Long-Run Currency Shocks

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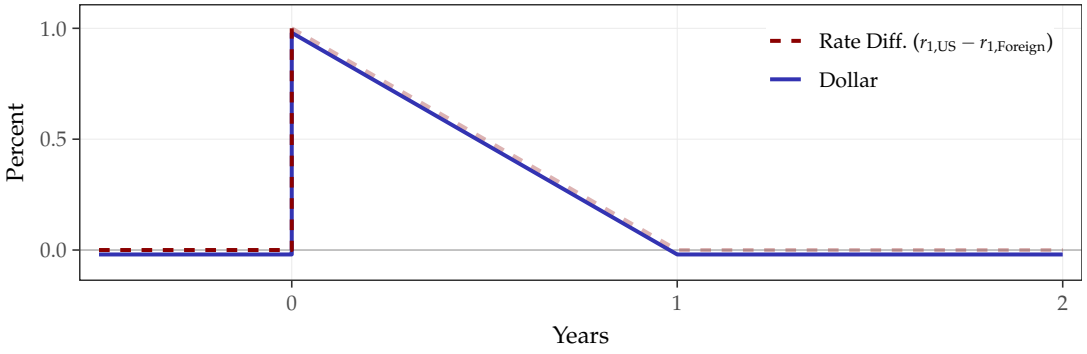
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NOVEMBER 2026

Background: Rates and the Dollar

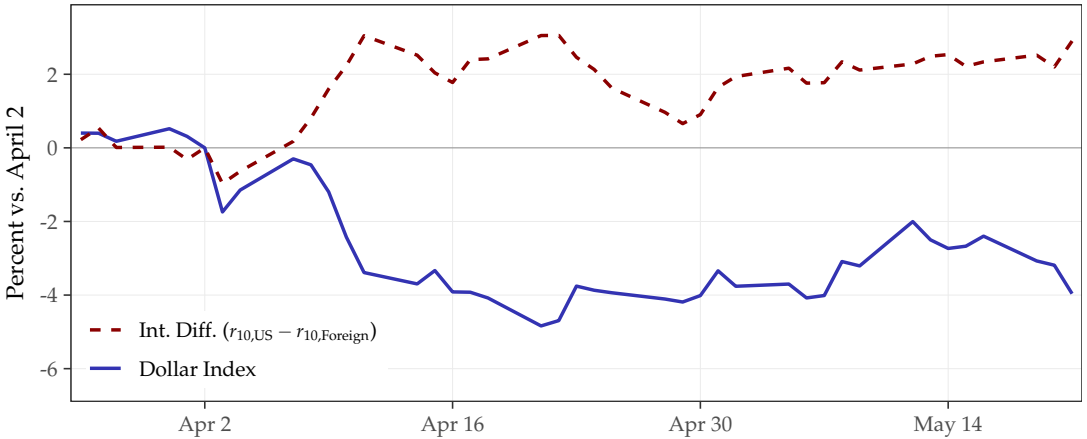
Classic UIP view: High relative rates $\iff$ stronger dollar & future depreciation:



- Well known: UIP fails to predict **future** FX changes well
- But generally describes **current comovements** well [Dornbusch 1976; Kekre & Lenel 2024]
  [Monthly data: Real dollar rises ∼0.8% per 1% of extra US interest]

Puzzling Episodes

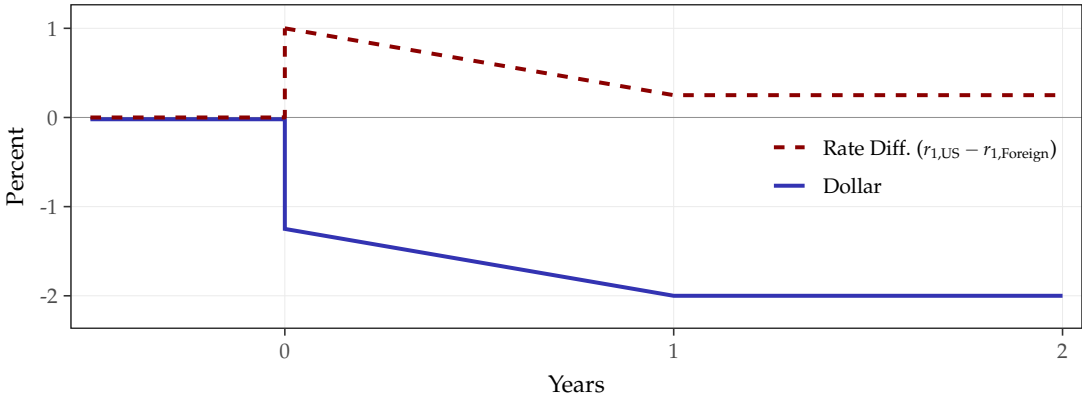
Around large FX moves, often see the opposite. April 2025 tariffs:



- Similar puzzles: Brexit (2016), G7 currency dispute with Japan/China (2003)

Permanent Changes in the Dollar?

Persistent drop in demand for US assets & increased premium on $ bonds:



- Initial fall **consistent with rate rise** if dollar's **long-run level drops**

$\Longrightarrow$ **How much of a currency move do forecasters see as permanent?**

Measuring Shifts in Currency Demand

- Models back out **latent** demand shifts from prices/holdings
  [Jiang et al. 2021; Itskhoki & Mukhin 2025; Kekre & Lenel 2026; Koijen & Yogo 2026, . . .]

- **This paper:** Provide direct evidence with **survey forecasts** of exchange rates
  - Makes sense of not just 2025 but many past episodes & comovement with policy

- With forecasts out to 4 years & yield curves, decompose dollar into **long-run level** + **temp. term**
  - Disciplined by yield diff. & currency risk premium from surveys
  - Estimate model of expected path & premium to go beyond 4 years

- **Simple GE model:** Permanent fall in demand for US assets $\Longrightarrow$ weaker dollar & higher US rates

Main Results

Model with perceived permanent shifts fits the data much better & helps make sense of FX puzzles:

1. **What drives exchange rates:** Big changes are often perceived permanent shifts (±2 SD: ∼60%)
   - In 2025 the long-run dollar ↘ 3–5% in 3 months, even as US rates ↗
   - Big geopolitical shocks abroad raise the long-run dollar, big US shocks lower it
   - Typically small currency risk premium

2. **UIP:** Forecasters' long-run dollar falls when US rates rise, then partly reverses within a year
   - Forecasters are right on average, but overpredict dollar depreciation when US rates are high

3. **Dollar & asset demand:** Higher rates driven by lower demand for US assets come with a weaker $
   - Long-run dollar is ∼6% lower per point of the US pure discount rate ρ^*
     [pure discount rate: part of r^* not explained by growth or risk, from Gormsen & Lazarus 2026]
   - Simple model: Permanent fall in demand $\Longrightarrow$ lower $, higher required bond & equity returns

Related Literature

1. UIP & long-run expectation errors [Fama 1984; Froot & Frankel 1989; Farmer, Nakamura, Steinsson 2024]
   - UIP's forecasts fail because forecasters' long-run dollar falls with US rates, then partly reverses within a year

2. Demand shifts & exchange rates [Gabaix & Maggiori 2015; Itskhoki & Mukhin 2021; Kekre & Lenel 2024]
   - Exchange rate is mean-reverting in these models, but forecasters treat big shifts as permanent
   - Simple model with convenience of US bonds & equity: Permanent shifts move ρ^* & the long-run dollar

