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ABSTRACT

We interpret exchange rate and yield curve responses to the April 2, 2025 U.S. tariff announcement through the lens of an equilibrium model capturing the portfolio balance mechanism. Disciplined by price elasticities from QE announcements, a 3-12% decline in the demand for dollar bonds (relative to annual U.S. GDP) accounts for the dollar depreciation and rise in dollar yields during this episode. News of a gradual rebalancing out of dollar bonds is consistent with immediate price impact since asset prices are forward-looking. Lower dollar bond demand was accompanied by higher risk aversion, which explains the cross-section of responses across currencies.

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A replication package is available at
https://drive.google.com/file/d/1LK0MNHABayUgjPJHtnfXKNh7fbPulhm_/view?usp=sharing

1 Introduction

The U.S. tariff announcement on April 2, 2025 was followed by substantial concern about the reserve currency status of the dollar. Around this announcement, the U.S. dollar depreciated and U.S. dollar interest rates rose versus other economies — a combination that is inconsistent both with the textbook effects of tariffs, and with the typical flight to safety observed in uncertain times.

In this paper, we interpret these asset price dynamics through the lens of a general equilibrium model in which global portfolios, risk premia, and macroeconomic allocations are jointly determined. Disciplined by the price impact of quantitative easing announcements, a $3 - 12\%$ decline in the global demand for dollar bonds (relative to annual U.S. GDP) accounts for the asset price responses to the tariff announcement. We find this plausible both because it is only a fraction of the foreign-owned dollar portfolio from the national accounts, and because the required outflow from dollar bonds could unfold gradually, as asset prices still react sharply to the news of future portfolio rebalancing. News of lower dollar bond demand came alongside an increase in risk aversion, which accounts for the heterogeneity in exchange rate and yield curve responses to the tariff announcement across currencies.

We study these questions using a multi-country model, based on Kekre and Lenel (2026), with trade in short- and long-term bonds. Households actively trade their own local short-term bond but take inelastic positions in other assets, while global arbitrageurs trade all assets freely and enforce no arbitrage. When household demand for certain bonds falls, currency and bond risk premia adjust to induce arbitrageurs to absorb these flows — the "portfolio balance" mechanism of Tobin (1969) and Kouri (1976). This affects exchange rates, yield curves, and allocations.

We discipline the model to match the price impact of identified portfolio flows as well as unconditional moments of international asset prices. We calibrate the model to the G10 economies and 15 emerging markets. The model reproduces the asset price responses to the 2008-09 announcements that the Federal Reserve would begin purchasing Treasuries, agency/GSE-backed debt, and agency mortgage-backed securities ("QE1"). The model also reproduces the average excess returns on short- and long-term bonds in each currency (relative to short-term dollar bonds) and the covariance matrix of these excess returns. The average excess returns govern the equilibrium effects of a change in arbitrageur risk aversion, while the covariances of excess returns govern how a portfolio flow in any one currency-maturity combination spills over to affect prices in the others.

We find that a plausible flow out of dollar bonds can account for the joint dynamics of exchange rates and yield curves around the U.S. tariff announcement on April 2, 2025. To match the observed dollar depreciation and increase in relative dollar yields, we require a roughly $3-12\%$ decline in households' demand for dollar bonds relative to annual U.S. GDP. This range reflects that a smaller decline in dollar bond demand is needed to account for the data if it was expected to be more persistent. Relatedly, because asset prices are forward-looking, the price impact is little affected if investors receive news of a gradual decline in demand for dollar bonds, rather than the rebalancing occurring immediately.[1] These magnitudes are plausible because they are only a fraction of the foreign-owned Treasury portfolio (debt of U.S. residents, assets in the U.S.) of roughly 30% (50%, 200%) of U.S. GDP. Such a portfolio shift nonetheless matters for allocations, as U.S. consumption falls by $0.4-0.5pp$ in response to the increase in the cost of borrowing from the rest of the world.

The cross-section of asset price responses to the tariff announcement indicates that the decline in dollar bond demand occurred together with an increase in arbitrageur risk aversion. The increase in risk aversion explains why, in the data, currencies that pay the highest average excess returns experienced the smallest appreciation versus the dollar, and long-term bonds that pay the highest average excess returns experienced the largest increase in yields. Strikingly, the announced increases in U.S. tariffs themselves not only fail to explain the broad dollar depreciation around April 2, but also fail to explain the cross-section: countries with the highest external surpluses tend to be safer and thus appreciated the most versus the dollar, even though they saw the biggest rise in announced tariffs.

After April 2025, the subsequent movements in the dollar suggest similar driving forces as in the pre-April 2 period. In particular, through April 2026 the dollar continued weakening versus G10 economies, but U.S. yields fell versus G10 yields. This suggests that news about interest rate differentials again became the main driver of the dollar/G10 exchange rate. The dollar also weakened against emerging markets through the second half of 2025, but U.S. yields rose versus emerging market yields. This suggests that a decline in risk aversion, reversing its rise around the April 2 tariff

[1] Similarly, asset prices would immediately respond if investors simply perceive there is a higher likelihood of a decline in foreign demand for dollar bonds in the future.

announcement, became the main driver of the dollar/EM exchange rate.

Related literature Our analysis complements studies of the recent U.S. tariff announcements and in particular the exchange rate movements that accompanied them. Most related to our model, Itskhoki and Mukhin (2025) and Jiang, Krishnamurthy, Lustig, Richmond, and Xu (2025a) argue that an erosion of the dollar convenience yield is needed to explain the dollar depreciation in April 2025, and Jiang, Krishnamurthy, Lustig, and Richmond (2025b) quantify the steady-state consequences of a permanent loss in U.S. seignorage revenues.[2] Our analysis differs from these papers because we quantify the effects of an erosion of foreign dollar demand in a dynamic model, disciplined by the price impact of flows, and in which risk premia across many assets are jointly determined.[3] Our findings provide an equilibrium-based counterpart to market analysis suggesting dollar hedging activity indeed increased post-April 2025 (e.g., Huang, Krohn, and Sushko (2025), Shin, Wooldridge, and Xia (2025)).[4] Our conclusion that an increase in risk aversion accompanied the outflow from dollar bonds also helps make sense of prior work highlighting heterogeneity in the asset price responses to the tariff announcement across currencies (Benguria and Saffie (2025), Hartley and Rebucci (2025)).

Our modeling framework builds on Kekre and Lenel (2026), which in turn builds on recent work studying risk premia and capital flows in segmented international financial markets. Like Gabaix and Maggiori (2015), Itskhoki and Mukhin (2021), and Kekre and Lenel (2024), the model is a general equilibrium one in which global arbitrageurs bear currency risk. Like Gourinchas, Ray, and Vayanos (2025) and Greenwood, Hanson, Stein, and Sunderam (2023), arbitrageurs trade multiple risky assets, with risk premia across assets being jointly determined and consistent with no arbitrage. Our goal of relating portfolio flows to international asset prices builds

[2]Researchers have also proposed other explanations for the dollar depreciation during this episode. Benguria and Saffie (2025) emphasize trade reallocation and patterns in currency invoicing, though they do not jointly consider exchange rate and yield curve responses. Hassan, Mertens, Wang, and Zhang (2025) argue that higher trade barriers increase the risk premium on dollar bonds because they dampen the dollar appreciation in bad times. Kalemli-Ozcan, Soylu, and Yildirim (2026) study the effects of higher tariff uncertainty on precautionary savings and currency risk premia.

[3]Our quantification of portfolio flows and our analysis of the cross-section of currencies and yield curves also distinguishes our analysis from Auray, Devereux, and Eyquem (2025), which studies a transitory UIP wedge induced by tariffs in a two-country New Keynesian model.

[4]Related to recent work on dollar vs. Treasury privilege (Du, Keerati, and Schreger (2025)), we also document that OIS rate differentials behaved similarly to government yield differentials around April 2, suggesting a broad shock to the demand for dollar bonds rather than Treasuries specifically.

on Koijen and Yogo (2026), but we do so in a setting with standard mean-variance arbitrageurs and with dynamics. We validate our approach by arguing that the substitution elasticities implied by mean-variance optimization do a fairly good job explaining the spillovers of U.S. QE/QT on global asset prices. Our dynamic analysis clarifies that news of gradual portfolio rebalancing can still have large price impact because asset prices are forward-looking.

2 Model

We first summarize the general equilibrium model used to interpret the data. The model features trade in short- and long-term bonds between households and arbitrageurs. When household demand for these assets changes, currency and bond risk premia must adjust to induce arbitrageurs to absorb these flows in equilibrium.

2.1 Environment

The model builds on that in Kekre and Lenel (2026). That paper's focus is on monetary policy transmission and arbitrageurs' endogenous risk-bearing capacity, neither of which is of primary interest here. Hence, we simplify that model by focusing on a fully real endowment economy in which arbitrageurs' risk aversion is subject to exogenous shocks. Because we wish to understand the asset price responses to the U.S. tariff announcement in particular, we also add tariffs to the model.

There are $n > 1$ countries, with the U.S. indexed as country 1 and assets which pay in its consumption bundle referred to as paying in "dollars". There are four sets of actors: households, firms, global arbitrageurs, and governments.

Households Country j is populated by a measure ζ_j of households (where $\zeta_1 = 1$). The representative household in country j values consumption $c_{j,t}$ according to time-separable preferences

$$u(c_{j,t}) = \frac{c_{j,t}^{1-1/\psi} - 1}{1 - 1/\psi},$$

with elasticity of intertemporal substitution ψ and discount factor β_j. The consumption basket $c_{j,t}$ combines differentiated goods sourced from each country via a CES aggregator,

$$c_{j,t} = \left(\sum_{k=1}^{n} \eta_{jk}^{\frac{1}{\varsigma}} \left(c_{jk,t} \right)^{\frac{\varsigma-1}{\varsigma}} \right)^{\frac{\varsigma}{\varsigma-1}},$$

where ς is the elasticity of substitution between domestic and imported varieties, and the taste weights η_{jk} govern the household's relative preference for goods produced in each country k.

Households have access to two assets denominated in each country's consumption bundle ("currency"): a one-period bond and a geometrically decaying consol. The one-period bond in currency k pays $1 + r_{k,t}$ at date $t+1$. The consol in currency k is priced at $p_{k,t}^{\delta}$ at date t, delivers a unit coupon at $t+1$, and depreciates geometrically at rate δ, which pins down its duration. We assume that household j trades its local currency one-period bond freely, while its positions in the local currency consol $\bar{b}_{jj,t}^{\delta}$, all foreign one-period bonds $\bar{b}_{jk,t}$ (for all $k \neq j$), and all foreign consols $\bar{b}_{jk,t}^{\delta}$ (for all $k \neq j$) are taken as exogenous. Of particular interest in this paper are innovations in $\bar{b}_{j1,t}$ and $\bar{b}_{j1,t}^{\delta}$, the demand for dollar bonds from households in country j.

We can interpret such shocks in several ways. They may reflect portfolio rebalancing directly undertaken by households, or by delegated investors such as pension funds and insurance companies. They may also reflect the portfolio rebalancing of the local government (which ultimately transfers its profits/losses to households via lump-sum transfers), as in managing its reserves.

