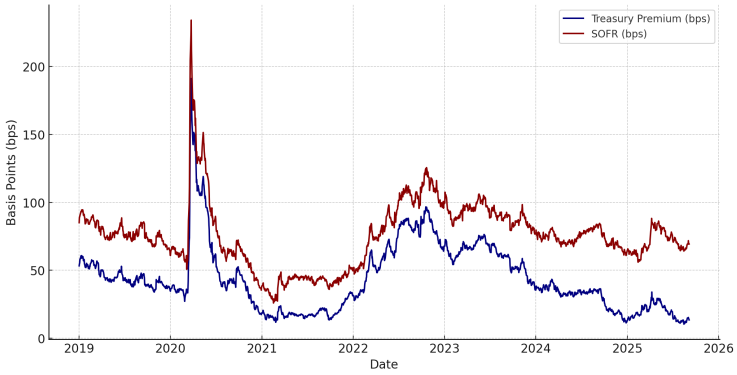
US Treasury vs G10 1-year Government Bond CIP wedge



- $\hat{y}_{G10,1year} = y_{G10,1year} + logF_{G10,1year} - logX_{G10,1year} \quad \Rightarrow \quad$ CIP-wedge $= \hat{y}_{G10,1year} - y_{\$Tbill,1year}$
- Jiang, Krishnamurthy, Lustig (2021):
  UIP-wedge $= M \times$ CIP-wedge; exchange rate moves with UIP-wedge to estimate M.
- Estimate foreign safe asset investors were willing to forgo around 2% per annum to own dollar safe assets

Note: sign flipped relative to Du, Im, Schreger (2018) and Jiang, Krishnamurthy, Lustig (2021)

Dollar Safe Asset Spreads, 10 year maturity Treasury (blue), short-term repo (red)



- spread = [investment grade corporate yield - CDS] – safe rate

Convenience Lost

	Baseline	Convenience Loss	Difference
Debt Held Abroad/GDP (%)	45.00	0.00	-45.00
Seigniorage/GDP (%)	0.90	0.00	-0.90
Trade Balance/GDP (%)	-0.90	0.00	0.90
Import/GDP (%)	5.37	5.11	-0.26
Export/GDP (%)	4.47	5.11	0.65
H Goods Consumed by H (%)	95.53	94.89	-0.65
F Goods Consumed by F (%)	94.16	94.89	0.73
Log Dollar FX (%)	7.62	0.00	-7.62
Conv Yield (%)	2.00	1.08	-0.92
Dollar Interest Rate (%)	0.53	1.45	0.92

Note: Baseline steady state is 2016; Convenience loss is a future date debt held abroad goes to zero.

Interpreting 7.62%

$$x_t = \sum_{j=0}^{9} \mathbb{E}_t[r^{US}_{t+j} - r^{EU}_{t+j}] + \sum_{j=0}^{9} \mathbb{E}_t[cy_{t+j}] - \sum_{j=0}^{9} \mathbb{E}_t[rp_{t+j}] + \mathbb{E}_t[x_{t+10}].$$

- Comparison across steady states, in one case where foreign demand for US safe assets falls (... and nothing else changes)
- Real exchange rate
- $\eta = 0.3$ is a long-run trade elasticity

PV of lost seignorage

- Seignorage of 45% of GDP of dollar bonds $\times$ 2% convenience yield
- Loss of 0.90% of GDP.
- Asset values should reflect part of this in franchise values of safe asset issuers (banks) and value of collateral assets (housing)
- PV of future tax burden on US households falls

PV using finance

- Loss of 0.90% of GDP.
- Loss on a slice of GDP, a risky growing stream
- Current AQR discount rate model is 1.7% risk free plus equity risk premium of 1.6%, and growth of 1.8%
- Assume beta on GDP is 2/3 (Jiang et. al., 2024):

$$\frac{seigniorage}{r-g} = \frac{0.90\%}{0.97\%} = 93\%$$

or roughly $29 trillion.

Conclusion

- April 2, and events leading up to it, reflect loss of dollar convenience/reserve demand and not direct impact of tariffs
- Exchange rate effects are present but modest in the calibrated exercise
- Interest rate and valuation effects are large