3. Long-run FX drivers [Chinn & Meredith 2004; Hassan & Mano 2019; Schmitt-Grohé & Uribe 2022]
   - Permanent shifts line up with the US pure discount rate & country events
   - Also relate to earlier literature on permanent shocks & PPP [Campbell & Clarida 1987; Froot & Rogoff 1995]

4. The dollar in 2025 [Itskhoki & Mukhin 2025; Jiang et al. 2025; Kekre & Lenel 2026]
   - Surveys show a perceived permanent fall, as in many past episodes

Roadmap

1. Introduction
2. Data and Measurement
3. Long-Run Currency Shocks
4. Explanations & A Simple Model
5. Final Notes

Data

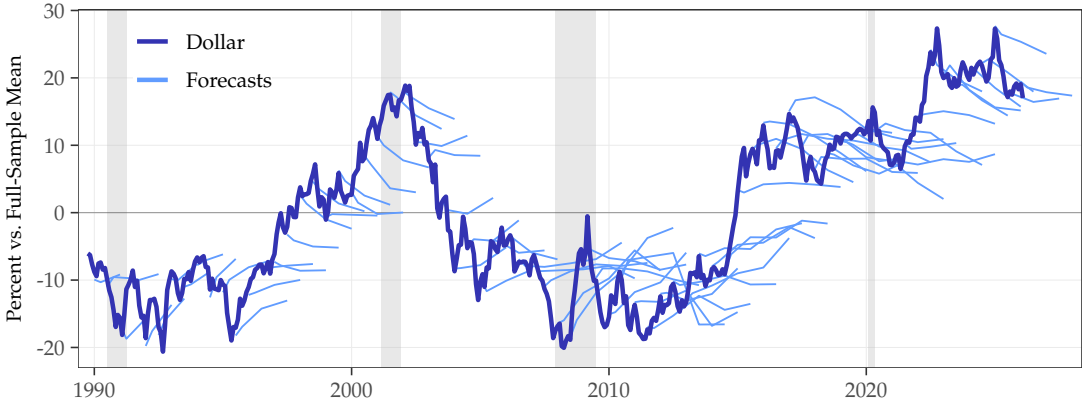
Goal: Each month, expected exchange-rate path and long-run level

- **Survey forecasts** of dollar exchange rates
  - Consensus Economics: 3 months, 1 & 2 years ahead [monthly 1989–2026, 50+ forecasters]
  - Bloomberg: 3 months to 4 years ahead [2006–2026, ∼40 forecasters, pulled directly]
- **Currencies:** The four advanced-economy currencies with consistent forecasts vs. USD
  - Euro, yen, pound, Canadian dollar
  - Our dollar index: The four weighted as in the Fed's dollar index [up = dollar appreciation]
  - Separately: Consider panel of the four bilateral exchange rates for some tests
- **Yield differentials** $\Longrightarrow$ expected exchange-rate path under UIP
  - Yield curves out to 4 years, then Consensus forecasts of 10-year yields 6–10 years ahead
- **Real terms:** Deflate spot by relative CPI, forecasts & yields by forecasters' expected inflation

Details

Forecasters' Expected Paths for the Dollar

Dollar index & survey forecasts 3 months to 4 years ahead, each January & July:



- Stitch Consensus (to 2 years) with Bloomberg (2+ years) for this, but treat separately in estimation
- Forecast paths suggest persistence in much of the sample

UIP and the Currency Risk Premium

Need some structure to extend beyond 4-year horizon. Start from an identity:

$$\underbrace{\mathbb{E}_t[s_{t+h}] - s_t}_{\text{[log \$ appreciation]}} = \underbrace{-h\left(r^{(h)}_{t,\text{US}} - r^{(h)}_{t,\text{Foreign}}\right)}_{\text{[UIP: yield diff.]}} + \underbrace{h\lambda^{(h)}_t}_{\text{[currency risk premium]}}$$

- Wedge $\lambda^{(h)}_t = \frac{\mathbb{E}_t[s_{t+h}]-s_t}{h} + \left(r^{(h)}_{t,\text{US}} - r^{(h)}_{t,\text{Foreign}}\right) \iff$ **currency risk premium** for \$ vs. foreign
- **UIP:** Zero risk premium $\implies \mathbb{E}[\text{depreciation}] = \text{yield differential}$
- For the first 4 years, the perceived risk premium can be measured directly
  (see forecasted s_{t+h} from surveys & directly observe yield differentials)

Measuring the Long-Run Dollar

Solve forward for s_t and take $h \to \infty$ to decompose the dollar into two parts:

$$\mathbb{E}_t[s_{t+h}] - s_t \quad = \quad -h\,(r^{(h)}_{t,\text{US}} - r^{(h)}_{t,\text{Foreign}}) \quad + \quad h\lambda^{(h)}_t$$

Measuring the Long-Run Dollar

Solve forward for s_t and take $h \to \infty$ to decompose the dollar into two parts:

$$
\begin{aligned}
s_t &= \mathbb{E}_t[s_{t+h}] + h\left(r^{(h)}_{t,\text{US}} - r^{(h)}_{t,\text{Foreign}}\right) - h\lambda^{(h)}_t \\
&= \underbrace{P_t}_{\text{[long-run level]}} + \underbrace{R_t - \Lambda_t}_{\text{[transitory: yield diff.}-\text{RP]}}
\end{aligned}
$$

- $P_t \equiv \lim_{h\to\infty} \mathbb{E}_t[s_{t+h}]$: Forecasted long-run level
- $R_t \equiv 4\left(r^{(4)}_{t,\text{US}} - r^{(4)}_{t,\text{Foreign}}\right)$: Yield diff. at longest observed currency forecast horizon
- $\Lambda_t \equiv 4\lambda^{(4)}_t + \sum_{j=4}^{\infty}(\mathbb{E}_t[\lambda^{(1)}_{t+j}] - c_t)$, where c_t is long-run mean risk premium

[Similar to Campbell & Clarida 1987]

Measuring the Long-Run Dollar

Solve forward for s_t and take $h \to \infty$ to decompose the dollar into two parts:

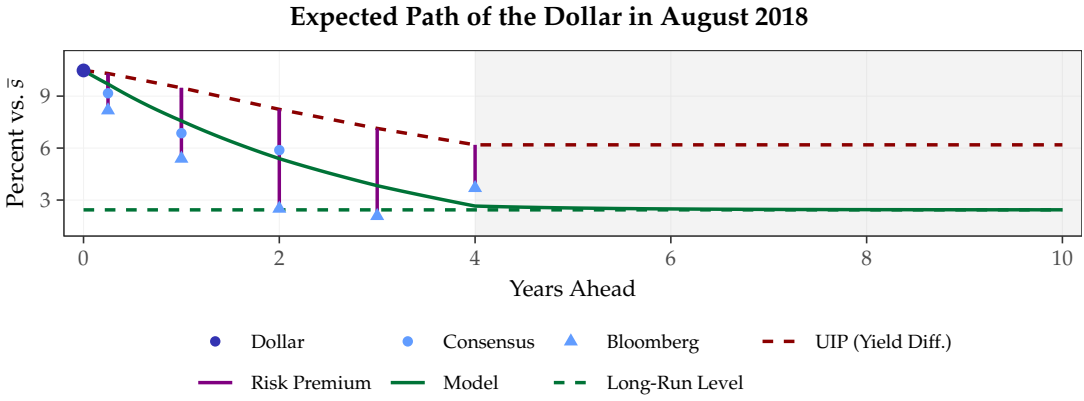
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- $\Lambda_t \equiv 4\lambda^{(4)}_t + \sum_{j=4}^{\infty}(\mathbb{E}_t[\lambda^{(1)}_{t+j}] - c_t)$, where c_t is long-run mean risk premium
  - To rule out drift in s_t, assume $c_t =$ long-run yield differential [Engel 2016; Dahlquist & Pénasse 2022]
  - Measure c_t from Consensus forecast of 10-year yields, 6–10 years ahead