The representative household begins the period with $a_{j,t}$ in financial wealth, receives an endowment of the domestic good z_j, profits from domestic firms $\pi_{j,t}$, and tariff revenue from the government $T_{j,t}$. U.S. households also receive the profits of arbitrageurs $\pi_{a,t}$. Taken together, the resource constraint of household j is

$$\sum_{k=1}^{n} p_{jk,t} c_{jk,t} + q_{j,t} \sum_{k=1}^{n} q_{k,t}^{-1} \left(b_{jk,t} + b_{jk,t}^{\delta} \right) = p_{j,t} z_j + \pi_{j,t} + T_{j,t} + 1\{j = 1\} \pi_{a,t} + a_{j,t},$$

where $p_{jk,t}$ is the price of imports from k sold in j relative to j's consumption bundle, $p_{j,t}$ is the price of j's endowment relative to its consumption bundle, and $q_{j,t}$ is the real exchange rate (j's currency per dollar, with $q_{1,t} = 1$). The household's financial wealth in the next period is then

$$a_{j,t+1} = q_{j,t+1} \sum_{k=1}^{n} q_{k,t+1}^{-1} \left((1 + r_{k,t}) b_{jk,t} + \left(\frac{1 + \delta p_{k,t+1}^{\delta}}{p_{k,t}^{\delta}} \right) b_{jk,t}^{\delta} \right).$$

Global arbitrageurs Global arbitrageurs trade in all bonds and enforce no arbitrage. The representative arbitrageur operating at date t has zero wealth and must satisfy the budget constraint

$$\sum_{j=1}^{n} q_{j,t}^{-1} \left(b_{aj,t} + b_{aj,t}^{\delta} \right) = 0,$$

where $b_{aj,t}$ and $b_{aj,t}^{\delta}$ are the value of its position in currency j's bonds and consols, respectively. In the next period, the arbitrageur earns

$$\pi_{a,t+1} = \sum_{j=1}^{n} q_{j,t+1}^{-1} \left((1 + r_{j,t}) b_{aj,t} + \left(\frac{1 + \delta p_{j,t+1}^{\delta}}{p_{j,t}^{\delta}} \right) b_{aj,t}^{\delta} \right),$$

which are rebated to U.S. households as described above. The representative arbitrageur chooses its portfolio to maximize the myopic mean-variance objective

$$E_t \pi_{a,t+1} - \frac{\gamma_t}{2} Var_t \pi_{a,t+1},$$

where γ_t controls the risk aversion of arbitrageurs.

Firms A continuum of monopolistically competitive firms in each country purchase the local endowment from households and transform it into a differentiated variety sold globally. Following Alessandria (2009), we capture incomplete pass-through of the exchange rate into final goods prices by assuming that household demand across those varieties is

$$c_{jk,t} = \left(\int_0^1 c_{jk,t}(i)^{\frac{\theta_{jk,t}-1}{\theta_{jk,t}}} di \right)^{\frac{\theta_{jk,t}}{\theta_{jk,t}-1}},$$

where

$$\theta_{jk,t} = \theta \left[\left(q_{j,t}/q_j \right)^{-1} \left(q_{k,t}/q_k \right) \right]^{-\xi}.$$

Firms face an ad-valorem tariff on sales to foreign markets. Firm i in country k thus chooses prices in each destination market $\{p_{jk,t}(i)\}_j$ to maximize profits

$$\pi_{k,t}(i) = \sum_{j=1}^{n} \left((1-\tau_{jk,t})q_{k,t}q_{j,t}^{-1}p_{jk,t}(i) - p_{k,t}\right)\left(\frac{p_{jk,t}(i)}{p_{jk,t}}\right)^{-\theta_{jk,t}} \zeta_j c_{jk,t},$$

where $\tau_{jk,t}$ is j's tariff rate on imports from k. Of particular interest will be innovations in $\tau_{1k,t}$, the U.S. tariff on imports from k. We note that while exchange rate pass-through in this environment is incomplete when $\xi > 0$, the pass-through of tariffs into prices is complete, according well with the evidence in Amiti, Flanagan, Heise, and Weinstein (2026) and Gopinath and Neiman (2026) for the 2025 U.S. tariffs.[5] We denote aggregate per-capita profits of firms in k as $\pi_{k,t} = \zeta_k^{-1}\int_0^1 \pi_{k,t}(i)di$.

Governments The government in j collects tariff revenue on imports and rebates it lump-sum to its households:

$$T_{j,t} = \sum_{k=1}^{n} \tau_{jk,t}p_{jk,t}c_{jk,t}.$$

Market clearing and driving forces The environment is closed by standard market clearing conditions in goods and asset markets. While the model can accommodate a broad range of shocks to tastes and technologies, we will focus on shocks to foreign dollar bond demands, arbitrageur risk aversion, and U.S. tariffs. We assume in particular that each

$$x_t \in \{\{\bar{b}_{j1,t}\}_{j=2}^n, \{\bar{b}_{j1,t}^{\delta}\}_{j=2}^n, \gamma_t, \{\tau_{1j,t}\}_{j=2}^n\}$$

follows an AR(1) process with persistence ρ_x.

2.2 Equilibrium

There is a recursive equilibrium in the endogenous state variables $\{a_{j,t}\}_{j=2}^n$ and exogenous state variables. Following Itskhoki and Mukhin (2021), Borovicka, Hansen, and Sargent (2023), and Kekre and Lenel (2024, 2026), we study this using a first-order

[5] Firms' optimal prices imply $\hat{p}_{jk,t} - \hat{p}_{kk,t} = (1-\xi/(\theta-1))\left(-\hat{q}_{k,t}+\hat{q}_{j,t}\right) + \frac{1}{1-\tau_{jk}}\hat{\tau}_{jk,t}$, where $\hat{x}_t$ denotes the log deviation from steady-state for each variable except $\hat{\tau}_{jk,t}$, a level deviation.

perturbation in which the steady-state risk aversion of arbitrageurs γ is a function of the perturbation parameter σ scaling all volatilities, and $\gamma(\sigma)\sigma^2 \to \Gamma > 0$ as $\sigma \to 0$.

Defining the excess returns on short- and long-term bonds in currency j relative to the short-term dollar bond,

$$
\begin{aligned}
ex_{j,t+1} &= \frac{q_{j,t}}{q_{j,t+1}}(1+r_{j,t}) - (1+r_{1,t}), \\
ex^{\delta}_{j,t+1} &= \frac{q_{j,t}}{q_{j,t+1}} \frac{1+\delta p^{\delta}_{j,t+1}}{p^{\delta}_{j,t}} - (1+r_{1,t}),
\end{aligned}
$$

appendix A demonstrates that in steady-state (that is, $\sigma \to 0$), arbitrageurs' optimality conditions require

$$
ex_j = \Gamma \left[\sum_{k=2}^{n} Cov(ex_{j,+1}, ex_{k,+1}) q_k^{-1} b_{ak} + \sum_{k=1}^{n} Cov(ex_{j,+1}, ex^{\delta}_{k,+1}) q_k^{-1} b^{\delta}_{ak} \right] \tag{1}
$$

for all j. To first-order around the steady-state, these conditions imply

$$
\begin{aligned}
E_t \hat{ex}_{j,t+1} = ex_j \hat{\gamma}_t + \Gamma \Bigg[& \sum_{k=2}^{n} Cov(ex_{j,+1}, ex_{k,+1}) \left(-q_k^{-1} b_{ak} \hat{q}_{k,t} + q_k^{-1} \hat{b}_{ak,t} \right) \\
& + \sum_{k=1}^{n} Cov(ex_{j,+1}, ex^{\delta}_{k,+1}) \left(-q_k^{-1} b^{\delta}_{ak} \hat{q}_{k,t} + q_k^{-1} \hat{b}^{\delta}_{ak,t} \right) \Bigg],
\end{aligned} \tag{2}
$$

where $\hat{x}_t \equiv \log x_t - \log x$ except for variables which can be negative (such as excess returns and bond positions), in which case $\hat{x}_t \equiv x_t - x$. Analogous results hold for ex^{δ}_j and $E_t \hat{ex}^{\delta}_{j,t+1}$ for all j. In other words, equilibrium excess returns compensate arbitrageurs for the covariance between these returns and the return on arbitrageur wealth. Risk premia are time-varying both because of shocks to arbitrageurs' price of risk (γ_t) and to the quantity of risk they must absorb. The latter results from valuation effects and households' portfolio flows, both from the (standard) macroeconomic block characterizing household optimality for local currency one-period bonds, and the exogenous household asset demand shocks for non-local bonds and consols.

2.3 Effects of key shocks

Using (2) and the analog for $E_t \hat{ex}^{\delta}_{j,t+1}$, we now briefly summarize the effects of shocks to dollar bond demand and arbitrageur risk aversion in this model. These results are based on the analyses of such shocks in Kekre and Lenel (2024) and Kekre and Lenel (2026), which also apply in the present environment.

Consider first a decrease in country j's demand for one-period dollar bonds, $d\bar{b}_{j1,t} < 0$. Households in that country accordingly borrow less in their own currency, which reduces arbitrageurs' exposure to currency j ($db_{aj,t} < 0$) and therefore reduces the currency risk premium on j (equivalently, raises the currency risk premium on the dollar relative to j). The increase in the dollar risk premium implies an immediate depreciation (and thus expected future appreciation) of the dollar, an increase in the dollar interest rate relative to the foreign interest rate, and a decline in U.S. consumption relative to foreign consumption. The higher risk premium on dollar bonds also spills over to other currency risk premia and bond term premia according to the conditional covariances of asset returns that appear in (2), which govern arbitrageurs' substitution elasticities across assets given their mean-variance objective. This in turn feeds back to further affect asset prices and allocations.

Consider next a decrease in country j's demand for dollar consols, $d\bar{b}^{\delta}_{j1,t} < 0$. This requires that arbitrageurs increase their exposure to dollar consols ($db^{\delta}_{a1,t} > 0$), which they will be willing to do if the dollar term premium rises. Since households in j will borrow less in their own currency having sold dollar consols, arbitrageurs' exposure to currency j and thus j's currency risk premium again falls, raising the relative U.S. interest rate and reducing relative U.S. consumption. The movements in the dollar term premium and currency risk premium further spill over to other currency and term premia according to the conditional covariances of asset returns.

Finally, consider an increase in arbitrageurs' risk aversion, $d\hat{\gamma}_t > 0$. Like the asset demand shocks described above, this also changes currency and term premia, relative interest rates, and relative consumption. As emphasized in Kekre and Lenel (2026), the distinctive effect of this shock is that it particularly raises risk premia on assets that pay high average excess returns, evident from (2). It follows that, to the extent foreign bonds pay positive excess returns vs. dollar bonds on average (dollar bonds are relatively "safe"), an increase in risk aversion will tend to appreciate the dollar, lower relative U.S. interest rates, and raise relative U.S. consumption.

3 Interpreting the data

We now quantitatively interpret recent movements in the dollar exchange rate using this model. We find that a plausible flow out of dollar-denominated bonds, together with an increase in arbitrageur risk aversion, can account for the dynamics of exchange rates and yields around the announcement of U.S. tariffs on April 2, 2025. Since then, the drivers of the dollar exchange rate appear similar to the pre-April 2025 period.

3.1 Asset price responses around April 2, 2025 in the data

We first summarize salient aspects of exchange rate and bond yield responses in the days around the tariff announcement on April 2, 2025.

We focus on outcomes in the G10 economies and 15 emerging markets. Besides the U.S., the other G10 economies are Australia (AUD), Canada (CAD), Euro area (EUR), Japan (JPY), Norway (NOK), New Zealand (NZD), Sweden (SEK), Switzerland (CHF), and the U.K. (GBP). The emerging markets are Brazil (BRL), Chile (CLP), Colombia (COP), Hungary (HUF), India (INR), Indonesia (IDR), Israel (ILS), Mexico (MXN), Malaysia (MYR), Peru (PEN), Philippines (PHP), Poland (PLN), South Africa (ZAR), South Korea (KRW), and Thailand (THB).

We measure spot exchange rates and (interpolated) local currency government yield curves at the end of each day from Bloomberg.[6] As documented in appendix B, the results we emphasize are robust to using OIS rates rather than government yields. For a given asset price, we focus on changes from the March 1 – April 1 average to the April 3 – April 30 average as a compromise between the sharp identification offered by daily or higher-frequency changes, and the fact that there was substantial uncertainty about tariffs that was clarified in the days following the April 2 announcement. Our event window thus includes additional tariff news, such as China's announcement of retaliatory tariffs on April 4, 9, and 11, as well as news beyond tariffs, such as President Trump's call for the Federal Reserve to lower interest rates on April 17. We measure responses in nominal exchange rates and yields in the data, but will later compare them to responses in real exchange rates and yields in our model.

Around the tariff announcement, the dollar depreciated while dollar bond yields

[6]Since Bloomberg reports par yields, we bootstrap the zero coupon yield curves first using this data. We assume that all countries pay coupons semiannually except for Germany (which we use for the Euro area), Norway, Sweden, Switzerland, and Poland, which we assume pay annually.

