The Liberation Day Tariff Dollar Puzzle: Equity Rotation, No Flight from Treasuries*

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Abstract

On April 2, 2025, the United States announced the largest tariff increase in modern history, and partially reversed it on April 9. On both days, the dollar depreciated in a puzzling manner. We combine minute-by-minute asset price data with daily EPFR fund flows disaggregated by mandate, asset class, and investor domicile to show that a standard portfolio channel of exchange rate adjustment can explain the puzzle, while other competing explanations cannot. Specifically, we document the following facts. First, within a standard 40-minute announcement window, on April 2, the dollar does not depreciate, and a classic flight-to-safety dynamics operates. Second, in both announcements, the dollar depreciation began within two hours of the time stamp and persisted for the rest of the day, moving with stock price changes in a manner consistent with the portfolio channel but not in line with the hedging, convenience yield, or treasury hedging channels. Third, at the daily frequency, the dollar's depreciation started before April 2, paused between April 3 and April 8, and accelerated after April 9. Fourth, the dollar's depreciation on April 2 and April 9 coincides with a large equity rotation from U.S. to foreign markets—the equity flow differential declines by more than four times the bond differential. This rotation is driven by domestic U.S. investors, not by foreign selling, and sovereign bond funds receive inflows throughout the episode even as Treasury yields rise, pointing to a separate intermediation shock in the Treasury market distinct from the tariff-driven equity rotation. The joint evidence establishes that the portfolio-balance channel operating through domestic equity reallocation is the dominant mechanism, while other channels are present but quantitatively second-order.

Keywords: Asset Prices, Dollar, Equity Rotation, High-frequency Identification, Portfolio Balance Channel, Portfolio Flows, Tariffs, Exchange Rates.
JEL Classifications: F13, F31, G15

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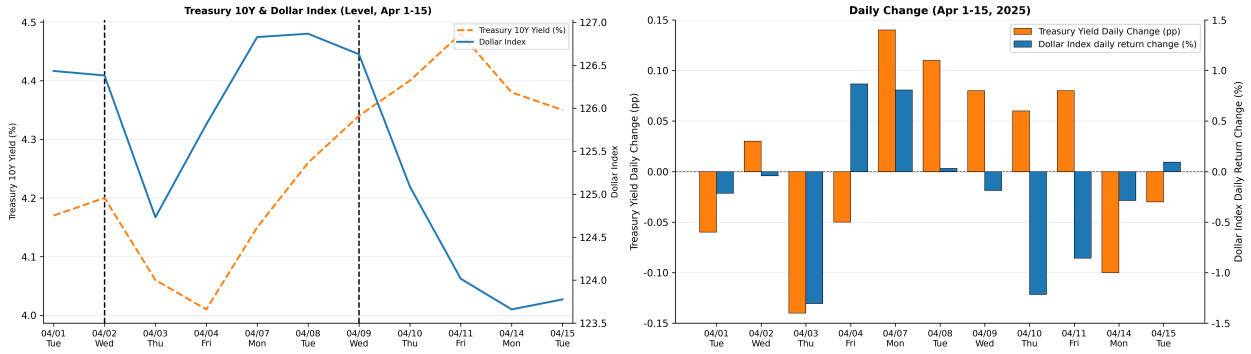
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1 Introduction

On April 2, 2025 (dubbed "Liberation Day" by President Trump) the United States announced the largest single increase in U.S. tariff rates since the Smoot–Hawley Tariff Act of 1930. Contrary to the predictions of standard international macroeconomic models and much of the existing empirical literature on tariffs, the U.S. dollar depreciated sharply rather than appreciating (Figure 1, left panel). This episode also challenges theories emphasizing the dollar's safe-asset status and global dominance, which predict dollar appreciation during global risk-off shocks and 10-year Treasury yields to fall. The 10-year yield declined on April 3 and 4, but increased on April 5–11, while the dollar recovered on April 4–8 (Figure 1, right panel).