Imposing this structure & fitting perceived risk premia: Better fit IS & OOS

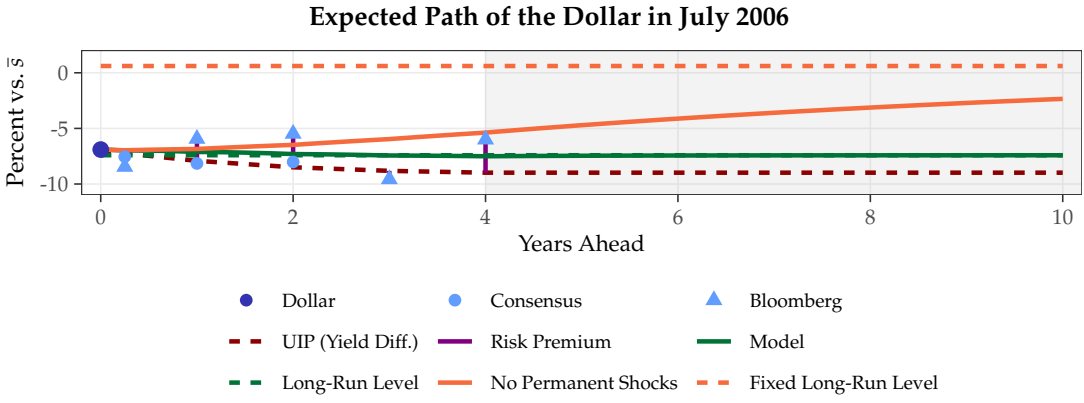
Alt.: Statistical trend + cycle model

Model Estimation: Illustration



- Gap between surveys & dashed line: Risk prem. *(neg. here: $ expected to depreciate more than yield diff.)*
- Model fits the risk premium out to 4 years & extends it to get the long-run level P_t
- Forecasters see most of the dollar's strength here as temporary

Importance of Long-Run Shocks



- No permanent shocks: Otherwise identical model with the long-run level held fixed
- Stationary version fits spot & forecasts much worse

  (excessive mean reversion $\Longrightarrow$ likelihood ratio of $\sim$½ per month vs. main model)

Formal Model and Estimation

To extend past forecast horizon, simple setup for risk prem. & Kalman filter estimation:

- **State:** AR(1) component of the one-month risk premium λ_t around its long-run mean c_t:

$$\lambda_t = c_t + m_t, \qquad m_t = \psi\, m_{t-1} + \zeta_t$$

$$[\widehat{\psi} = 0.943 \iff \text{half-life: 11.7 months}]$$

- Horizon-h risk premium: $\lambda_t^{(h)} = \frac{1}{h}\sum_{j=0}^{h-1} \mathbb{E}_t[\lambda_{t+j}]$

Term premia

Formal Model and Estimation

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$$[\widehat{\psi} = 0.943 \iff \text{half-life: 11.7 months}]$$

- **Measurement:** Dollar; forecasts with share θ not updated, persistent & i.i.d. error:

Details

$$s_t = \mathbb{E}_{t-1}[s_t] + \xi_t, \qquad f_{h,t} = (1-\theta)\left(\mathbb{E}_t[s_{t+h}] + e_t\right) + \theta f_{h,t-1} + u_{h,t}$$

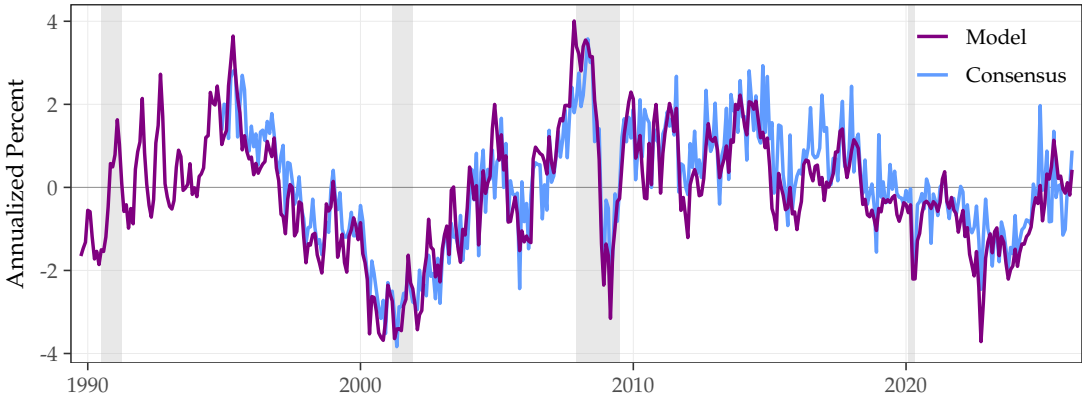
$$[\theta \approx 0.5 \text{ from 3-month forecasts; } e_t \text{ follows an AR(1)}]$$

- **Estimation:** Kalman filter on the dollar & 8 forecast series
  - UIP-based structure: Set $\mathbb{E}_t[s_{t+h}] = s_t - h\,(r^{(h)}_{t,\text{US}} - r^{(h)}_{t,\text{Foreign}}) + h\,c_t + \frac{1-\psi^h}{1-\psi}\, m_t$ in $s_t, f_{h,t}$ meas. eq.
  - After estimating, back out long-run P_t

Stationary model

Estimates: The Currency Risk Premium

2-year currency risk premium $\lambda_t^{(2)}$ from the model & directly from Consensus forecasts:



- Model's risk premium: Stationary, usually small, lines up with direct measure
- Panel: $\lambda_t^{(2)}$ predicts realized 2-year excess $ returns one for one

Premium

Estimates: The Long-Run Dollar

Dollar index s_t & its long-run level P_t:



- Forecasters see much of a big change in the dollar as permanent
  - When $|\Delta s_t| \geqslant 2$ SD: ΔP_t accounts for 56% of 1y spot variance, 72% of 2y (vs. ∼50%)