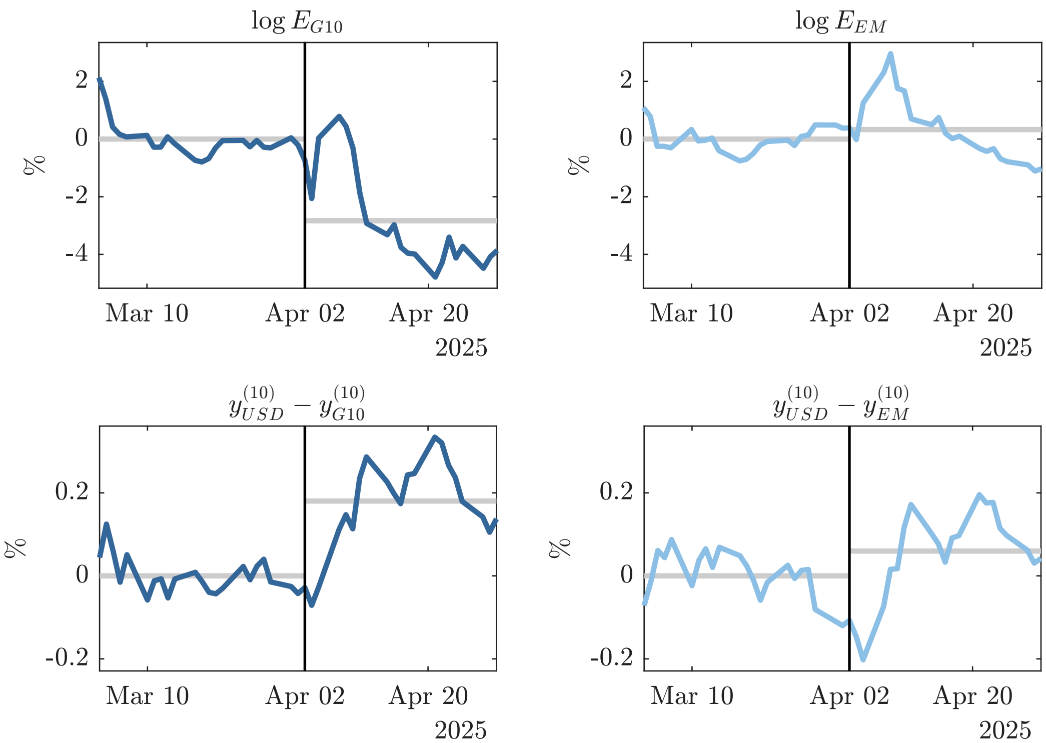

Figure 1: average exchange rates and yield differentials around April 2, 2025

Notes: left panels depict simple average across all G10 economies relative to the U.S., and right panels depict simple average across all EM economies relative to the U.S. Yields are zero coupon government bond yields, though appendix B depicts similar dynamics using 10-year OIS differentials for the G10 economies. Grey horizontal lines depict March 1 – April 1 and April 3 – April 30 averages. All series normalized to zero average over March 1 – April 1.

rose versus the G10. The left panels of Figure 1 depict the simple average of the log exchange rate and 10-year yield differential (U.S. less foreign), across all of the G10 economies, from March 1 through April 30, 2025. Comparing the April 3 – April 30 average to the March 1 – April 1 average, the dollar depreciated by nearly 3% against the G10 currencies at the same time as the yield differential rose by nearly 0.2%. The right panels of Figure 1 depict the analogous series for the U.S./EM exchange rate and yield differential. While there were meaningful daily movements in these series, comparing the April 3 – April 30 average to the March 1 – April 1 average, there were much smaller movements in the dollar exchange rate and yield differential for EM economies than for the G10. As we will later clarify using the calibrated model, this is consistent with an increase in arbitrageur risk aversion offsetting the effect of an outflow from dollar bonds particularly for these economies.

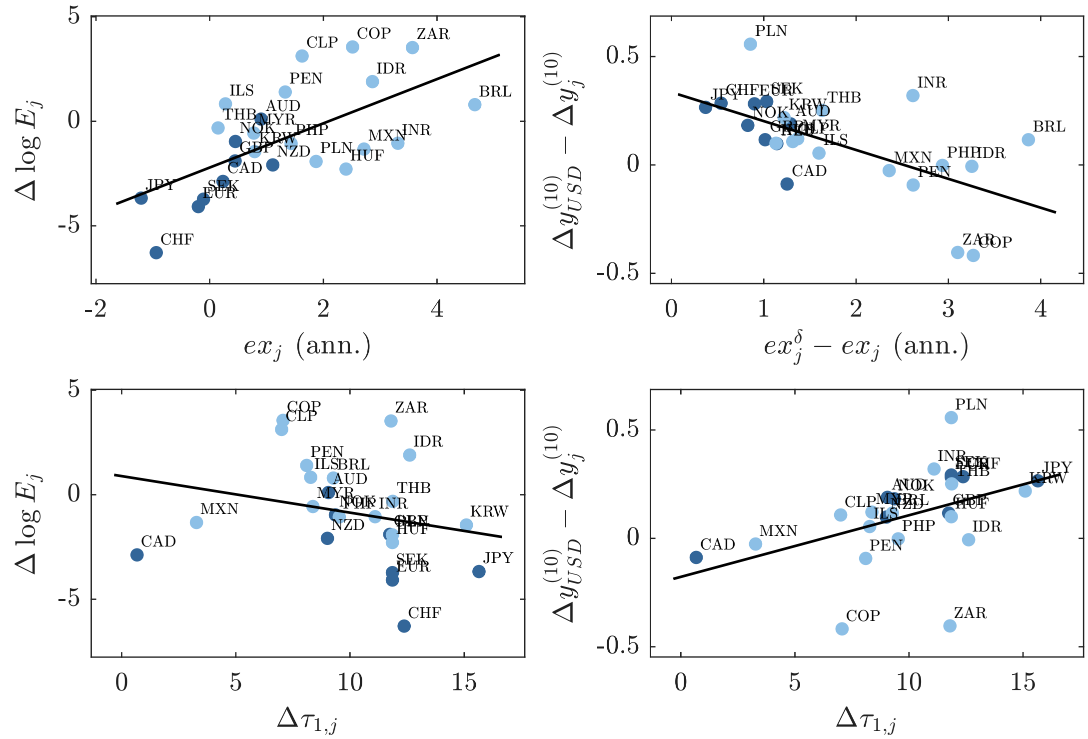

Figure 2: cross-section of asset price responses around April 2, 2025

Notes: change in exchange rate or yield differential computed as average over April 3, 2025 – April 30, 2025, relative to average over March 1, 2025 – April 1, 2025. Top panels plot these responses against average annualized excess returns, ex_j and ex^{δ}_j, estimated with cross-sectional regressions of average realized excess returns over 1991-2024 on yield differentials over that same period (as described in appendix B). Bottom panels plot these responses against change in U.S. effective tariffs, computed as average U.S. effective tariff over April 3, 2025 – April 30, 2025, less average over March 1, 2025 – April 1, 2025, where both are from Waugh (2026b). All variables in *pp*.

Indeed, along the cross-section of countries, currencies paying higher average excess returns appreciated by less versus the dollar, and long-term bonds paying higher average excess returns saw a bigger rise in yields. The top panels of Figure 2 compare the responses of exchange rates and yield differentials around the April 2 announcement against estimates of the average excess returns on currencies and long-term bonds, ex_j and ex^{δ}_j. As in Kekre and Lenel (2026), we estimate ex_j using the fitted value from a cross-sectional regression of average realized excess returns on three-month bonds (relative to the three-month dollar bond) on the average yield differential between three-month bonds in each currency and the dollar, and we estimate ex^{δ}_j using the fitted value from a cross-sectional regression of average realized excess returns on 10-year bonds (relative to the three-month dollar bond) on the average yield differential between 10-year bonds in each currency and the three-month dollar bond.[7] We use the model notation for these moments anticipating that, in the next section, we will calibrate average excess returns in the model to match them.

We also observe that, along the cross-section of countries, those experiencing a bigger increase in tariffs around the April 2 announcement in fact appreciated by more vis-à-vis the dollar. The bottom panels of Figure 2 compare the change in asset prices against the average effective tariff rate on imports from each country over April 3, 2025 – April 30, 2025, less the average effective tariff rate on imports from that country over March 1, 2025 – April 1, 2025. We obtain these tariff rates from the tariff tracker assembled by Waugh (2026b), based on the methodology described in Waugh (2026a). The cross-sectional relationship between the increase in tariffs and the foreign currency appreciation is particularly strong when we exclude Canada and Mexico, the U.S.' biggest trade partners.

3.2 Model calibration

We now calibrate the model before using it to interpret the tariff announcement.

We solve the model at a monthly frequency. We calibrate it to the same 25 countries studied in the last section, along with a Rest of World (ROW) to capture all other countries. The calibration strategy that follows mirrors aspects of Kekre and Lenel (2024) and especially Kekre and Lenel (2026), and is summarized in Table 1 and in the rest of this section, with details provided in appendix B.

First, we set a subset of model parameters without reference to cross-sectional or high-frequency moments. Households' elasticity of intertemporal substitution is $\psi = 1$ and the trade elasticity is $\varsigma = 1$, both standard values. Given an elasticity of substitution across domestic varieties $\theta = 4$, we set $\xi = 1.2$ so that exchange rate pass-through is 0.6, in between the long-run pass-through of 0.51 for U.S. imports and 0.71 (on average) for other G10 imports reported by Burstein and Gopinath (2014) (their Table 7.4). Finally, given that we will solve the model at a monthly frequency, we set $\delta = 1 - (12 \times 10)^{-1}$, so that the consol has duration approximately 10 years.

Second, we set a subset of parameters to match average moments for the cross-

[7]All of these averages are taken over the 1991-2024 period. We use the fitted value from these cross-sectional regressions only to reduce the noise in the average realized excess returns; the same patterns in Figure 2 are observed using the average realized excess returns instead.

	Description	Value/target
ψ	elast. of intertemporal subs.	1
ς	trade elasticity	1
θ	elast. of subs. across varieties	4
ξ	sensitivity of θ to q	exchange rate pass-through (0.6)
δ	consol decay	duration of 10 years
$\{\zeta_j\}_{j>1}$	relative populations	$\zeta_j q_j^{-1} y_j / y_1$
$\{\tau_{jk}\}$	steady-state tariffs	0
$\{\eta_{jk}\}$	trade shares	$p_{jk} c_{jk} / c_j$
$\{\beta_j\}$	discount factors	$r_1, \{ex_j\}_{j>1}$
$\{\bar{b}^{\delta}_{jj}\}$	HH consol positions	$\{ex^{\delta}_j\}$
$\{\bar{b}_{j1}\}_{j>1}$	foreign HH dollar positions	$\{a_j\}_{j>1}$
Γ	arbitrageur risk aversion	$dp^{\delta}_{1,t} / d\bar{b}^{\delta}_{11,t}$ (QE1)

Table 1: model calibration

Notes: data moments estimated over 1991 Q2 – 2024 Q1. See appendix B for tables with calibrated values of $\{\zeta_j\}_{j>1}$, $\{\eta_{jk}\}$, $\{\beta_j\}$, $\{\bar{b}^{\delta}_{jj}\}$, and $\{\bar{b}_{j1}\}_{j>1}$.

section of countries over the 1991-2024 period. In particular, we set populations $\{\zeta_j\}$ to match relative GDP from the IMF International Financial Statistics,[8] normalize steady-state tariffs $\{\tau_{jk} = 0\}$, and set trade shares $\{\eta_{jk}\}$ to match expenditure shares by origin and destination market from the IMF Direction of Trade Statistics (DOTS) and national accounts. We set discount factors $\{\beta_j\}$ and households' steady-state positions in non-local bonds and consols $\{\{\bar{b}_{jk}\}_{k\neq j}, \{\bar{b}^{\delta}_{jk}\}\}$ to match our estimates of average excess returns on three-month and 10-year bonds described in the last section, as well as country-level net foreign assets. Lastly, we use the estimated covariances $Cov(ex_{j,+1}, ex_{k,+1})$, $Cov(ex_{j,+1}, ex^{\delta}_{k,+1})$, and $Cov(ex^{\delta}_{j,+1}, ex^{\delta}_{k,+1})$ directly as parameters in the model solution, rather than specifying stochastic processes for primitives that can rationalize them endogenously. The assumption is that there exists a configuration of driving forces within the model that is capable of rationalizing the empirically observed covariances of currency and bond excess returns.