Figure 1: Broad Dollar Index and US Treasury 10Y Yield (Daily Level and Changes, April 1-15, 2025)



Notes: The figure plots a dollar broad index and the 10-year Treasury yield (percentage points) and Dollar Index. The left panel plots levels. The right panel plots changes. The vertical dashed lines mark April 2 (Liberation Day tariff announcement) and April 9 (tariff suspension). A dollar index increase is an appreciation.

We combine minute-by-minute asset price data with daily EPFR fund flows disaggregated by geographic mandate, asset class, and investor domicile to identify the impact of the tariff announcements on the exchange rate, the mechanism behind the dollar's depreciation, and assess alternative interpretations. Prices can identify the shock but cannot uniquely identify the channel; flows identify the channel but lack the timing precision to isolate the shock. The joint evidence establishes four facts.

First, in conventional high-frequency announcement windows, the April 2 tariff announce-

ment does not depreciate the dollar but flight-to-safety dynamics operate as usual. The G10 average dollar change is literally zero at 40 minutes, while equities fall 2–5 percent, oil drops, gold rises, and the VIX spikes. On both April 2 and April 9, the dollar depreciation puzzle becomes even stronger after 120 minutes and 24 hours, when the dollar starts to depreciate, while equity prices continue to decline. The portfolio-balance channel operating through domestic equity reallocation emerges as the quantitatively dominant mechanism. Convenience yield erosion and FX hedging are present but second-order in the EPFR data.

Third, at the daily frequency, the dollar depreciation started before April 2, paused between April 3 and April 8, and continues from April 9. This persistent depreciation coincides with a large portfolio rotation from U.S. to foreign equity markets. The U.S.-minus-rest-of-world equity flow differential declines more than four times as much as the corresponding bond differential. On April 3, the first post-announcement trading day, equity outflows and money market inflows confirm in quantities the risk-off pattern that intraday prices identify on April 2. This rotation is driven by domestic U.S. investors, not by foreign selling. U.S.-domiciled funds drive both events the tariff announcement and their removal—the risk-off outflow on April 3 and the risk-on re-entry on (April 4 and) 9—with foreign-domiciled flows an order of magnitude smaller. The finding identifies the proximate source of FX demand pressure through the portfolio-balance channel. We also show that sovereign bond funds receive inflows throughout the episode even as 10-year Treasury yields rise from April 4 onward, and German and Japanese government bonds reverse cleanly on April 9 while U.S. Treasuries do not. The Treasury turmoil reflects a separate, U.S.-specific intermediation shock—most likely the unwinding of leveraged basis-trade positions—distinct from the tariff-driven equity rotation.

The rotation is visible in three distinct phases in daily EPFR fund-flow data. First, an *early rotation* was already underway before April 2: cumulative flows into U.S. equity funds were decelerating, while flows into Western European and Emerging Market equity funds were rising. Second, the rotation *paused* during April 3–8. Third, the rotation *resumed and*

accelerated sharply after April 9, when the tariff suspension resolved the near-term uncertainty while simultaneously confirming that the broader policy shift was real and persistent. This acceleration occurred *despite* the tariff suspension, indicating that the rotation had decoupled from the tariff level itself.

We corroborate our interpretation with April 9, on which asset prices exhibit near mirror-image movements at high frequency, with the notable exceptions of the exchange rate and the Treasury market. These two exceptions—the dollar depreciates and Treasuries fail to reverse—are the joint anomaly that we can explain.

We address the identification challenge in three ways. First, we use minute-by-minute data in tight event windows around the April 2 announcement; in a 50-minute window, other macro shocks are plausibly negligible. Second, we use the April 9 tariff suspension as a *sign-reversing policy unwind*: the near-mirror-image responses across most asset classes provide strong internal validation that the measured movements are tariff-driven.