Roadmap

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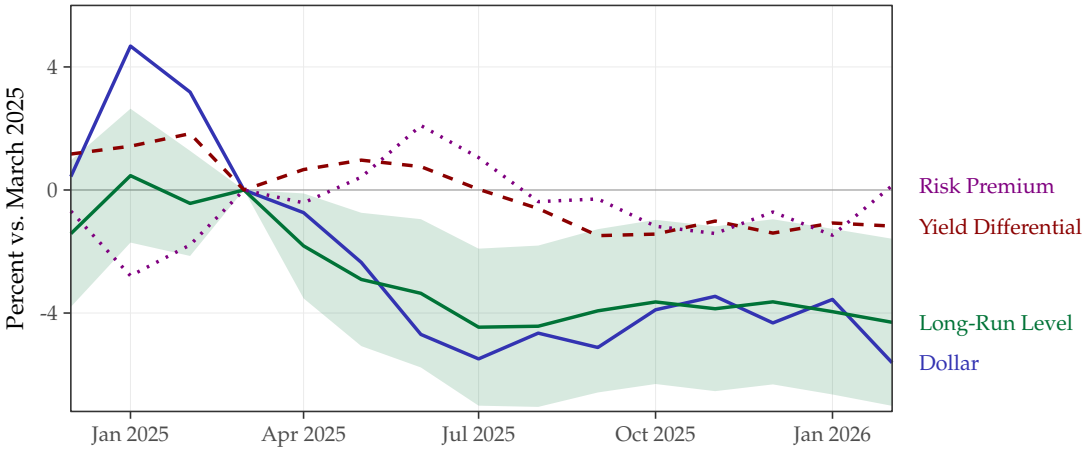
2. Data and Measurement

3. Long-Run Currency Shocks
   - 2025 & Past Episodes
   - Geopolitical Risk
   - Rates and the Dollar

4. Explanations & A Simple Model

5. Final Notes

The Dollar in 2025



- From March to June, the long-run dollar fell 4% even as US rates rose
- By July, forecasters saw about 80% of the dollar's fall as permanent

Brexit and the 2003 G7 Statement

Do forecasters also see earlier currency moves as permanent?

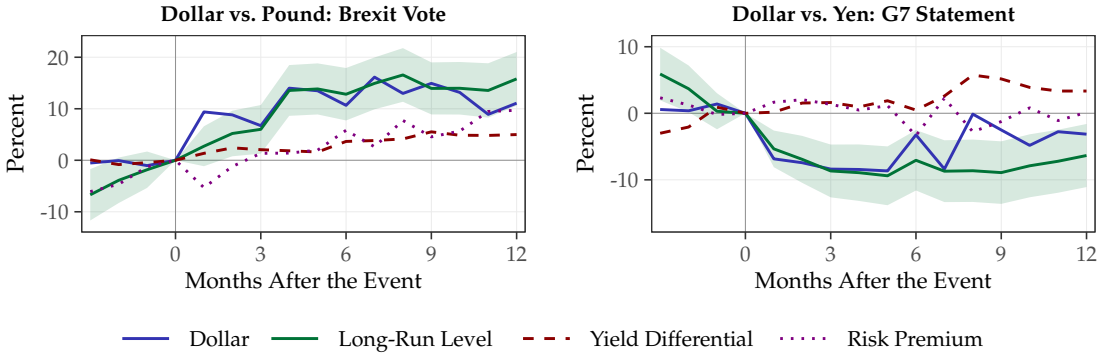
Sept. 2003: G7 calls for flexible exchange rates, aimed at Japan & China

"If Japan and China were to heed the G7's call, investors reasoned, the value of the dollar would drop. U.S. stock prices slid on fears that a decline in the dollar would **scare away foreign investors**, make U.S. investments less attractive and **drive up interest rates**." [Washington Post, Sept. 23, 2003]

"Investors are concerned that if governments stop intervening, **demand for U.S. debt will plunge**." [New York Times, Sept. 23, 2003]

Brexit and the 2003 G7 Statement

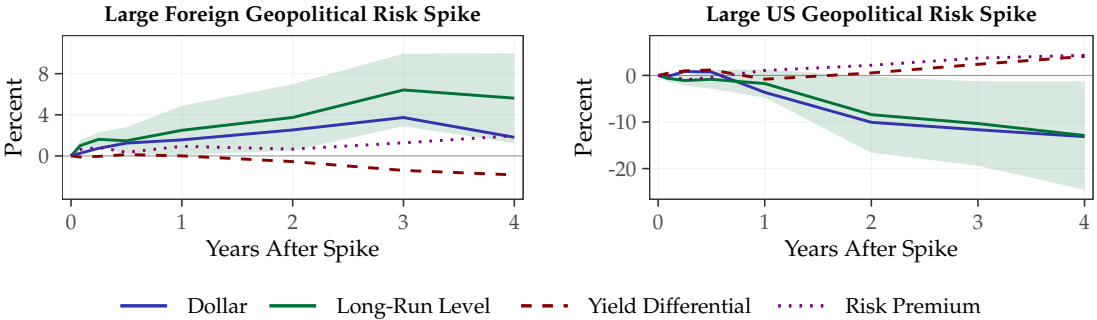
Do forecasters also see earlier currency moves as permanent?



- Big moves in the dollar with little change in yield differentials
- 2003: Weaker dollar together with higher US rates, as in 2025
- Long-run level moved with the exchange rate

Geopolitical Risk and the Long-Run Dollar

Aside from specific episodes, large geopolitical risk spikes $\Longrightarrow$ sig. moves in LR dollar:

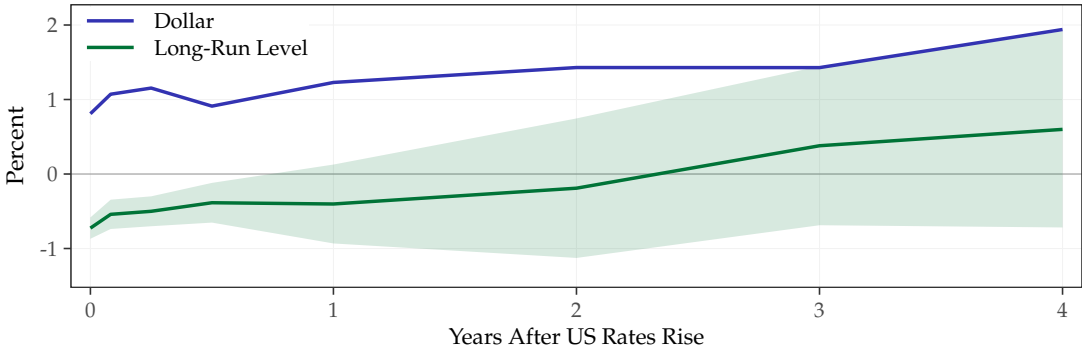


- Spike: Log geopolitical risk index more than 2 SDs above its one-year average [Caldara & Iacoviello 2022]
- Big US shocks lower the long-run dollar by ∼10%, even as relative US rates rise
- Keeps moving for 2–3 years [consistent w/ some underreaction; Augenblick, Lazarus, Thaler 2025]