Finally, we calibrate Γ to match the identified effects of portfolio flows on asset prices, at the heart of the portfolio balance mechanism. We discipline this param-

[8] In the model, we denote GDP per capita in country k as $y_{k,t} \equiv \zeta_k^{-1} \sum_{j=1}^{n} q_{k,t} q_{j,t}^{-1} p_{jk,t} \zeta_j c_{jk,t}$. This is the value of all final goods sold globally, expressed in units of the local consumption bundle.

eter to match the effect of the QE1 announcements in 2008-2009. Gagnon, Raskin, Remache, and Sack (2011) report that the Federal Reserve purchased \$850bn of 10-year equivalents between December 2008 and March 2010. Since the price impact of these purchases during the financial crisis may have been larger than in normal times, we round this upwards to \$1tn. This is approximately 6.5% of annual GDP of roughly \$15tn. The cumulative two-day change in the 10-year U.S. yield on 11/25/2008, 12/1/2008, 12/16/2008, 1/28/2009, and 3/18/2009 (the QE1 announcement days widely studied in this literature) was $-1.05pp$. We thus calibrate Γ so that an innovation in $\bar{b}^{\delta}_{11,t}$ of 6.5% of annual U.S. GDP generates an innovation in the dollar consol yield of $-1.05pp$.[9] The calibrated value of Γ is sensitive to the assumed persistence of the change in $\bar{b}^{\delta}_{11,t}$: if QE1 was anticipated to very persistently take duration off arbitrageurs' balance sheet, a smaller Γ would rationalize the same price impact of the announcement. Our baseline assumption is that the innovation to $\bar{b}^{\delta}_{11,t}$ had a half-life of four years, but we assess the sensitivity of our results to this assumption, and thus Γ, in the analysis which follows.

The exchange rate and yield curve spillovers from QE/QT announcements provide untargeted validation of the substitution elasticities across assets implied by mean-variance optimizing arbitrageurs. Figure 3 compares the estimated spillovers on G10 economies to model-generated spillovers given a $\bar{b}^{\delta}_{11,t}$ innovation (with half-life four years). In the data, we follow Kekre and Lenel (2026) in projecting two-day changes in exchange rates and foreign 10-year yields on two-day changes in the 10-year dollar yield, instrumented with Swanson (2021b)'s LSAP surprise factor.[10] In both data and model, the responses are reported relative to a $1pp$ increase in the 10-year dollar yield (so Figure 3 is depicting a QT shock). The model predicts that, for instance, the Japanese yen should experience the biggest depreciation on impact of U.S. QT because the excess return to holding short-term yen bonds is highly correlated with the return on the dollar bond carry trade. It further predicts that long-term yen yields should experience among the smallest increases in long-term yields because the return on the yen bond carry trade is little correlated with the return on the dollar

[9]The annualized yield on the dollar consol is $52 \log\left((1+\delta p^{\delta}_{1,t})/p^{\delta}_{1,t}\right)$.

[10]By using data from many QE/QT announcements over the 1991-2019 period, this provides more power than using the QE1 announcements alone, but similar cross-sectional patterns are observed for the latter announcements in isolation. The downside of Swanson (2021b)'s measure of LSAP shocks is that it does not contain information on the quantity of assets purchased, which is why we use the QE1 announcements to discipline Γ.

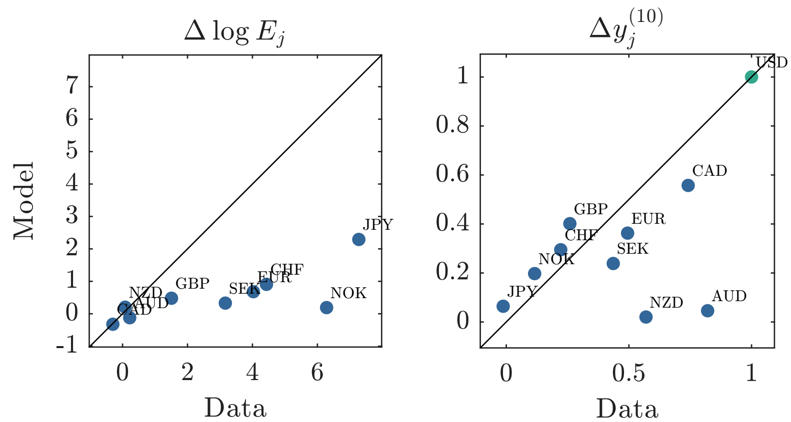

Figure 3: model validation: asset price responses to U.S. QT vs. data

Notes: following Kekre and Lenel (2026), empirical responses to U.S. QT obtained by projecting two-day changes in exchange rates and foreign 10-year yields on two-day changes in the 10-year dollar yield, instrumented with Swanson (2021b)'s LSAP surprise factor. Model responses obtained for innovation in $\bar{b}^{\delta}_{11,t}$ with half-life four years, reported for real exchange rates and yields on real consols with duration 10 years, and similarly reported relative to increase in dollar consol yield. All responses in *pp*.

bond carry trade. Both predictions are consistent with the data.

3.3 Estimating shocks using the model

We now use our model to infer the sign, size, and persistence of shocks around the April 2 tariff announcement based on the asset price responses around this date. We consider a common shock to foreign demand for one-period dollar bonds, scaled by each country's size:

$$d\bar{b}_{j1,t} = \frac{1}{\sum_{k=2}^{n} \zeta_k} d\bar{b}_{1,t}. \tag{3}$$

We also consider a common shock to foreign demand for dollar consols, again scaled by each country's size:

$$d\bar{b}^{\delta}_{j1,t} = \frac{1}{\sum_{k=2}^{n} \zeta_k} d\bar{b}^{\delta}_{1,t}. \tag{4}$$

It follows that $d\bar{b}_{1,t} = \sum_{j=2}^{n} \zeta_j d\bar{b}_{j1,t}$ and $d\bar{b}^{\delta}_{1,t} = \sum_{j=2}^{n} \zeta_j d\bar{b}^{\delta}_{j1,t}$ are the aggregate shocks to dollar bond demand. Lastly, we consider a shock to arbitrageur risk aversion, $d\hat{\gamma}_t$. We estimate the persistence of the risk aversion shock ρ_γ, and we set the persistence of the dollar bond demand shocks to 0.8 annualized, with sensitivity analysis provided at the end of this section. The persistence of the dollar bond demand shocks is poorly identified from asset prices alone given that we are also estimating the size of the shocks $d\bar{b}_{1,t}, d\bar{b}^{\delta}_{1,t}$.

We estimate $\{d\bar{b}_{1,t}, d\bar{b}^{\delta}_{1,t}, d\hat{\gamma}_t, \rho_\gamma\}$ in the absence of any actual change in tariff rates. Appendix B simulates the change in effective tariffs from Waugh (2026b) and demonstrates that they do a poor job explaining both the level and cross-section of asset price responses. Higher U.S. tariffs imply a strong appreciation of the dollar which is counterfactual. Furthermore, they imply that countries seeing the biggest rise in U.S. tariffs should have depreciated the most versus the dollar, which is again counterfactual (recalling Figure 2). Given this, we effectively assume that the market assigned a small probability that the change in tariffs would persist (or, that the market assigned a high probability that tariffs would soon be met with equal retaliation), and we ignore the tariffs themselves in what follows.

We estimate $\{d\bar{b}_{1,t}, d\bar{b}^{\delta}_{1,t}, d\hat{\gamma}_t, \rho_\gamma\}$ using the generalized method of moments (GMM). We minimize the squared deviation of responses between data and model in G10 exchange rates and 10-year yield differentials, implying 18 moments.[11] Since we are only estimating four parameters, and since we do not use emerging market moments at all as targets, the estimation is substantially overidentified. Despite this, Figure 4 demonstrates that the model does a good job matching the asset price responses around the tariff announcement.

Denoting $12y_1$ as the annualized value of U.S. GDP, the estimation implies

$$\begin{aligned}
d\bar{b}_{1,t}/(12y_1) &= \sum_{j=2}^{n} \zeta_j d\bar{b}_{j1,t}/(12y_1) = -0.068, \\
d\bar{b}^{\delta}_{1,t}/(12y_1) &= \sum_{j=2}^{n} \zeta_j d\bar{b}^{\delta}_{j1,t}/(12y_1) = -0.010, \\
d\hat{\gamma}_t &= 16.11, \\
\rho_\gamma^{12} &= 0.00.
\end{aligned}$$

That is, the aggregate foreign demand for one-period dollar bonds falls by 6.8% of annual U.S. GDP, and for dollar consols falls by 1.0% of annual U.S. GDP, implying a total decline in demand for dollar bonds of 7.8%. Arbitrageur risk aversion rises sharply, but with zero monthly persistence (the lower bound in the estimation).

[11] We weight the yield differential moments (exchange rate moments) using the cross-sectional standard deviation of responses in yield differentials (exchange rates).

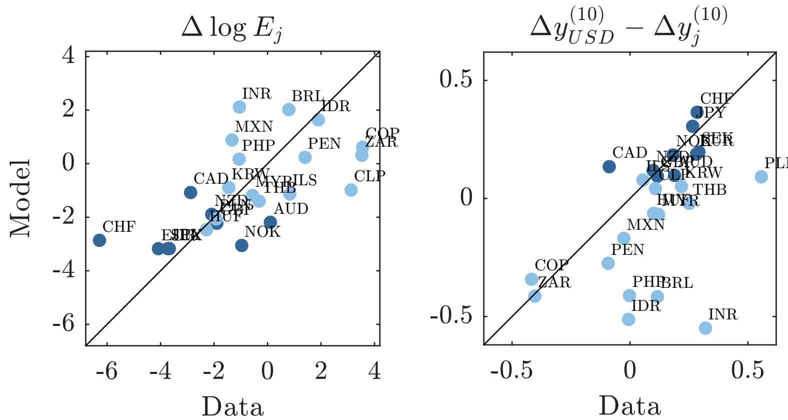

Figure 4: model vs. observed asset price responses around April 2, 2025

Notes: observed change in exchange rate or yield differential computed as average over April 3, 2025 – April 30, 2025, relative to average over March 1, 2025 – April 1, 2025. Model reports impact effects of estimated $\{d\bar{b}_{1,t}, d\bar{b}^{\delta}_{1,t}, d\hat{\gamma}_t, \rho_\gamma\}$ on real exchange rates and yields on real consols with duration 10 years. All responses in pp.

Turning off the individual shocks clarifies how the model identifies them from the observed asset price responses. These comparative statics are consistent with the effects of shocks described at the end of section 2.

The top panel of Figure 5 reproduces Figure 4 but eliminates the foreign demand shock away from one-period dollar bonds ($d\bar{b}_{1,t} = 0$). Relative to the baseline model results, this broadly appreciates the dollar, lowers the U.S. yield differential versus foreign currencies, and worsens the fit vis-à-vis the data. The magnitude (and in some cases, direction) of exchange rate and yield differential movements is different across currencies, reflecting the covariances of currency and bond excess returns that govern arbitrageurs' substitution elasticities across assets.

The middle panel of Figure 5 reproduces Figure 4 but eliminates the foreign demand shock away from dollar consols ($d\bar{b}^{\delta}_{1,t} = 0$). Relative to the baseline model results, this also appreciates the dollar, lowers the U.S. yield differential versus foreign currencies, and worsens the fit vis-à-vis the data. Relative to the previous experiment with one-period dollar bonds, the demand for dollar consols has a bigger effect on relative yields — and in particular relative term premia — versus the exchange rate.