Related Literature

Several papers argue that April 2025 should not be interpreted as a **single tariff shock.** Benguria and Saffie [2025] decompose announced tariffs into a predictable component linked to bilateral deficits and an unanticipated residual; they find large equity responses but no dollar appreciation. Pinter et al. [2025] use an event-targeted VAR to isolate the dominant shock from the Liberation Day window. In their framework, tariff-announcement shocks explain the equity and VIX responses, but the persistent dollar depreciation **and Treasury yield movements reflect** orthogonal shocks coinciding with a deterioration in Treasury market liquidity. Our flow evidence identifies the content of those orthogonal shocks: a sustained domestic equity rotation that the tariff suspension did not reverse.

A second strand interprets the episode through the lens of safe-asset demand and the Treasury convenience yield. Jiang et al. [2025] argue that the joint occurrence of a weaker dollar and rising long yields signals a decline in the convenience yield on dollar safe assets.

Acharya and Laarits [2025] develop a hedging-based account in which the tariff shock erodes long-end convenience yields while the short end retains safe-asset features. Our intraday evidence shows that flight-to-safety dynamics operated as usual within the April 2 announcement window: the dollar's subsequent weakness does not reflect an instantaneous collapse of safe-haven behavior. Our daily flow evidence shows that sovereign bond funds received inflows throughout the episode, and that the convenience yield erosion—while qualitatively present in the sequencing of foreign-domiciled outflows—is quantitatively second-order relative to the domestic equity rotation.

A benchmark for Treasury-market dysfunction is March 2020. Vissing-Jorgensen [2021] shows that the yield spike then reflected a negative demand shock driven by foreign sales, mutual fund redemptions, and leveraged intermediary deleveraging. Our daily EPFR evidence shows that April 2025 is different: sovereign bond funds were net recipients of inflows, and the equity rotation was led by domestic investors. The Treasury turmoil of April 2025 does not feature the foreign-sale signature of March 2020.

Shin et al. [2025] emphasize FX hedging by non-U.S. investors as a channel for dollar depreciation that does not require large asset sales. Our portfolio-balance channel and their hedging channel are complements: domestic investors rotate equity portfolios, generating direct FX demand; foreign investors hedge existing dollar exposures, generating derivative-market pressure. Both weaken the dollar without requiring foreign Treasury sales. We observe statistically significant intraday movements in cross-currency bases around both events, but these are short-lived and do not resemble the large, persistent dislocations of 2008 or March 2020.

Our paper relates to the broader literature on portfolio balance, capital flows, and exchange rates [e.g., Hau and Rey, 2006; Camanho et al., 2022; Rey and Stavrakeva, 2025]. Following Kekre and Lenel [2025], we use high-frequency identification to discipline what happens within the announcement window versus what happens on surrounding days. Rey and Stavrakeva [2025] construct daily proxies for foreign investor holdings and use ETF flows

to identify causal effects on exchange rates; their framework is especially relevant for interpreting tariff-driven reallocations. Zheng [2025] uses EPFR fund-level data around April 2 and finds reduced demand for dollar-denominated assets. Our contribution relative to these papers is to combine intraday price identification with daily flow decomposition by region, asset class, and investor domicile—jointly establishing that the equity rotation is the dominant channel and that it is led by domestic investors.

Section 2 describes events, data, and methodology . Section 3 presents cross-asset high-frequency results. Section 4 documents the equity rotation and portfolio-flow evidence. Section 5 discusses other IEEPA related court rulings for external validity. Section 6 concludes.

2 Methodology and Data

In this section, we briefly discuss the methodology and the data we use. Following Kekre and Lenel [2025], we focus on the intra-day asset price response to these two events. We then use the daily price and quantity data from January 1, 2025, to June 5, 2025, to externally validate our conclusions based on the high-frequency identification of these announcements' effects on a wide range of asset prices. To externally validate our main results, we also examine daily changes in asset prices around U.S. court rulings on tariffs.

2.1 April 2 and April 9: Two Critical Events

There have been dozens of tariff policy announcements since the inauguration of the second Trump Administration on January 20, 2025, but none are as unexpected and globally impactful as the April 2 announcement and their sudden removal on April 9.