Details

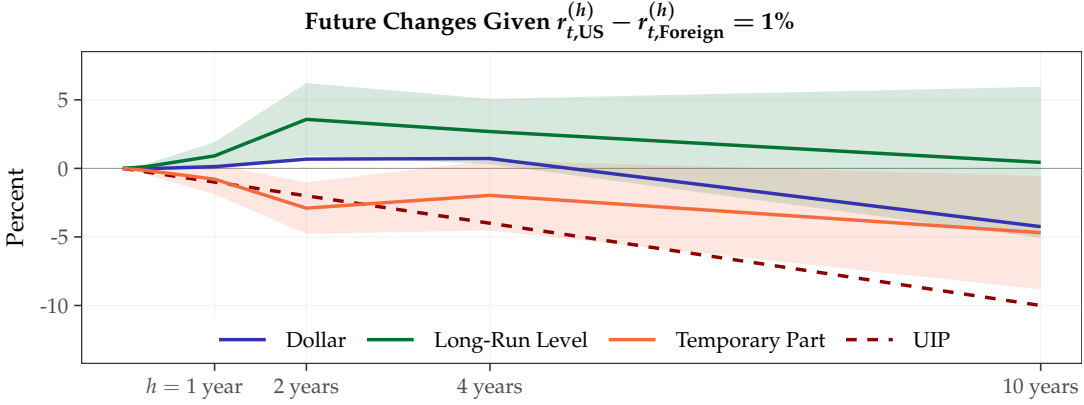
Rate Rises and the Long-Run Dollar

Do purely rate-driven moves in the long-run dollar also persist? Responses per 1% of extra US interest:



- Dollar rises ∼0.8% & long-run level falls ∼0.7% given 1% increase in R_t
- Around half of perceived fall in LR $ predictably reverts within a year

UIP and the Long-Run Dollar



- Temp. part depreciates when US rates are high, consistent with UIP
- Forecasters revise the long-run dollar upward, offsetting that depreciation over 1–4 years
- **Forecast errors in LR dollar help explain UIP failure**

Unconditional: Right on average

The Long-Run Dollar and the Pure Discount Rate

When do higher US rates come with a permanently weaker dollar?

Regressions of the Long-Run Dollar & Risk Premium on US ρ^*

$$y_t = \alpha + \beta\, \rho^*_{\text{US},t} + \epsilon_t$$

	(1) Long-run level	(2) 2-year risk premium
US ρ^*	−5.61**	0.45*
	(1.61)	(0.21)
Obs.	86	86
R^2	0.23	0.04

Dollar index, 1990–2023. SEs are HAR [Lazarus et al. (2018)].

- Pure discount rate ρ^*: Part of the long-run real rate not explained by expected growth or risk, $r^* = \rho^* + \text{growth} - \text{risk}$ [Gormsen & Lazarus 2026]
  - From long-term Consensus forecasts & option-implied uncertainty
- Higher US ρ^*: Weaker long-run dollar & higher risk premium on dollar bonds
- Pure discount rate $\iff$ US asset demand
  [Higher ρ^* also reduces equity valuations]
- **Unlike general rate rises, avg. change in long-run $ here is permanent** Details

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A Simple Model of Demand for US Assets

- Two-country model combining segmented markets with financiers & US asset convenience
  [Itskhoki & Mukhin 2021; Kekre & Lenel 2024, 2026; Jiang et al. 2026]
- US has gross positions: Dollar debt abroad & foreign-currency assets
- Home bias in goods, so higher US trade surplus requires weaker dollar
- How lower foreign demand for US assets affects the dollar:
  - Financiers absorb foreign sales at a higher risk premium $\Longrightarrow$ dollar falls immediately
  - US households also absorb sales over time, raising required bond & equity returns
  - US pays higher r on its debt $\Longrightarrow$ need improved trade surplus, weaker long-run dollar
- Fall in foreign demand can be modeled in multiple ways; we assume exogenous sale

Formal Setup

- **Goods:** Home bias; US trade balance $-\eta\, s_t$ improves when the dollar s_t falls
- **US households:** SDF $M_{t+1} = e^{-\rho^{\text{tp}} - \gamma g_{t+1}}$ (time pref. ρ^{tp}), convenience yield χ_t on US bonds & stocks:

$$\mathbb{E}_t[M_{t+1} R^j_{t+1}] = 1 - \chi_t \quad \Longrightarrow \quad r^f_{t+1} = \underbrace{\rho^{\text{tp}} - \chi_t}_{\text{[pure disc. rate } \rho_t\text{]}} + \underbrace{\gamma\, \mathbb{E}_t[g_{t+1}]}_{\text{[expected growth]}} - \underbrace{\tfrac{1}{2}\gamma^2\sigma^2}_{\text{[risk]}}$$

  - Convenience yield decreasing in their holdings of US assets H_t (% of GDP): $\rho_t = \bar{\rho} + \Gamma_H H_t$
- **Financiers abroad:** Currency risk premium rises with their holdings of US assets X_t: $\lambda_t = \bar{\lambda} + \Gamma_X X_t$
- **Segmented markets:** All households keep foreign assets fixed in \$ terms
- **Shock:** Foreign investors w/ inelastic demand permanently sell US assets N: $H_t + X_t = N$
- **External budget:** Linearized around $a_0 = 0$ (US foreign assets = initial debt abroad = D):

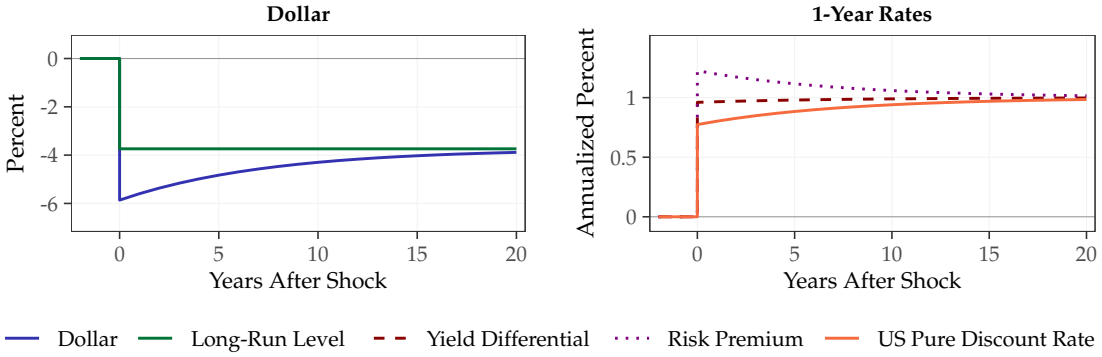
$$H_t = \underbrace{a_{t+1}}_{\text{[net foreign assets]}} = a_t \underbrace{- \eta\, s_t}_{\text{[trade balance]}} - \underbrace{D\left(r^f_{t,\text{US}} - r^f_{t,\text{Foreign}} + s_t - s_{t-1}\right)}_{\text{[excess return on dollar debt abroad]}}$$

- **Equilibrium:** Dollar adjusts so that trade & valuation effects sum to H_t

Details

Lower Foreign Demand for US Assets

Responses to a permanent fall in foreign demand, per point of US ρ^*:



- Dollar falls immediately, then partly recovers to a permanently lower level
- US rates rise permanently & risk premium jumps, then falls to the yield differential
- In line with the data, higher US ρ^* comes with a weaker dollar & most of the fall is permanent

Mechanisms & Alternatives

Model mechanisms apply for any permanent fall in foreign demand for dollar assets

- Financiers absorb foreign sales at a higher risk premium $\Longrightarrow$ dollar falls immediately
- US households also absorb sales over time, raising required bond & equity returns
- US pays higher returns on its debt $\Longrightarrow$ need improved trade surplus, weaker long-run dollar