The bottom panel of Figure 5 reproduces Figure 4 but eliminates the shock to arbitrageur risk aversion ($d\hat{\gamma}_t = 0$). Relative to the baseline model, this largely eliminates the model's success in accounting for the cross-section of exchange rate

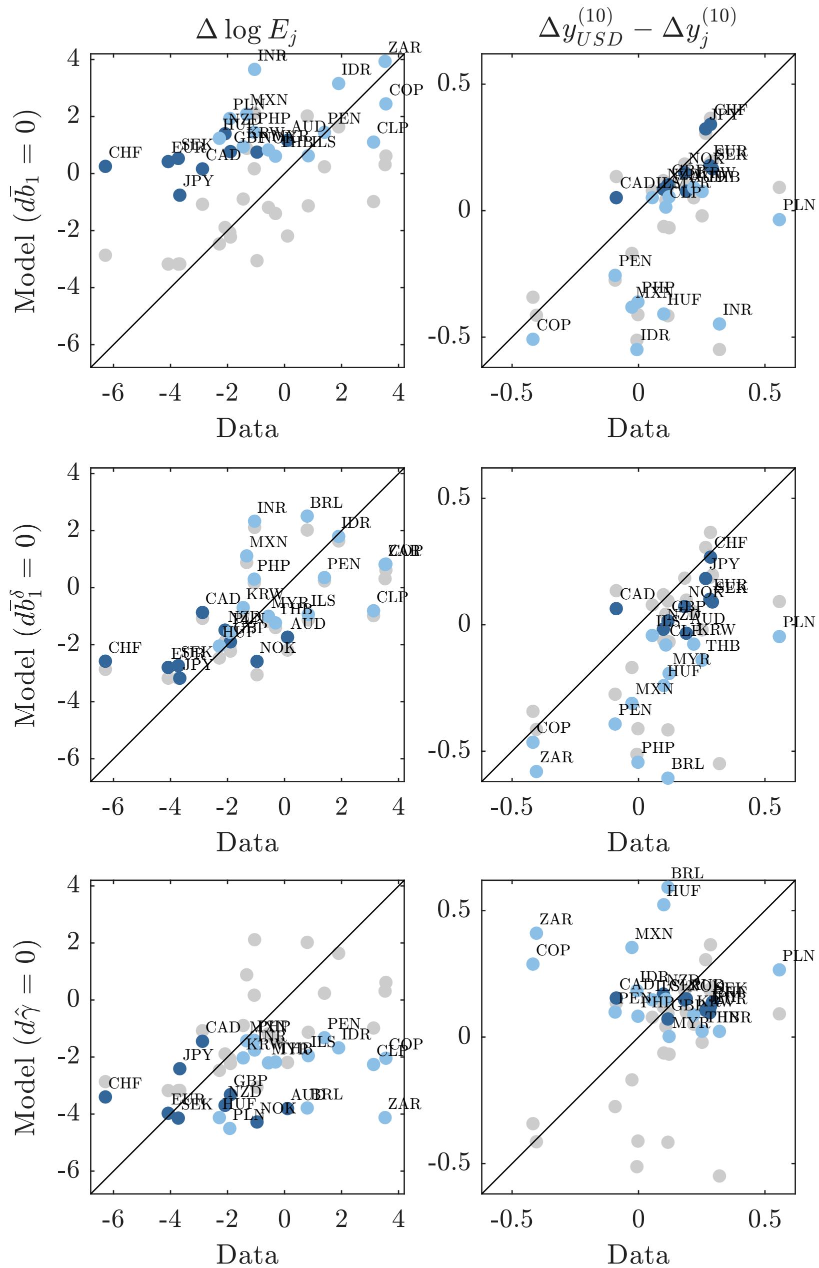

Figure 5: identification of shocks from observed asset price responses

Notes: each row compares model responses to data responses in a counterfactual environment where one shock is eliminated. The first row eliminates $d\bar{b}_{1,t}$, the second eliminates $d\bar{b}^{\delta}_{1,t}$, and the third eliminates $d\hat{\gamma}_t$. Grey markers denote baseline model responses from Figure 4. Model responses are for real exchange rates and yields on real consols with duration 10 years. All responses in *pp*.

Γ	half-life QE1	$\rho^{12}_{\bar{b}_1}, \rho^{12}_{\bar{b}^\delta_1}$ 0.70	0.80	0.99
5.67	2 yr	$-6.0\%, -0.8\%$	$-4.6\%, -0.6\%$	$-2.3\%, -0.3\%$
3.58	4 yr	$-9.0\%, -1.3\%$	$-6.8\%, -1.0\%$	$-3.0\%, -0.5\%$
2.92	6 yr	$-10.8\%, -1.5\%$	$-8.1\%, -1.2\%$	$-3.4\%, -0.6\%$

Table 2: required dollar outflows (vs. U.S. GDP) to match asset price responses

Notes: as we vary Γ and $\rho_{\bar{b}_1} = \rho_{\bar{b}^\delta_1}$, each cell re-estimates (via GMM) $\{d\bar{b}_{1,t}, d\bar{b}^\delta_{1,t}\}$ to match exchange rate and 10-year yield differential responses around April 2 tariff announcement. $\{d\hat{\gamma}_t, \rho_\gamma\}$ are kept at their same values from baseline estimation. First value in each cell reports $d\bar{b}_{1,t}/(12y_1)$ and second value reports $d\bar{b}^\delta_{1,t}/(12y_1)$.

and yield curve responses. This is consistent with the effects of a change in the price of risk in (2), and the top panels of Figure 2 that show the observed asset price responses along the cross-section indeed line up with average excess returns.[12] It is also consistent with the increase in other common proxies for risk aversion, such as the VIX, around the tariff announcement.

3.4 Required outflow from dollar bonds to match data

We now dig deeper into the estimated global outflow from dollar bonds required to match the asset price responses around the tariff announcement.

We first assess the sensitivity of the estimated $d\bar{b}_{1,t}, d\bar{b}^\delta_{1,t}$ to the price impact of portfolio flows, and to the assumed persistence of the change in household portfolios. Table 2 summarizes the results. Each cell reports the estimated $d\bar{b}_{1,t}, d\bar{b}^\delta_{1,t}$ as we vary Γ along the vertical dimension and $\rho_{\bar{b}_1} = \rho_{\bar{b}^\delta_1}$ along the horizontal dimension.[13]

Given a higher price impact of flows (higher Γ), a smaller outflow from dollar bonds is required to match the asset price data around the tariff announcement. Our baseline calibration assumes $\Gamma = 3.58$, which was chosen to match the U.S. yield curve response to QE1 announcements assuming a half-life of the QE1 shock

[12] The persistence of the risk aversion shock, ρ_γ, is further identified by the relative response of exchange rates and 10-year yield differentials. Consistent with the identification of arbitrageurs' exit rate in Kekre and Lenel (2026), a higher value of ρ_γ tends to amplify the response of exchange rates relative to the 10-year yield differentials.

[13] We keep $\{d\hat{\gamma}_t, \rho_\gamma\}$ fixed as in the baseline estimation, for ease of interpretation. Similar patterns are observed by re-estimating these parameters along with $\{d\bar{b}_{1,t}, d\bar{b}^\delta_{1,t}\}$ in each cell.

of roughly four years. Had we assumed a QE1 shock with half-life of two years, we would have required $\Gamma = 5.67$ to rationalize the same price impact. Holding fixed $\rho^{12}_{\bar{b}_1} = \rho^{12}_{\bar{b}^{\delta}_1} = 0.80$, raising Γ from 3.58 to 5.67 dampens the required decline in foreign demand for dollar bonds from 7.8% to 5.2% of annual U.S. GDP.

Given a more persistent decline in households' position in dollar bonds (higher $\rho_{\bar{b}_1}, \rho_{\bar{b}^{\delta}_1}$), we would also need a smaller innovation to match the data around the tariff announcement. This is because when arbitrageurs must more persistently hold a greater position in dollar bonds, there is a more persistent rise in the risk premium they require, and thus a larger response of asset prices on impact.[14] Holding fixed $\Gamma = 3.58$ as in our baseline calibration, raising the assumed persistence of $\rho^{12}_{\bar{b}_1} = \rho^{12}_{\bar{b}^{\delta}_1}$ from 0.80 to 0.99 dampens the required decline in foreign demand for dollar bonds from 7.8% to 3.5% of annual U.S. GDP.

Relatedly, the decline in dollar bond demand has quantitatively similar asset pricing consequences if it occurs gradually over time, rather than following an AR(1) process. Figure 6 contrasts impulse responses of the broad dollar exchange rate and 10-year yield differential in the model given the baseline AR(1) process for $d\bar{b}_{j1,t}, d\bar{b}^{\delta}_{j1,t}$, and an alternative process that is the difference between two AR(1) processes (implying a hump-shaped process for households' positions in dollar bonds). The processes are tuned so that $d\bar{b}_{j1,t}, d\bar{b}^{\delta}_{j1,t}$ are essentially as in the baseline case two years after the shock. We see that the initial dollar depreciation, and relative rise in 10-year dollar yields, is quite similar between the baseline and alternative processes.

We conclude that, disciplined by the price impact of QE, the asset price dynamics around the tariff announcement imply a plausible outflow from dollar assets. The required decline in foreigners' position in Table 2 is only a fraction of the foreign-owned Treasury portfolio (debt of U.S. residents, assets in the U.S.) of roughly 30% (50%, 200%) of annual U.S. GDP.[15] The role of persistence also clarifies that no sales by foreigners need to occur in the near term to generate large asset price reactions. Even if foreign portfolios gradually adjust away from dollar-denominated assets, there is price impact on the news of future rebalancing.

[14] For exchange rates, this intuition appeals to the standard identity (cf. Froot and Ramadorai (2005))

$$\hat{q}_{j,t} = \sum_{h=0}^{\infty} E_t \left(\hat{r}_{1,t+h} - \hat{r}_{j,t+h} \right) + \sum_{h=0}^{\infty} E_t \left(\hat{r}_{j,t+h} - \Delta \hat{q}_{j,t+h+1} - \hat{r}_{1,t+h} \right).$$

For long yields, a similar result applies (cf. Campbell and Ammer (1993)).

[15] These calculations are based on Bureau of Economic Analysis data for Q1 2025.

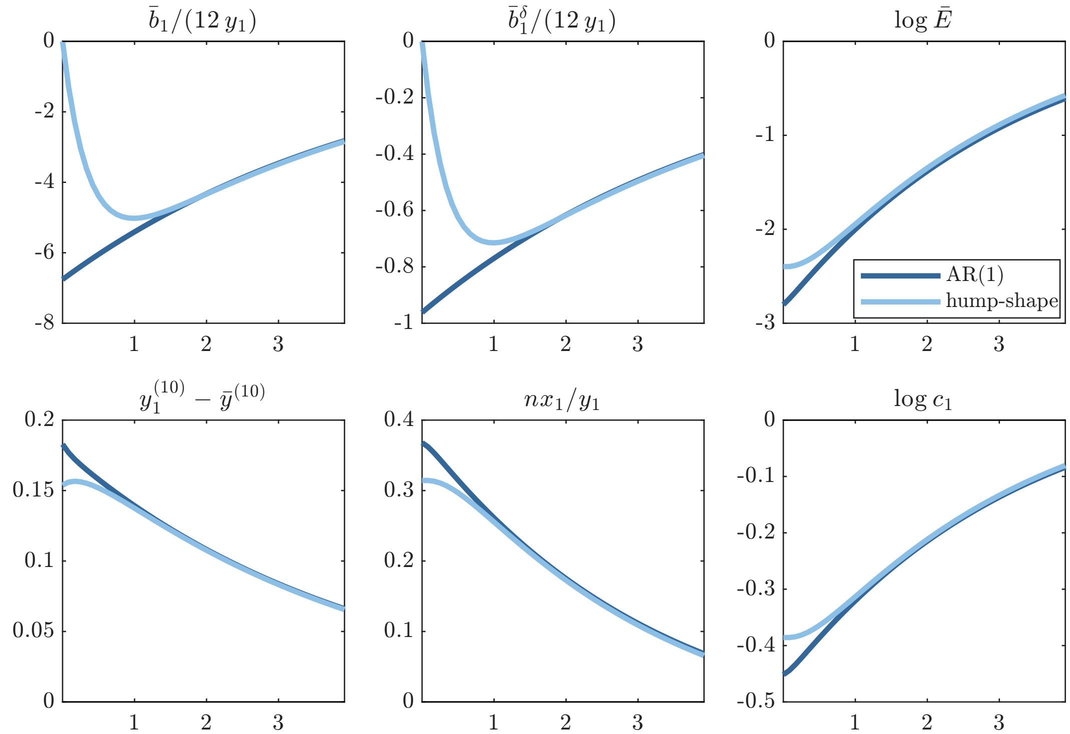

Figure 6: impact of global outflow from dollar bonds

Notes: first two panels depict exogenous change in household demand for one-period dollar bonds ($d\bar{b}_{1,t}$) and dollar consols ($d\bar{b}^{\delta}_{1,t}$), scaled by annual U.S. GDP. These change country-level demand for dollar bonds according to (3) and (4). Third and fourth panels depict response of broad dollar exchange rate and 10-year yield differential, averaging across all G10 and EM economies (again using real exchange rates and yields on real consols with duration 10 years, though we maintain notation from data for consistency). Fifth and sixth panels depict response of U.S. trade balance to GDP and log U.S. consumption. Baseline responses based on AR(1) innovation to dollar demand, and alternative responses based on hump-shaped innovation. All responses in *pp*, and x-axes denote years since the shock.