On April 2, 2025, the United States announced the imposition of new tariffs on virtually all of its trading partners: a 10 percent baseline tariff on all targeted countries, together with country-specific "reciprocal" tariffs linked to bilateral trade imbalances. The announcement

was delivered during a Rose Garden speech beginning shortly afyer 4:00 p.m. ET and was not preceded by formal guidance on its scale or scope. Review of a complete PBS live recording shows that the press conference started at 4:06 p.m. ET, with President Trump walking into the Rose Garden. The President first used the word "tariff" at 4:10, first mentioned a specific rate—announcing 25 percent tariff on autos at 4:14pm.—and pulled out the famous billboard table at 4:26 p.m. ET. Based on this, we time-stamp the announcement at 4:14, and do robustness also centering the event windows on 4:06, and 4:26.[1]

On April 9, 2025 a 90-day suspension of most of these tariffs was announced with a post on TruthSocial at 1:18 p.m. ET.[2] One exception is that the tariffs on China were simultaneously tightened as the 90-day suspension. Given the economic weight of China, this second event is not as cleanly directional as the first one. However, examining China-specific responses will allow assessment of the extent to which the event is contaminated by this factor.

We evaluate asset price responses around narrow intraday windows, 10 minutes before, and 40 minutes, 120 minutes, and 24 hours after these time stamps. As the minute-by-minute plots in the Appendix illustrate, on April 2, the asset price response did not consolidate until about 6pm when U.S. futures markets and Asian markets reopened for essentially all asset prices.

The Liberation Day tariffs were challenged by various entities on several distinct legal grounds. To externally validate our empirical results, we focus on five pivotal events regarding the legal standing of the tariffs under the International Emergency Economic Powers Act (IEEPA). The initial development was the U.S. Court of International Trade (CIT) ruling on Liberation Day tariffs on May 28, 2025, which invalidated the measures; we time-stamp this announcement at 6:50pm ET.[3] The remaining four events track the consolidation of *Learning Resources, Inc. v. Trump* and *Trump v. V.O.S. Selections, Inc.* as they progressed to the

[1] https://www.c-span.org/program/white-house-event/president-trump-delivers-remarks-on-new-tariffs/658000.

[2] See https://truthsocial.com/@realDonaldTrump/posts/114309144289505174.

[3] Slip Op. 25-66, *V.O.S. Selections, Inc. v. Trump*, 772 F. Supp. 3d 1350 (Ct. Int'l Trade 2025), available at https://www.cit.uscourts.gov/sites/cit/files/25-66.pdf.

Supreme Court: (i) August 29, 2025, at 5:30pm ET, when the U.S. Court of Appeals for the Federal Circuit issued its en banc ruling affirming the CIT's merits decision;[4] (ii) September 9, 2025, at 4:47pm ET, when the Supreme Court granted certiorari;[5] (iii) November 5, 2025, from 10:00am ET to 12:45pm ET, when oral arguments were conducted; and (iv) February 20, 2026, at 10:00am ET, when the final 6–3 ruling was announced.[6]

2.2 Data

Minute-by-minute asset price data are from FirstRateData and Refinitiv.[7] Spot exchange rates and futures prices are sampled at one-minute frequency. For OIS rates and Treasury securities, we use average bid-ask quotes. The Appendix provides details on variable definitions, transformations, units of measure, and data sources (including tickers).

Also based on data availability, we consider selected G10 and emerging market (EM) spot exchange rates, one-year cross-currency bases, the 2-year and 10-year U.S. Treasury prices (cash and futures); the 10-year German and Japanese Treasury futures; the 2-year and 10-year OIS–Treasury swap spreads; equity index futures (S&P 500, Euro Stoxx 50, FTSE 100, Nikkei 225, DAX); VIX; WTI oil and gold futures. Where available, we use future prices as they have the advantage of trading almost continuously.