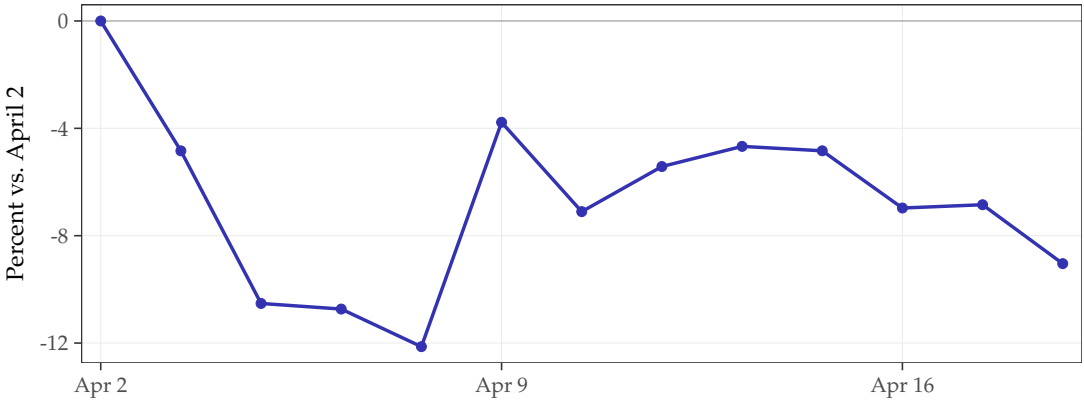
Other explanations fit only part of the data:

- US impatience: Same higher ρ^* & weaker long-run dollar, but a stronger dollar at first
- Lower convenience yield on Treasuries alone: Higher bond yields, but not equity yields
- Temporary fall in demand: No change in ρ^* or the long-run dollar

Other shocks

US Equities in April 2025

Model implies lower US equity prices. S&P 500 after April 2025 tariffs:



- US equities fell along with the dollar
- In line with the model: Lower demand raises expected returns on all US assets

Model equity yield

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Final Notes

Summary:

- Survey forecasts out to 4 years & yield curves measure where forecasters expect the dollar to end up
- Big currency moves are often perceived permanent shifts in currency demand
- Forecasters overpredict dollar depreciation when US rates are high, which helps explain failure of UIP
- Higher US rates driven by lower demand for US assets come with a weaker long-run dollar
  - Simple model: Permanent fall in demand $\Longrightarrow$ higher expected returns on US bonds & equity

Thank you!

Appendix

Survey Forecasts by Horizon

Sample Periods by Survey & Horizon

	3 months	1 year	2 years	3 years	4 years
Consensus	1989–2026	1989–2026	1994–2026		
Bloomberg	2006–2026	2006–2025	2006–2024	2006–2023	2006–2021

- Consensus: Mean forecast across forecasters
- Bloomberg: Median forecast on the Consensus survey day, interpolated to fixed horizons

Back to main

Statistical Trend + Cycle Model

- **Dollar s_t:** Random-walk trend q_t with constant drift μ + AR(1) cycle x_t, no direct role for rates:

$$s_t = q_t + x_t, \qquad q_t = q_{t-1} + \mu + \eta_t, \qquad x_t = \phi\, x_{t-1} + \varepsilon_t$$

- **Expected path:** $\mathbb{E}_t[s_{t+h}] = q_t + h\mu + \phi^h x_t$ (incl. stale & noisy forecasts)
- **Long-run level:** $P_t \equiv \lim_{h\to\infty} \left(\mathbb{E}_t[s_{t+h}] - h\mu\right) = q_t$
- Main results: Same or stronger in this model

Back to main

Term Premia in Yield Differentials

- US-minus-foreign term premium at horizon h:

$$\tau_t^{(h)} \equiv \left(r_{t,\text{US}}^{(h)} - r_{t,\text{Foreign}}^{(h)}\right) - \frac{1}{h}\sum_{j=0}^{h-1} \mathbb{E}_t\left[r_{t+j,\text{US}}^{(1)} - r_{t+j,\text{Foreign}}^{(1)}\right]$$

- Model's assumption $\lambda_t^{(h)} = \frac{1}{h}\sum_{j=0}^{h-1} \mathbb{E}_t[\lambda_{t+j}] \iff \tau_t^{(h)} = 0$
  - Needs no expectations hypothesis in either country, only equal US & foreign term premia
- Measured from Consensus 3-month rate forecasts, 2016–2026:
  - $\tau_t^{(h)}$ is 0.24% per year on average at 2 years, 0.34% at 4 years
- Relaxing the assumption doesn't change the long-run level *(vs. main model)*:
  - Expected 3-month rates in place of yields: Corr. 0.99, fell 5.7% from January to July 2025 vs. 5.0%

Back to main

Model Details

- Time t & horizon h in months; yields & long-run yield differential c_t as monthly rates here
- Expected path, from the identity with the model's assumption $\lambda_t^{(h)} = \frac{1}{h}\sum_{j=0}^{h-1} \mathbb{E}_t[\lambda_{t+j}]$:

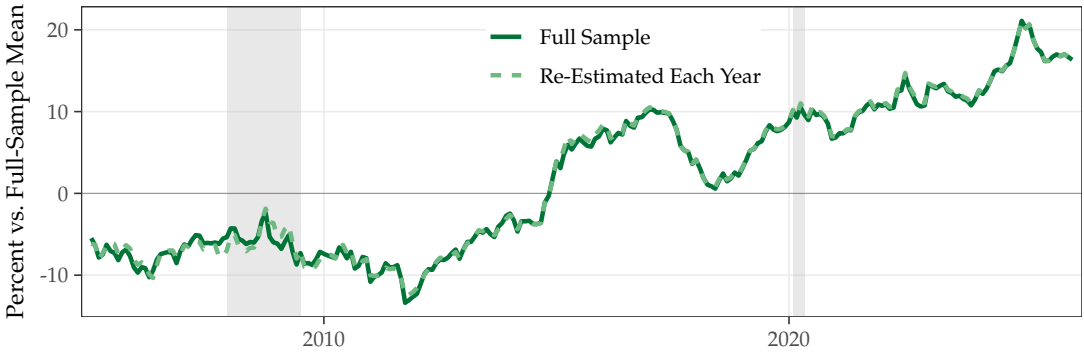
$$\mathbb{E}_t[s_{t+h}] - s_t = -h\left(r_{t,\text{US}}^{(h)} - r_{t,\text{Foreign}}^{(h)}\right) + hc_t + \frac{1-\psi^h}{1-\psi}\, m_t$$

- Beyond 4 years: $h\left(r_{t,\text{US}}^{(h)} - r_{t,\text{Foreign}}^{(h)}\right) = 48\left(r_{t,\text{US}}^{(48)} - r_{t,\text{Foreign}}^{(48)}\right) + (h-48)\, c_t$ for $h > 48$
- Dollar: $\mathbb{E}_{t-1}[s_t] = s_{t-1} - \left(r_{t-1,\text{US}}^{(1)} - r_{t-1,\text{Foreign}}^{(1)}\right) + \lambda_{t-1}$, using 3-month yields
- Surprise ξ_t in the dollar: Correlated with ζ_t
- Error e_t: Same for all surveys & horizons, independent of ξ_t & ζ_t
- Share θ of forecasts not updated: From how far 3-month forecasts move toward spot each month
- Noise $u_{h,t}$: A separate variance for each survey & horizon, with the same prior for both surveys