The last two panels of Figure 6 quantify the consequences of the outflow from dollar assets for macroeconomic outcomes. The U.S. effectively faces a "sudden stop", as its cost of borrowing from the rest of the world rises. Consistent with typical sudden stops, the U.S. trade balance rises and U.S. consumption falls. Given the standard values for the intertemporal elasticity of substitution, trade elasticity, and exchange rate pass-through that we have assumed, and trade shares disciplined directly by the data, the estimated decline in dollar bond demand implies a $0.3 - 0.4pp$ rise in the U.S. trade balance relative to GDP, and $0.4 - 0.5pp$ decline in U.S. consumption.

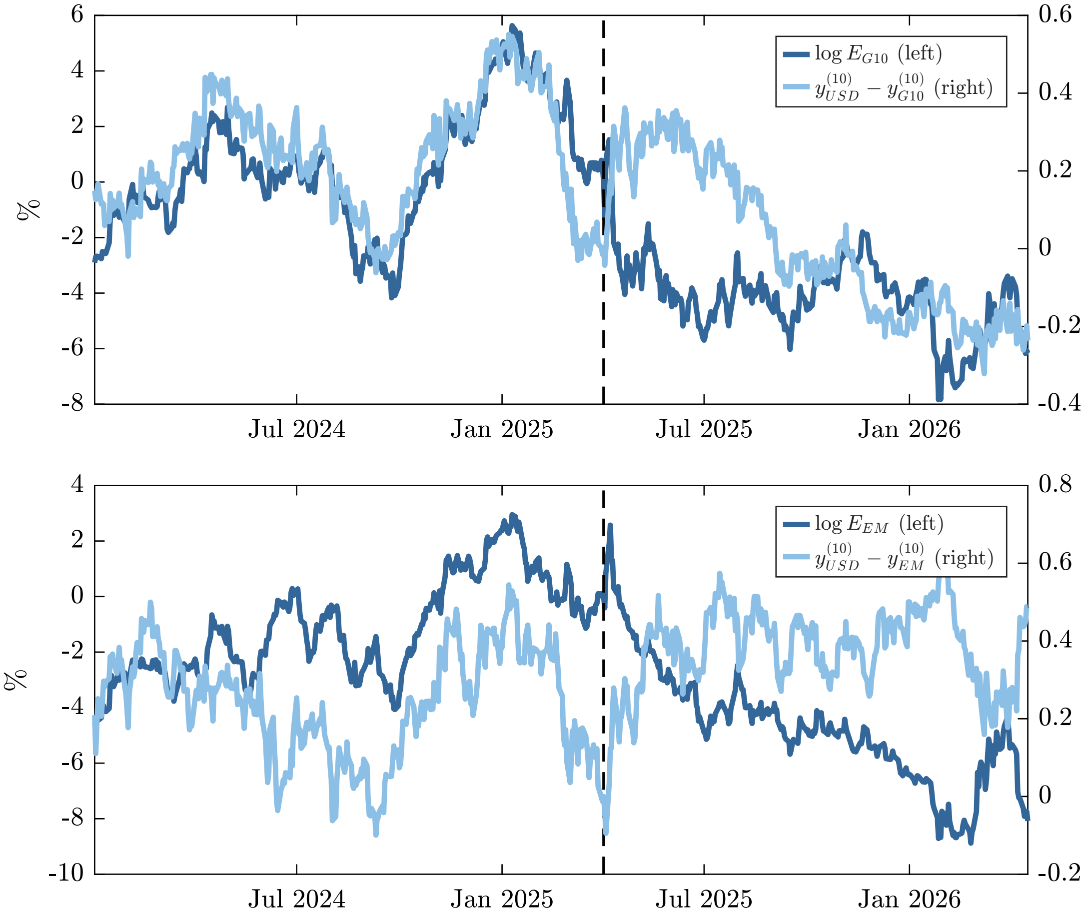

Figure 7: average dollar exchange rate and yield differential

Notes: log exchange rate (dark blue) plotted on left axis and yield differential (light blue) plotted on right axis. All series in *pp* and series normalized to zero on April 2, 2025.

3.5 Asset prices since April 2, 2025

We conclude with a brief interpretation of the dollar exchange rate in the year since the April 2 tariff announcement, through the lens of the model. The top panel of Figure 7 reports the average exchange rate between the U.S. and other G10 economies, and the bottom panel reports the average exchange rate between the U.S. and emerging markets. In both cases, we plot the exchange rate together with the 10-year yield differential between the U.S. and respective economies.

The dollar ended 2025 even weaker relative to the G10 economies than it was in April 2025. However, this was accompanied by *lower* long-term U.S. yields relative to G10 yields. In fact, the gap between the exchange rate and yield differential that opened up around the tariff announcement was largely closed by the end of the year.[16] This suggests that the increase in the dollar risk premium around the tariff announcement was largely reversed by the end of the year.[17] Through April 2026, the dollar broadly continued to depreciate versus G10 economies, at the same time as U.S. long-term yields continued to fall relative to G10 yields. We conclude that the broad trends in the dollar/G10 exchange rate are consistent with a dominant role for news about relatively lower interest rates in the U.S.

By contrast, while the dollar also weakened relative to emerging markets through the second half of 2025, this was accompanied by *rising* long-term U.S. yields relative to emerging markets. This is consistent with a broad decline in risk aversion γ_t (with a notable reversal in early 2026 around the outbreak of the U.S.-Iran war), which both lowered emerging market yields relative to U.S. (and other G10) yields and appreciated emerging market currencies relative to these counterparts. Since emerging markets are more exposed to changes in arbitrageur risk aversion than the G10, the decline in γ_t can explain the divergence in the exchange rate and yield differential in the bottom panel of Figure 7 versus the top panel.

In prior work (Kekre and Lenel (2024)), we have argued that the comovements between yield differentials and the exchange rate suggest that relative shocks to aggregate demand (and thus news about interest rate differentials) are the main driver of the dollar/G10 exchange rate, whereas shocks to risk aversion (and thus news about currency risk premia) are more important for emerging markets. Figure 7 suggests that since the April 2 tariff announcement, these patterns have re-asserted themselves.

4 Conclusion

This paper studies recent dollar exchange rate movements through the lens of a general equilibrium model capturing the portfolio balance mechanism. When household demand for dollar bonds falls, arbitrageurs must be induced to accommodate these

[16] Interestingly, a gap between these series opened up even earlier than the tariff announcement — in late February 2025 — but with the opposite sign as in April 2025. That is, there appears to have been a decline in the dollar risk premium that preceded the tariff announcement, followed by an increase around the tariff announcement that more than offset the earlier decline.

[17] This may reflect that the expected rebalancing out of dollar bonds was transitory, or that there were household shocks *toward* dollar bonds in late 2025 that reversed the prior ones.

flows, causing a dollar depreciation and increase in relative U.S. yields.

Disciplined to match the price impact of identified portfolio flows as well as unconditional moments of international asset prices, the model implies a roughly $3-12\%$ decline in household demand for dollar bonds to rationalize asset prices around the U.S. tariff announcement on April 2, 2025. The cross-section of responses across currencies is not explained by the announced tariffs, but by an increase in risk aversion that accompanied the tariff announcement. Since April 2025, most of the subsequent movements in dollar exchange rates appear consistent with their typical drivers: news about interest rate differentials in the case of advanced economies, and changes in risk aversion in the case of emerging markets.

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Appendix

A Additional details on model

A.1 Equilibrium conditions

We first outline the model's equilibrium conditions.

The household optimality conditions require

$$1 = E_t \beta_j \left(\frac{c_{j,t+1}}{c_{j,t}} \right)^{-1/\psi} (1 + r_{j,t}), \ \ \forall j, \tag{5}$$

$$b_{jk,t} = \bar{b}_{jk,t}, \ \ \forall j, k \neq j, \tag{6}$$

$$b^{\delta}_{jk,t} = \bar{b}^{\delta}_{jk,t}, \ \ \forall j, k, \tag{7}$$

$$c_{jk,t} = \eta_{jk} \left(p_{jk,t} \right)^{-\varsigma} c_{j,t}, \ \ \forall j, k. \tag{8}$$

The resource constraints and evolution of net foreign assets of all countries besides the U.S. imply:

$$\begin{aligned} & c_{j,t} + \sum_{k=1}^{n} q_{j,t} q_{k,t}^{-1} \left(b_{jk,t} + b^{\delta}_{jk,t} \right) \\ & \quad = \zeta_j^{-1} q_{j,t} \left[\sum_{k=1}^{n} \zeta_k (1 - \tau_{kj}) q_{k,t}^{-1} p_{kj,t} c_{kj,t} \right] + \sum_{k=1}^{n} \tau_{jk} p_{jk,t} c_{jk,t} + a_{j,t}, \ \ \forall j > 1, \end{aligned} \tag{9}$$

$$\begin{aligned} & a_{j,t+1} = \sum_{k=1}^{n} \frac{q_{j,t+1} q_{k,t+1}^{-1}}{q_{j,t} q_{k,t}^{-1}} \times \\ & \quad \left((1 + r_{k,t}) q_{j,t} q_{k,t}^{-1} b_{jk,t} + \left(\frac{1 + \delta p^{\delta}_{k,t+1}}{p^{\delta}_{k,t}} \right) q_{j,t} q_{k,t}^{-1} b^{\delta}_{jk,t} \right), \ \ \forall j > 1. \end{aligned} \tag{10}$$

The optimal price-setting conditions of firms in each origin and destination imply:

$$(1 - \tau_{kj,t}) q_{j,t} q_{k,t}^{-1} p_{kj,t} = \frac{\theta_{kj,t}}{\theta_{kj,t} - 1} p_{j,t}, \ \ \forall j, k. \tag{11}$$

The definition of excess returns and optimality conditions of arbitrageurs require:

$$ex_{j,t+1} = \frac{q_{j,t}}{q_{j,t+1}} (1 + r_{j,t}) - (1 + r_{1,t}), \ \ \forall j > 1, \tag{12}$$

$$ex^{\delta}_{j,t+1} = \frac{q_{j,t}}{q_{j,t+1}} \frac{1 + \delta p^{\delta}_{j,t+1}}{p^{\delta}_{j,t}} - (1 + r_{1,t}), \ \ \forall j, \tag{13}$$

$$\begin{aligned} E_t ex_{j,t+1} = \gamma_t \Bigg[& \sum_{k=2}^{n} Cov_t \left(ex_{j,t+1}, ex_{k,t+1} \right) q^{-1}_{k,t} b_{ak,t} \\ & + \sum_{k=1}^{n} Cov_t \left(ex_{j,t+1}, ex^{\delta}_{k,t+1} \right) q^{-1}_{k,t} b^{\delta}_{ak,t} \Bigg], \ \ \forall j > 1, \end{aligned} \tag{14}$$

$$\begin{aligned} E_t ex^{\delta}_{j,t+1} = \gamma_t \Bigg[& \sum_{k=2}^{n} Cov_t \left(ex^{\delta}_{j,t+1}, ex_{k,t+1} \right) q^{-1}_{k,t} b_{ak,t} \\ & + \sum_{k=1}^{n} Cov_t \left(ex^{\delta}_{j,t+1}, ex^{\delta}_{k,t+1} \right) q^{-1}_{k,t} b^{\delta}_{ak,t} \Bigg], \ \ \forall j, \end{aligned} \tag{15}$$

$$\sum_{j=1}^{n} q^{-1}_{j,t} \left[b_{aj,t} + b^{\delta}_{aj,t} \right] = 0. \tag{16}$$

Since final good prices are expressed relative to the domestic price index in each country, we have:

$$1 = \left(\sum_{k=1}^{n} \eta_{jk} \left(p_{jk,t} \right)^{1-\varsigma} \right)^{\frac{1}{1-\varsigma}}, \ \ \forall j. \tag{17}$$

Finally, the market clearing conditions are:

$$\sum_{k=1}^{n} \zeta_k c_{kj,t} = \zeta_j z_j, \ \ \forall j, \tag{18}$$

$$\sum_{k=1}^{n} \zeta_k b_{kj,t} + b_{aj,t} = 0, \ \ \forall j, \tag{19}$$

$$\sum_{k=1}^{n} \zeta_k b^{\delta}_{kj,t} + b^{\delta}_{aj,t} = 0, \ \ \forall j. \tag{20}$$

By Walras' Law, we have that the U.S. aggregate resource constraint

$$\begin{aligned} c_{1,t} + \sum_{k=1}^{n} q^{-1}_{k,t} \left(b_{1k,t} + b^{\delta}_{1k,t} + b_{ak,t} + b^{\delta}_{ak,t} \right) = \sum_{k=1}^{n} \zeta_k (1 - \tau_{k1,t}) q^{-1}_{k,t} p_{k1,t} c_{k1,t} + \sum_{k=1}^{n} \tau_{1k,t} p_{1k,t} c_{1k,t} \\ + \sum_{k=1}^{n} q^{-1}_{k,t} \left((1 + r_{k,t-1})(b_{1k,t-1} + b_{ak,t-1}) + \left(\frac{1 + \delta p^{\delta}_{k,t}}{p^{\delta}_{k,t-1}} \right) \left(b^{\delta}_{1k,t-1} + b^{\delta}_{ak,t-1} \right) \right) \end{aligned}$$

is satisfied as well.