Daily quantity data from January 1 to June 5, 2025 are from EPFR. EPFR is a leading provider of high-frequency fund flows data. EPFR tracks both actively managed and passively managed funds. The database captures the vast majority of the fund products by assets under management, providing visibility into how institutional and retail investors allocate capital across asset classes and geographies at daily frequencies.[8]

We will focus on cumulative and daily flows disaggregated by mandate (United States,

[4] *V.O.S. Selections, Inc. v. Trump*, 149 F.4th 1312 (Fed. Cir. 2025), available at https://www.cafc.uscourts.gov/opinions-orders/25-1812.OPINION.8-29-2025_2566151.pdf.

[5] *See* https://www.npr.org/2025/09/09/nx-s1-5535813/supreme-court-trump-tariffs.

[6] *See* https://www.supremecourt.gov/opinions/25pdf/24-1287_4gcj.pdf

[7] FirstRate Data is a well-known vendr of intra-day asset price data (https://firstratedata.com/).

[8] See Koepke [2020] for a more detailed discussion of EPFR data and their relationship with balance-of-payments portfolio flows. See [Jotikasthira et al., 2012] for applications using these data.

Western Europe, Asia-Pacific, Emerging Markets, Germany, Japan, China), asset class (equities, bonds, money markets), and fund domicile (domestic vs. foreign). Table A.1 provides the definition of all series used in this part of the analysis.

2.3 Event Study Design

For asset i around announcement time t_0, the intraday response is:

$$\text{Response}_{it} = 100 \times \left(\log p_{it}^{+} - \log p_{it}^{-}\right), \tag{1}$$

where p_{it}^{-} is the price 10 minutes before and p_{it}^{+} is the price 40 minutes after the announcement. We also report one-day responses and plot 24-hour of asset price data in the Appendix Following Krishnamurthy and Vissing-Jorgensen [2011], we assess statistical significance using historical intraday volatility. The reported Z-statistic is $Z_i = \hat{R_{i,t_0}}/\hat{\sigma}_i$, where $\hat{\sigma}_i$ is the standard deviation of returns over the same intraday window across all trading days from January 1 to March 31, 2025. When we look at portfolio flows, we plot cumulative flows from January 1 through June 5, 2025, marking event days with vertical lines.

Table 1 and Table 2 report the intraday (40-minute) and daily responses of major asset classes to the April 2 tariff announcement and the April 9 suspension. 24-hour responses are also plotted in Appendix Figures Figure A.5–Figure A.8.

3 Liberation Day Tariffs and Their Removal

This section documents the high-frequency responses of exchange rates and main asset prices to the Liberation Day tariff announcement on April 2, 2025, and to the subsequent tariff suspension announced on April 9, 2025. We analyze minute-by-minute price changes in conventional narrow windows around the two announcements to isolate the effects of tariff announcements shocks from other contemporaneous shocks. We also consider a 24-hour window after each event to assess the persistence of those market responses.

No central bank changed its policy rate during the April 1–10 window. The bond and exchange rate movements documented below should therefore reflect market repricing of the tariff shock (including revised expectations about the future path of monetary policy rates) rather than contemporaneous monetary policy surprises. The Federal Reserve held the federal funds rate at 4.25–4.50 percent throughout since early 2025; the Bank of Japan raised rates by 0.25 percent to 0.50 percent in January; and the ECB cut its deposit facility rate by 0.25 percent to 2.50 percent in March, with none acting again before April 17. The next monetary policy action was the ECB's 0.25 percent cut to 2.25 percent on April 17.

3.1 Equities and Commodity Markets

The immediate market response (within 40 minutes) to the April 2 tariff announcement is a classic risk-off episode. Equity futures fall sharply and fairly uniformly across markets, with intraday declines ranging from -1.81% (DAX) to -2.53% (Nikkei), all highly statistically significant (Table 1, Panel A). The VIX spikes by 7.68% ($Z = 8.19$). Oil falls (-1.24%, $Z = -5.18$), consistent with lower expected global growth. The gold price rises ($+0.49\%$, $Z = 6.06$), consistent with higher demand for safe assets (Panel B). Every element of this pattern– equity losses, volatility spike, lower oil, higher gold– fits the description of a typical risk-off shock.