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Long-Run Dollar with Parameters Estimated in Real Time

Parameters estimated on the full sample or each year using only data through the previous year:



- Correlation of the two: 0.999 in levels & 0.94 in monthly changes

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Stationary Model

- **Main model:** Permanent shocks to long-run level P_t each month
- **Stationary version:** Same model with the long-run level held fixed at its sample mean, $P_t = \overline{P}$

$$\Longrightarrow \quad m_t = (1 - \psi)\left(\overline{P} - s_t + R_t - 4c_t\right)$$

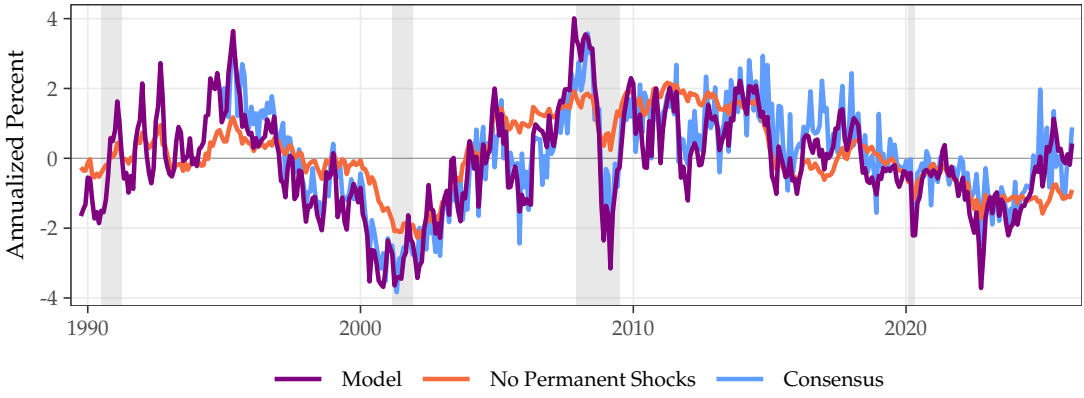
  - Risk premium has no shock of its own: Dollar returns to $\overline{P} + R_t - 4c_t$

- **Fit:** Log likelihood 8,502 vs. 8,802 in the main model, with 2 fewer parameters
  - Each month's dollar & forecast data about twice as likely with permanent shocks
  - Gain arises mostly from forecasts: Stationary version's errors in predicting them up to 41% larger

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Currency Risk Premium with No Permanent Shocks

2-year currency risk premium $\lambda_t^{(2)}$ from two models & directly from Consensus forecasts:



- No permanent shocks: Otherwise identical model with the long-run level held fixed

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Do Risk Premia from Surveys Predict Excess Returns?

Regressions for Realized Excess Returns on Dollar Bonds

$$rx_{t\to t+h} = a + b\,h\,\lambda_t^{(h)} + c\,h\,(r_{t,\text{US}}^{n,(h)} - r_{t,\text{Foreign}}^{n,(h)}) + e_{t+h}$$

	Dollar index			Four currencies		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	3 months	1 year	2 years	3 months	1 year	2 years
Risk premium b	1.66**	1.50**	1.74***	0.87**	0.81**	1.11***
	(0.71)	(0.56)	(0.49)	(0.40)	(0.37)	(0.30)
Nominal carry c	2.03***	1.90***	1.83***	1.51***	1.44**	1.31***
	(0.65)	(0.62)	(0.56)	(0.49)	(0.53)	(0.42)
Currency FEs	✗	✗	✗	✓	✓	✓
Obs.	434	425	413	1,736	1,700	1,652
R^2	0.11	0.23	0.36	0.04	0.11	0.20
Within R^2	—	—	—	0.04	0.10	0.18

r^n: Nominal yields. SEs are HAR [Lazarus et al. (2018)].

- Risk premia inferred from surveys predict realized excess returns, over and above carry

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Three Months After Geopolitical Risk Spikes

Changes Around Large Geopolitical Risk Spikes

From the month before the spike to 3 months after (%)

	(1) Long-run level	(2) Yield differential
Foreign spike	1.61***	−0.04
	(0.33)	(0.36)
US spike	−1.09**	1.00**
	(0.52)	(0.48)
Currency FEs	✓	✓
Obs.	1,732	1,732

Euro, yen, pound & Canadian dollar. SEs are HAR [Lazarus et al. (2018)].

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High US Rates and Forecast Errors

Does this reversal show up in forecast errors when US rates are high?

Regressions of Two-Year Dollar Changes on Extra US Interest

	Consensus 2-year forecasts			Model decomposition	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Expected change	Realized change	Forecast error	Long-run level	Temporary part
Extra US interest	−1.30***	0.34	1.63**	1.79**	−1.45***
	(0.28)	(0.96)	(0.77)	(0.63)	(0.45)
Obs.	351	351	351	351	351
R^2	0.41	0.00	0.11	0.23	0.15

Dollar index. Forecast error: Realized minus expected change. SEs are HAR [Lazarus et al. (2018)].

- Surveys: Expected depreciation of 1.3% (UIP: 1%), but the dollar rises 0.3%
- Temporary part: Depreciation of ∼1.5%, in line with surveys
- Upward revisions to the long-run dollar explain why forecasters overpredict depreciation

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Survey Forecasts and Realized Changes

Regressions of Realized on Expected 2-Year Changes

	Dollar index		Four currencies	
	(1)	**(2)**	**(3)**	**(4)**
Consensus forecast	0.98**		0.86***	
	(0.37)		(0.24)	
UIP-implied change		−0.88		0.26
		(0.72)		(0.65)
Currency risk premium		1.83***		1.10***
		(0.54)		(0.34)
Currency FEs	✗	✗	✓	✓
Obs.	351	351	1,355	1,355
R^2	0.14	0.30	0.17	0.19
Within R^2	—	—	0.13	0.15

Consensus 2-year forecasts. SEs are HAR [Lazarus et al. (2018)].

- Forecasters are right on average: Dollar moves one for one with their expected change
- Their currency risk premium predicts dollar changes, but the UIP-implied change doesn't

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Forecast Errors in Four Currencies

Regressions of Two-Year Changes on Extra US Interest

	Consensus 2-year forecasts			Model decomposition	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
	Expected change	Realized change	Forecast error	Long-run level	Temporary part
Extra US interest	−1.14***	−0.41	0.73	1.12**	−1.53***
	(0.22)	(0.70)	(0.63)	(0.45)	(0.36)
Obs.	1,355	1,355	1,355	1,355	1,355
R^2	0.32	0.01	0.03	0.12	0.15

Euro, yen, pound & Canadian dollar, with currency FEs. SEs are HAR [Lazarus et al. (2018)].

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The Long-Run Dollar and US ρ^* at Longer Horizons

Regressions of the Long-Run Dollar h Years Later on US ρ^*

	(1) $h = 1$ year	**(2)** $h = 2$ years	**(3)** $h = 3$ years	**(4)** $h = 4$ years
	$P_{t+h} = \alpha + \beta_h \rho^*_{\text{US},t} + \epsilon_{t+h}$			
US ρ^*	−5.67**	−4.52*	−3.28	−2.66
	(1.97)	(2.29)	(2.98)	(3.92)
Obs.	86	86	84	80
	$P_{t+h} - P_{t-3} = \alpha + \beta_h \Delta_3 \rho^*_{\text{US},t} + \text{controls} + \epsilon_{t+h}$			
US $\Delta_3\rho^*$	−8.73**	−8.36*	−10.78**	−12.02**
	(2.87)	(3.42)	(3.28)	(3.63)
Obs.	62	62	60	56

Dollar index, 1990–2023. Top panel at $h = 0$: −5.61 (1.61). Controls for bottom panel: previous 3-year changes. SEs are HAR [Lazarus et al. (2018)].