(5)-(20) define a dynamical system of $4n^2 + 10n - 3$ equations in $4n^2 + 10n - 3$ unknowns

$$\{\{\{c_{jk,t}, b_{jk,t}, b^{\delta}_{jk,t}, p_{jk,t}\}^{n}_{k=1}, c_{j,t}, b_{aj,t}, b^{\delta}_{aj,t}, p_{j,t}, r_{j,t}, p^{\delta}_{j,t}, ex^{\delta}_{j,t+1}\}^{n}_{j=1},$$
$$\{q_{j,t}, ex_{j,t+1}, a_{j,t+1}\}^{n}_{j=2}\},$$

given the endogenous state variables $\{a_{j,t}\}_{j>1}$, exogenous state variables $\{\bar{b}_{jk,t}, \bar{b}^{\delta}_{jk,t}, \gamma_t, \tau_{jk,t}\}$, and evolution of exogenous state variables.

A.2 First-order perturbation

Let $\gamma_t = \gamma(\sigma)\exp(\hat{\gamma}_t)$, where σ is the perturbation parameter scaling all of the shocks (including to $\hat{\gamma}_t$). We study a first-order perturbation of the model around a steady-state in which $\gamma(\sigma)\sigma^2 \to \Gamma$. The perturbation of all conditions besides arbitrageurs' optimality conditions (14)-(15) is standard. In steady-state, (14)-(15) become

$$\begin{aligned}
ex_j = \Gamma \Bigg[& \sum_{k=2}^{n} Cov\left(ex_{j,+1}, ex_{k,+1}\right) q_k^{-1} b_{ak} \\
& + \sum_{k=1}^{n} Cov\left(ex_{j,+1}, ex^{\delta}_{k,+1}\right) q_k^{-1} b^{\delta}_{ak} \Bigg], \quad \forall j > 1, \\
ex^{\delta}_j = \Gamma \Bigg[& \sum_{k=2}^{n} Cov\left(ex^{\delta}_{j,+1}, ex_{k,+1}\right) q_k^{-1} b_{ak} \\
& + \sum_{k=1}^{n} Cov\left(ex^{\delta}_{j,+1}, ex^{\delta}_{k,+1}\right) q_k^{-1} b^{\delta}_{ak} \Bigg], \quad \forall j.
\end{aligned}$$

To first order around the steady-state, (14)-(15) become

$$\begin{aligned}
E_t \hat{ex}_{j,t+1} = ex_j \hat{\gamma}_t + \Gamma \Bigg[& \sum_{k=2}^{n} Cov\left(ex_{j,+1}, ex_{k,+1}\right) \left[-q_k^{-1} b_{ak} \hat{q}_{k,t} + q_k^{-1} \hat{b}_{ak,t}\right] \\
& + \sum_{k=1}^{n} Cov\left(ex_{j,+1}, ex^{\delta}_{k,+1}\right) \left[-q_k^{-1} b^{\delta}_{ak} \hat{q}_{k,t} + q_k^{-1} \hat{b}^{\delta}_{ak,t}\right] \Bigg], \quad \forall j > 1, \\
E_t \hat{ex}^{\delta}_{j,t+1} = ex^{\delta}_j \hat{\gamma}_t + \Gamma \Bigg[& \sum_{k=2}^{n} Cov\left(ex^{\delta}_{j,+1}, ex_{k,+1}\right) \left[-q_k^{-1} b_{ak} \hat{q}_{k,t} + q_k^{-1} \hat{b}_{ak,t}\right]
\end{aligned}$$

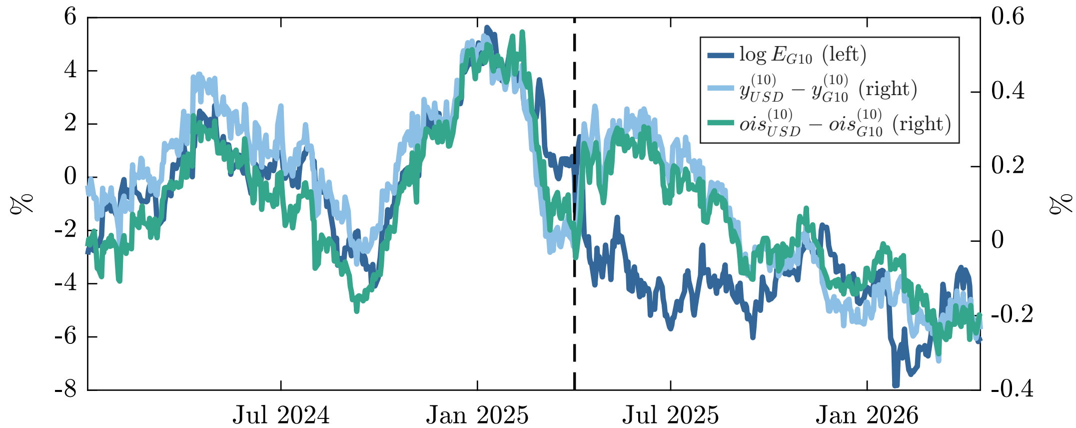

Figure 8: average dollar/G10 exchange rate and yield differential

Notes: log exchange rate (dark blue) plotted on left axis and yield differentials (light blue and teal) plotted on right axis. $y_j^{(10)}$ refers to government bond yields (as throughout the paper), and $ois_j^{(10)}$ refers to 10-year OIS rate based on SOFR in the U.S. and equivalents in other economies. All series in *pp* and series normalized to zero on April 2, 2025.

$$+\sum_{k=1}^{n} Cov\left(ex^{\delta}_{j,+1}, ex^{\delta}_{k,+1}\right)\left[-q_k^{-1} b^{\delta}_{ak}\hat{q}_{k,t} + q_k^{-1}\hat{b}^{\delta}_{ak,t}\right]\Bigg], \;\; \forall j.$$

We refer the reader to Kekre and Lenel (2026) for the derivation of such results.

B Additional results on interpreting the data

B.1 Measuring bond yields using OIS rates

We first document that the dynamics of bond yield differentials around the April 2 tariff announcement, and in the subsequent months, are quite similar using OIS rates rather than government bond yields. Figure 8 reproduces the top panel of Figure 7 but adds the 10-year yield differential computed using OIS rates (we focus on the G10 here given data availability constraints for emerging market OIS rates at this tenor). As is evident, the 10-year dollar OIS rate rose relative to other G10 OIS rates around April 2, and since then, the differential has fallen. In this sense, none of the results we emphasize in this paper are specific to U.S. Treasuries, but rather apply to all dollar-denominated bonds.

B.2 First and second moments of excess returns

We now describe how we estimate average excess returns on currencies and long-term bonds, and average conditional covariances of these excess returns, in the data. We use data over the 1991-2024 period and follow Kekre and Lenel (2026).[18]

We estimate ex_j and ex_j^δ by running cross-sectional regressions of average realized excess returns on yield differentials to reduce the noise in the former. In particular, we estimate ex_j by regressing average realized excess returns on three-month bonds in each currency on the average three-month interest rate differential vis-à-vis the U.S., and using the fitted values. We use interest rate differentials on the right-hand side given their strong association with excess currency returns in the cross-section of currencies (Lustig, Roussanov, and Verdelhan (2011), Hassan and Mano (2019)). We use three-month interest rates because these are the shortest maturity government bond yields consistently available from Bloomberg across countries. We similarly estimate ex_j^δ by regressing average realized excess returns on 10-year bonds in each currency on the average spread between the 10-year yield in that currency and the three-month yield in the U.S., and again using the fitted values. When estimating both ex_j and ex_j^δ, we drop the constant from the cross-sectional regressions in our fitted values since the trend dollar appreciation and decline in global interest rates over the sample may have been unanticipated.

We estimate $Cov(ex_{j,+1}, ex_{k,+1})$, $Cov(ex_{j,+1}, ex^\delta_{k,+1})$, and $Cov(ex^\delta_{j,+1}, ex^\delta_{k,+1})$ using the covariances of daily changes in log exchange rates and 10-year bond prices. We use the subsample beginning in July 1998 to estimate covariances so that we have a balanced panel for the G10 economies. To account for measurement error, we regularize this covariance matrix using a standard Ledoit and Wolf (2004) approach. Given the length and daily frequency of our sample, shrinkage is small, and the shrunken estimator is very close to the sample covariance.

We use nominal yields and exchange rates to compute realized excess returns in the data, but then discipline the real excess returns in the model with the above moments. This should have only a small effect because the variability in realized U.S. inflation is small versus currency and bond returns.

[18] As in that paper, we start the data for many emerging markets after 1991 because we drop periods of pegs or "freely falling" exchange rates from Ilzetzki, Reinhart, and Rogoff (2019, 2022).

B.3 Calibration details

We now provide more detail on aspects of the model calibration, again mirroring the calibration strategy in Kekre and Lenel (2026). Each of the targeted moments described below are computed over the 1991-2024 period.

We set populations $\{\zeta_j\}$ to match relative GDP from the IMF International Financial Statistics. Table 3 reports the targets and calibrated parameters. The ROW population is chosen so that world GDP equals 3.5 times U.S. GDP.

We set the trade shares $\{\eta_{jk}\}$ to match the expenditure shares by origin and destination from the IMF Direction of Trade Statistics (DOTS) and national accounts. We compute these expenditure shares using data on imports, exports, and domestic absorption (GDP less exports plus imports). Table 4 reports the taste parameters for imports from and exports to the U.S. We set the ROW taste parameters according to the condition $\sum_{j=1}^{n} \zeta_j \eta_{jk} = \zeta_k$ for all k, which implies real exchange rates around one in steady-state (exchange rates would be exactly one with zero net foreign assets).

Finally, we discipline household discount factors $\{\beta_j\}$ and households' steady-state positions in non-local bonds and consols $\{\{\bar{b}_{jk}\}_{k\neq j}, \{\bar{b}^{\delta}_{jk}\}\}$ to match the estimated $\{ex_j, ex^{\delta}_j\}$ in the data, together with data on net foreign assets. In steady-state,

$$ex_j = r_j - r_1 = \beta_j^{-1} - \beta_1^{-1},$$

using the steady-state optimality conditions of households in their domestic one-period bond. Given β_1 (set to match an annualized U.S. short-term real interest rate of 1%), this implies β_j. There are many ways to discipline households' steady-state positions in non-local bonds and consols $\{\{\bar{b}_{jk}\}_{k\neq j}, \{\bar{b}^{\delta}_{jk}\}\}$ to be consistent with the estimated $\{ex^{\delta}_j\}$ in the data. As a simple approach which nonetheless captures the first-order features of international financial portfolios, we use households' position in their own-currency consol $\bar{b}^{\delta}_{jj}$ to match ex^{δ}_j in each currency, and we use non-U.S. households' position in one-period dollar bonds $\bar{b}_{j1}$ (for $j > 1$) to match the average net foreign asset position of country j relative to U.S. GDP from Milesi-Ferretti (2026). We assume that all other exogenous steady-state positions are zero. Table 5 reports the household discount factors and local currency consol positions, and Table 6 reports the foreign positions of households in dollar bonds. We set $\bar{b}_{ROW1}$ to target the observed net foreign asset position of the U.S. over the sample period.