April 9 produces a near-perfect mirror image across these same assets. Equity futures rise, the VIX drops by 16.43%, oil surges ($+6.15\%$, $Z = 25.72$), and gold declines (-0.99%, $Z = -12.20$). All responses are sign-reversing relative to April 2 and statistically significant (Table 1, Panels A–B). These symmetric responses to April 2 and April 9 provide strong validation evidence that these asset price changes are driven by the tariff-related announcements rather than triggered by other events or news during the same the same time-window.

The risk-off dynamics on April 2 and their reversal on April 9 persist over the 24-hour window for equities and oil (Table 2, Panels A–B). Equity declines deepen on April 2, ranging from -1.86% (FTSE) to -6.04% (Nikkei), with the S&P 500 falling -5.05%, and

Table 1: Asset Price Responses to April Tariff Announcements
10 Minutes Before and 40 Minutes After

Asset	April 2, 2025	Z-stat	April 9, 2025	Z-stat
Panel A: Equity Index and VIX Futures				
S&P 500	-2.14	-9.46	5.17	22.87
Euro Stoxx 50	-2.27	-12.97	5.26	30.12
FTSE 100	-2.04	-12.70	3.82	23.80
Nikkei 225	-2.53	-12.48	5.18	25.57
DAX	-1.81	-12.52	5.23	36.12
VIX	7.68	8.19	-16.43	-17.53
Panel B: Commodity Futures				
WTI Oil	-1.24	-5.18	6.15	25.72
Gold	0.49	6.06	-0.99	-12.20
Panel C: Government Bond Markets				
U.S. 10Y Treasury Cash	0.53	7.58	0.59	8.38
U.S. 10Y Treasury Futures	0.39	6.23	0.24	3.83
Germany 10Y Bund Futures	0.59	9.76	-0.64	-10.48
Japan 10Y JGB Futures	0.23	4.52	-0.51	-10.19
U.S. 2Y Treasury Futures	0.12	8.93	-0.17	-12.83
U.S. 10Y OIS–Treasury Spread	-0.44	-1.75	6.63	26.49
U.S. 2Y OIS–Treasury Spread	-0.25	-1.31	6.06	31.70
Panel E: G10 Spot Exchange Rates				
EUR	0.32	4.30	0.40	5.42
JPY	-0.34	-5.02	1.12	16.73
CHF	0.03	0.58	0.96	19.56
AUD	0.36	4.08	-1.15	-13.10
NZD	0.28	3.29	-0.72	-8.54
CAD	0.14	0.87	-0.38	-2.38
GBP	0.08	1.42	-0.05	-0.95
Average	0.00	0.08	0.83	17.53
Panel F: EM Spot Exchange Rates				
CNH	0.18	4.57	-0.03	-0.77
INR	0.20	2.38	-0.30	-3.65
THB	0.41	3.97	-0.29	-2.86
BRL	-0.66	-6.08	-1.65	-15.17
MXN	-0.45	-3.31	-1.86	-13.86
TRY	-0.06	-1.16	-0.10	-1.96
ZAR	0.69	7.40	-1.36	-14.50
Average	0.11	1.92	-0.72	-12.97
Panel G: Currency Bases				
JPY 1Y CCBY	0.09	7.70	-0.15	-13.54
EUR 1Y CCBY	0.10	10.34	-0.08	-8.55

Notes: This table reports asset price responses to the April 2, 2025 "Liberation Day" tariffs and the April 9, 2025 tariff suspension. Events are time-stamped as discussed in Section 2. All asset price changes are computed as $100\left[\ln(P_{i,t^+}) - \ln(P_{i,t^-})\right]$, where $t^- = t_0 - 10$ minutes and $t^+ = t_0 + 40$ minutes, expressed in percentages. CCBY and OIS–Treasury swap spreads are reported as basis-point changes, $\Delta S_i = S_{i,t^+} - S_{i,t^-}$. The Z-statistic is defined as $Z = \hat{R}_{i,t0} \div \hat{\sigma}_i$, where $\hat{R}_{i,t0}$ is the percent (absolute) asset price (spread) change over the event window around the event and $\hat{\sigma}_i$ is the standard deviation of such changes over the same intraday period on each trading day from January through March 2025. Spot exchange rate averages are computed as equal-weighted means. Exchange rates are quoted as foreign-currency units per USD (a + sign indicates depreciation of the foreign currency and appreciation of the dollar).