- $\Delta_3\rho^*$: 3-year change in US long-run real rate not explained by growth or risk [Gormsen & Lazarus 2026]

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Model Setup

- Annual, linearized around zero US net foreign assets; Δ: US minus foreign
- Goods: Endowment economy; US basket of goods 1 (US) & 2 (foreign) with home bias α & elasticity ε, symmetric foreign basket C_t^{F}:

$$C_t^{\mathrm{US}} = \left[\alpha^{1/\varepsilon} C_{1,t}^{(\varepsilon-1)/\varepsilon} + (1-\alpha)^{1/\varepsilon} C_{2,t}^{(\varepsilon-1)/\varepsilon}\right]^{\varepsilon/(\varepsilon-1)} \implies s_t = \kappa \log(C_t^{\mathrm{US}}/C_t^{\mathrm{F}}), \qquad tb_t = -\eta\, s_t$$

- US households: Utility $\mathbb{E}_0 \sum_t e^{-\rho^{\mathrm{tp}} t}[u(C_t^{\mathrm{US}}) + v(W_t)]$ over US bonds & equity W_t (at steady-state prices) $\implies$ convenience yield $\chi_t = v'(W_t)/u'(C_t^{\mathrm{US}})$ decreasing in their holdings: $\rho_t = \bar{\rho} + \Gamma_H H_t$
- Yield differential from both countries' Euler equations & goods-market clearing, with $\nu = \gamma/\kappa$:

$$\lambda_t = \Delta r_{t+1}^f + \mathbb{E}_t[s_{t+1}] - s_t, \qquad \Delta r_{t+1}^f = \Delta\rho_t + \nu\left(\mathbb{E}_t[s_{t+1}] - s_t\right) \implies \mathbb{E}_t[s_{t+1}] - s_t = \frac{\lambda_t - \Delta\rho_t}{1+\nu}$$

- Financiers: Mean-variance demand $\implies \Gamma_X$ = risk aversion $\times$ return variance / number of financiers
- US foreign assets fixed at D in US baskets & dollar debt abroad $D - N + X_t = D - H_t \implies H_t = a_{t+1}$
- Date 0: $a_1 = -(\eta + D)\, s_0$ *(US foreign assets gain when the dollar falls)*

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Model Calibration and Solution

	Value	Source	Implies
Home bias α, elasticity ε	0.95, 1.5	Jiang et al. (2026)	$\kappa = 2.84$, $\eta = 0.12$
Risk aversion γ	2	Gormsen & Lazarus (2026)	$\nu = \gamma/\kappa = 0.70$
Dollar debt abroad D	0.45 × GDP	Jiang et al. (2026)	Long-run dollar -3.7% per point of ρ^*
Interest rate − growth	0	US safe rates	Long-run trade surplus $= D\rho^*$
Slopes $\Gamma_X = \Gamma_H$	0.23	April 2025 fit	8.6% of GDP sold per point of ρ^*
US equity duration	20 years	Gormsen & Lazarus (2026)	Equity yield $+0.96$ per point of ρ^*

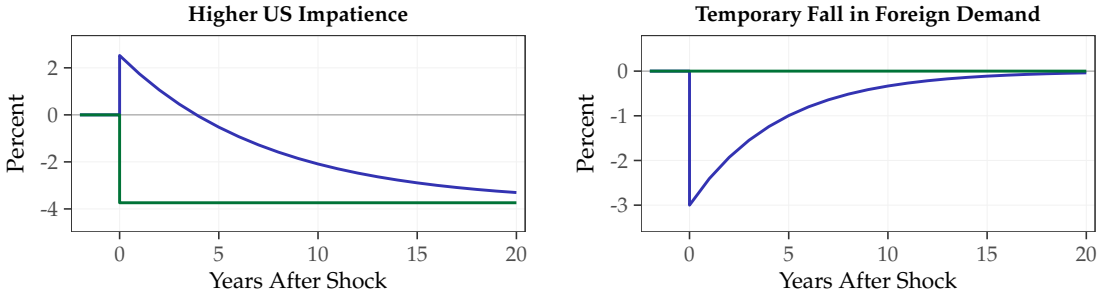
- Slopes match a 3% fall in the dollar from the April 2025 fall in demand
  [Following experiment in Kekre & Lenel 2026: fall in demand 7.8% of GDP, persistence 0.8 (just for slope fitting)]
- Solved analytically to first order: Two linear equations in the dollar s_t & net foreign assets a_t ($t \geqslant 1$):

$$(1+\nu)\left(\mathbb{E}_t[s_{t+1}] - s_t\right) = \Gamma_X N - \left(\Gamma_X + \Gamma_H\right) a_{t+1}, \qquad a_{t+1} = \left(1 + D\,\Gamma_X\right) a_t - \eta\, s_t - D\,\Gamma_X N$$

- One stable root (half-life 5.2 years), with $\lambda^* = \rho^*$ & long-run level $P = -\frac{D}{\eta}\,\rho^*$
- US equity (2× GDP) falls \$4.5 per \$1 of foreign sales, vs. \$5 per \$1 of inflows [Gabaix & Koijen 2021]

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Other Shocks in the Model

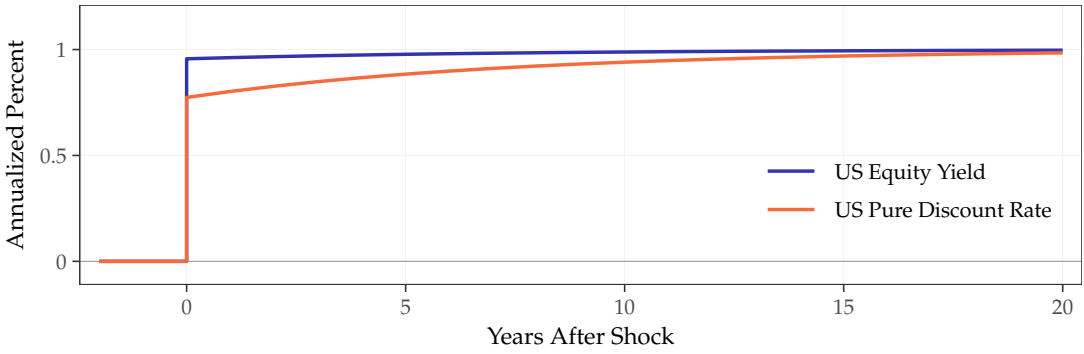


- Higher US impatience, per point of US ρ^*: Same long-run level, but US households spend more & the dollar rises at first
- Temporary fall in foreign demand, at its April 2025 size: The dollar falls & then recovers fully

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Equity Yields in the Model

Responses to a permanent fall in foreign demand, per point of US ρ^*:



- US equity yield rises roughly one for one with ρ^* (equity duration of 20 years) [Gormsen & Lazarus 2026]

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