Intuitively, to match the fact that yield curves are on average upward sloping

Country	ζ_j	$\zeta_j q_j^{-1} y_j / y_1$ Target	Achieved
USD	1	normalization	
AUD	0.07	0.06	0.06
CAD	0.09	0.09	0.09
CHF	0.04	0.04	0.04
EUR	0.84	0.73	0.73
GBP	0.19	0.16	0.16
JPY	0.41	0.37	0.37
NOK	0.02	0.02	0.02
NZD	0.01	0.01	0.01
SEK	0.03	0.03	0.03
BRL	0.13	0.09	0.09
CLP	0.02	0.01	0.01
COP	0.02	0.02	0.02
HUF	0.01	0.01	0.01
IDR	0.06	0.05	0.05
ILS	0.02	0.02	0.02
INR	0.15	0.11	0.11
KRW	0.08	0.07	0.07
MXN	0.07	0.07	0.07
MYR	0.02	0.02	0.02
PEN	0.02	0.01	0.01
PHP	0.02	0.01	0.01
PLN	0.03	0.03	0.03
THB	0.02	0.02	0.02
ZAR	0.02	0.02	0.02
ROW	0.51	0.45	0.45

Table 3: calibrated ζ_j parameters

Notes: data targets estimated over 1991 Q2 – 2024 Q1.

		$P_{j1}c_{j1}/(P_jc_j)$			$P_{1j}c_{1j}/(P_1c_1)$	
Country	η_{j1}	Target	Achieved	η_{1j}	Target	Achieved
USD	87.75%	87.75%	87.75%	87.75%	87.75%	87.75%
AUD	2.88%	2.88%	2.88%	0.06%	0.06%	0.06%
CAD	22.97%	22.97%	22.97%	2.05%	2.05%	2.05%
CHF	5.05%	5.05%	5.05%	0.17%	0.17%	0.17%
EUR	1.98%	1.98%	1.98%	1.81%	1.81%	1.81%
GBP	2.61%	2.61%	2.61%	0.38%	0.38%	0.38%
JPY	1.77%	1.77%	1.77%	0.93%	0.93%	0.93%
NOK	1.83%	1.83%	1.83%	0.04%	0.04%	0.04%
NZD	3.21%	3.21%	3.21%	0.02%	0.02%	0.02%
SEK	1.58%	1.58%	1.58%	0.08%	0.08%	0.08%
BRL	2.84%	2.84%	2.84%	0.15%	0.15%	0.15%
CLP	7.24%	7.24%	7.24%	0.05%	0.05%	0.05%
COP	5.77%	5.77%	5.77%	0.07%	0.07%	0.07%
HUF	1.30%	1.30%	1.30%	0.02%	0.02%	0.02%
IDR	1.06%	1.06%	1.06%	0.09%	0.09%	0.09%
ILS	6.23%	6.23%	6.23%	0.11%	0.11%	0.11%
INR	1.43%	1.43%	1.43%	0.19%	0.19%	0.19%
KRW	4.45%	4.45%	4.45%	0.36%	0.36%	0.36%
MXN	19.07%	19.07%	19.07%	1.63%	1.63%	1.63%
MYR	5.84%	5.84%	5.84%	0.16%	0.16%	0.16%
PEN	6.13%	6.13%	6.13%	0.03%	0.03%	0.03%
PHP	3.54%	3.54%	3.54%	0.06%	0.06%	0.06%
PLN	0.71%	0.71%	0.71%	0.02%	0.02%	0.02%
THB	4.23%	4.23%	4.23%	0.15%	0.15%	0.15%
ZAR	1.63%	1.63%	1.63%	0.04%	0.04%	0.04%
ROW	7.10%	7.10%	7.10%	3.59%	3.59%	3.59%

Table 4: calibrated η_{j1} and η_{1j} parameters

Notes: data targets estimated over 1991 Q2 – 2024 Q1.

		$12r_j$			$12\log((1+\delta p_j^\delta)/p_j^\delta)$	
Country	β_j^{12}	Target	Achieved	$\zeta_j \bar{b}_{jj}^\delta/(12y_1)$	Target	Achieved
USD	0.9901	1.00%	1.00%	-1.77%	2.35%	2.35%
AUD	0.9811	1.90%	1.90%	-0.50%	3.20%	3.19%
CAD	0.9877	1.23%	1.23%	-3.28%	2.49%	2.48%
CHF	0.9994	0.06%	0.06%	4.78%	0.60%	0.60%
EUR	0.9920	0.80%	0.80%	-2.51%	1.70%	1.70%
GBP	0.9856	1.45%	1.45%	0.12%	2.46%	2.46%
JPY	1.0021	-0.21%	-0.21%	-2.19%	0.16%	0.16%
NOK	0.9856	1.45%	1.45%	0.68%	2.28%	2.28%
NZD	0.9791	2.11%	2.11%	0.58%	3.25%	3.25%
SEK	0.9911	0.89%	0.89%	-1.89%	1.92%	1.92%
BRL	0.9450	5.65%	5.65%	-0.32%	9.53%	9.49%
CLP	0.9741	2.62%	2.62%	-12.17%	3.94%	3.93%
COP	0.9655	3.51%	3.51%	-1.86%	6.78%	6.77%
HUF	0.9666	3.39%	3.39%	3.45%	4.53%	4.52%
IDR	0.9622	3.86%	3.86%	-0.33%	7.12%	7.10%
ILS	0.9873	1.28%	1.28%	-0.77%	2.87%	2.87%
INR	0.9579	4.30%	4.30%	-4.42%	6.93%	6.91%
KRW	0.9823	1.79%	1.79%	-1.64%	3.01%	3.01%
MXN	0.9636	3.71%	3.71%	-1.78%	6.07%	6.06%
MYR	0.9824	1.78%	1.78%	-9.11%	3.14%	3.14%
PEN	0.9770	2.33%	2.33%	-3.93%	4.95%	4.94%
PHP	0.9760	2.43%	2.43%	-1.06%	5.37%	5.36%
PLN	0.9717	2.87%	2.87%	2.05%	3.73%	3.72%
THB	0.9886	1.15%	1.15%	-2.22%	2.78%	2.78%
ZAR	0.9554	4.56%	4.56%	1.20%	7.67%	7.64%

Table 5: calibrated β_j and $\bar{b}_{jj}^\delta$ parameters

Notes: data targets estimated over 1991 Q2 – 2024 Q1. Note that for all $j > 1$, we obtain the targeted r_j as $r_1 + ex_j$, where ex_j is estimated as described in the main text. We obtain the targeted $(1+\delta p_j^\delta)/p_j^\delta$ as $1 + r_1 + ex_j^\delta$, where ex_j^δ is estimated as described in the main text. $12y_1$ refers to annual U.S. GDP. Rest of World is assumed to be in partial financial autarky — only holding an inelastic position in dollar bonds as described in Table 6 — so we do not specify β_{ROW} and assume $\bar{b}_{ROW\,ROW}^\delta = 0$.

Country	$\zeta_j \bar{b}_{j1}/(12y_1)$	$\zeta_j a_j/(12y_1)$ Target	Achieved
USD		n/a	
AUD	-3.80%	-3.19%	-3.19%
CAD	-3.84%	-0.47%	-0.47%
CHF	-0.16%	3.67%	3.67%
EUR	-10.83%	-9.25%	-9.25%
GBP	-2.37%	-1.20%	-1.20%
JPY	11.42%	13.93%	13.93%
NOK	0.45%	2.39%	2.39%
NZD	0.58%	-0.58%	-0.58%
SEK	-3.10%	-0.41%	-0.41%
BRL	1.13%	-3.24%	-3.24%
CLP	-4.64%	-0.20%	-0.20%
COP	-1.96%	-0.43%	-0.43%
HUF	6.50%	-0.54%	-0.54%
IDR	2.64%	-1.44%	-1.44%
ILS	-1.86%	0.10%	0.10%
INR	19.19%	-1.23%	-1.23%
KRW	-2.50%	0.18%	0.18%
MXN	-2.92%	-2.51%	-2.51%
MYR	-4.97%	-0.05%	-0.05%
PEN	5.82%	-0.31%	-0.31%
PHP	4.98%	-0.23%	-0.23%
PLN	-0.96%	-1.18%	-1.18%
THB	-9.64%	-0.37%	-0.37%
ZAR	0.95%	-0.14%	-0.14%
ROW	33.61%	33.61%	33.61%
Total non-U.S.		26.91%	26.91%

Table 6: calibrated $\bar{b}_{j1}$ parameters

Notes: data targets estimated over 1991 Q2 – 2024 Q1. $12y_1$ refers to annual U.S. GDP.

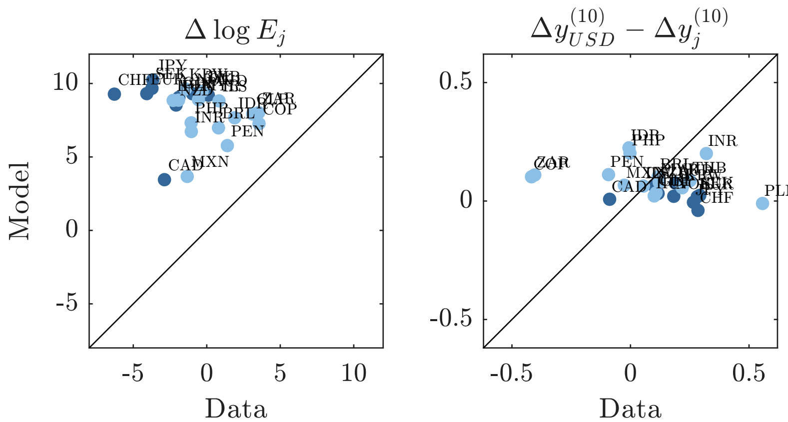

Figure 9: model-implied effects of U.S. tariffs vs. observed asset price responses

Notes: simulated shock to tariffs in model given by average U.S. effective tariff over April 3, 2025 – April 30, 2025, less average over March 1, 2025 – April 1, 2025, where both are from Waugh (2026b). Tariffs simulated with persistence $\rho_\tau^{12} = 0.99$ and model responses are for real exchange rates and yields on real consols with duration 10 years. All responses in *pp*.

in every country, we typically require that households borrow in their consol ($\bar{b}^{\delta}_{jj} < 0$).[19,20] To match the fact that the U.S. has a negative net foreign asset position even though U.S. interest rates are relatively low (i.e., ex_j tends to be positive for most j), foreigners will on average hold a positive net position in dollar bonds. This is consistent with the currency composition of net foreign assets (e.g., Allen and Juvenal (2025)), and implies that our model will generate broadly realistic revaluation effects on international net foreign asset positions in response to shocks.

B.4 Effect of announced tariffs in model

We finally simulate the change in tariffs around the April 2 announcement in the model. Figure 9 provides an analog of Figure 4 but given only the shock to tariffs. We use the change in tariffs depicted in the bottom row of Figure 2 from Waugh (2026b), and we assume that they have annualized persistence 0.99.

The effects of the announced tariffs are inconsistent both with the level and the

[19] This need not be true for every j because, given the covariance structure of excess returns, arbitrageurs may still require a positive term premium in currency j even if they do not have a positive position in long-term bonds in that currency.

[20] This can equivalently be interpreted as governments borrowing in their local currency consol, financed with lump-sum taxes.

cross-section of exchange rate responses. Higher U.S. tariffs imply a broad appreciation of the dollar, in contrast to the data. Furthermore, particularly when we exclude Canada and Mexico, they imply that countries seeing the biggest rise in U.S. tariffs should have depreciated the most versus the dollar, in contrast to the data.

Based on these results, we focus on using dollar bond demand and risk aversion shocks to match the asset price responses to the April 2 announcement. We effectively assume that the market assigned a small probability that the change in tariffs would persist (or, a high probability that tariffs would soon be met with equal retaliation).