Table 2: Asset Prices Responses to April Tariff Announcements
10 Minutes Before and 24 Hours After

Asset	April 2, 2025	Z-stat	April 9, 2025	Z-stat
Panel A: Equity Index and VIX Futures				
S&P 500	-5.05	-5.32	3.70	3.89
Euro Stoxx 50	-4.07	-5.13	3.47	4.38
FTSE 100	-1.86	-2.95	2.62	4.15
Nikkei 225	-6.04	-5.83	3.32	3.21
DAX	-3.48	-3.82	3.55	3.90
VIX	27.13	6.52	-2.91	-0.70
Panel B: Commodity Futures				
WTI Oil	-7.34	-5.32	4.03	2.92
Gold	-1.20	-1.47	2.19	2.66
Panel C: Government Bond Markets				
U.S. 10Y Treasury Cash	1.17	2.52	0.68	1.47
U.S. 10Y Treasury Futures	1.10	3.26	0.41	1.22
Germany 10Y Bund Futures	0.62	1.29	0.19	0.39
Japan 10Y JGB Futures	1.21	8.03	-0.14	-0.91
U.S. 2Y Treasury Futures	0.41	4.63	-0.12	-1.40
U.S. 10Y OIS–Treasury Spread	-2.75	-2.95	4.94	5.29
U.S. 2Y OIS–Treasury Spread	-1.50	-3.02	2.38	4.78
Panel E: G10 Spot Exchange Rates				
AUD	-0.32	-0.62	-2.83	-5.54
CAD	-1.61	-3.89	-1.23	-2.96
CHF	-2.67	-6.64	-1.85	-4.58
EUR	-1.61	-3.12	-1.42	-2.74
GBP	-0.76	-1.73	-1.43	-3.24
JPY	-2.57	-4.87	-0.28	-0.52
NZD	-0.78	-1.46	-2.69	-5.02
Average	-2.29	-6.13	-1.18	-3.16
Panel F: EM Spot Exchange Rates				
BRL	-1.14	-0.83	-1.47	-1.08
CNH	0.09	0.32	-0.75	-2.73
INR	-0.16	-0.66	-0.44	-1.83
MXN	-2.60	-4.34	-1.75	-2.92
THB	0.26	0.53	-1.45	-2.90
TRY	0.02	0.03	-0.24	-0.49
ZAR	-0.33	-0.54	-1.03	-1.68
Average	-0.67	-1.87	-1.39	-3.90
Panel G: Currency Bases				
JPY 1Y CCBY	-1.66	-3.37	3.81	7.75
EUR 1Y CCBY	-0.32	-0.37	3.14	3.65

Notes: This table reports asset price responses to the April 2, 2025 "Liberation Day" tariffs and the April 9, 2025 tariff suspension. Events are time-stamped as discussed in Section 2. All asset price changes are computed as $100\left[\ln(P_{i,t^+}) - \ln(P_{i,t^-})\right]$, where $t^- = t_0 - 10$ minutes and $t^+ = t_0 + 24$ hours, expressed in percentages. CCBY and OIS–Treasury swap spreads are reported as basis-point changes, $\Delta S_i = S_{i,t^+} - S_{i,t^-}$. The Z-statistic is defined as $Z = \hat{R}_{i,t_0} \div \hat{\sigma}_i$, where $\hat{R}_{i,t_0}$ is the percent (absolute) asset price (spread) change over the event window around the event and $\hat{\sigma}_i$ is the standard deviation of such changes over the same period on each trading day from January through March 2025. Spot exchange rate averages are computed as equal-weighted means. Exchange rates are quoted as foreign-currency units per USD (a + sign indicates depreciation of the foreign currency and appreciation of the dollar).

revert cleanly on April 9. Oil drops by more than 7% on April 2 and rises by about 4–5% on April 9.

Two assets do not fully revert on April 9. Gold prices falls within 24 hours on April 2 and rises on April 9. The VIX increases on April 2 even within the 24 hour window, but the reversal is much smaller than on impact and statistically insignificant (-2.91%, $Z = -0.70$) compared to the its surge of 27.13% ($Z = 6.52$) on April 2. Together, these responses indicate that that something else affects safe-haven demand in this wider window and risk aversion and policy uncertainty did not dissipate with the tariff suspension—a point that matters for interpreting the dollar and Treasury responses in the sections that follow.

The Liberation Day tariffs are a trade policy intervention intended to operate at much lower frequency through the goods market. The financial market risk-off reaction documented above is immediate and large: equity futures fell 2–5% within 40 minutes, and oil dropped more than 7% within 24 hours. Given the well-documented dominance of cross-border portfolio flows over trade flows in driving short-run exchange rate dynamics [Hau and Rey, 2006; Rey and Stavrakeva, 2025], the speed and magnitude of this financial response raises the central question of this the paper: through which financial mechanism did the April 2 tariff shock transmit to the dollar and safe asset markets? To answer it, in the the rest of this section, we examine exchange rates, bond prices, and derivative markets in turn.

3.2 Exchange Rates and the U.S. Dollar

The dollar's behavior is the central puzzle of the April 2 risk-off episode. Standard complete-markets models and previous evidence on the US-China trade war robustly predict dollar *appreciation* following a unilateral tariff increase [Obstfeld and Rogoff, 2001].[9] Additionally, during past major risk-off episodes, like 2008 or March 2020, the dollar appreciated strongly on impact (e.g., Vissing-Jorgensen [2021]). Against these priors, we first examine the 40-

[9]Models featuring tariff uncertainty, as in Kalemli-Özcan et al. [2026], can predict depreciation, but it is difficult to separate trade policy uncertainty from uncertainty along other policy and non-policy dimensions.

minute announcement window to assess how the dollar responds on impact, and then turn to the 24-hour window to assess the persistence or lack thereof of those responses.

3.2.1 40 Minutes Window

On impact, On April 2, the dollar is essentially flat. The G10 average is literally zero (0.00%, $Z = 0.08$). The EM average response is a small, weakly significant depreciation (0.11%, $Z = 1.92$). Among individual currencies, the Australian dollar, Canadian dollar, euro, British pound, and New Zealand dollar, along with the CNH, INR, THB, and ZAR depreciate against the dollar (Table 1, Panels E–F). The Japanese yen, however, appreciates significantly (-0.34%, $Z = -5.02$), as do the Brazilian real (-0.66%, $Z = -6.08$) and the Mexican peso (-0.45%, $Z = -3.31$). So the dollar moved sideways while equity and commodity prices responded as expected during a typical risk-off episode. This suggests that a factor distinct from both the tariff shock and standard risk-off dynamics is operating on the dollar.

April 9 impact responses shed partial light on this puzzle, pointing to the behavior of the dollar against the other reserve currencies as the place where the answer lies (Table 1). Within the first 40 minutes, the AUD (-1.15%, $Z = -13.10$), NZD (-0.72%, $Z = -8.54$), ZAR (-1.36%, $Z = -14.50$), and CAD (-0.38%, $Z = -2.38$) strongly appreciate, more than reversing their April 2 depreciation. Similarly, all EM currencies appreciate on April 9. In contrast, the three safe-haven currencies depreciate against the dollar: CHF=+0.96%, $Z = 19.56$; EUR=+0.40%, $Z = 5.42$; and JPY=+1.12%, $Z = 16.73$.[10]

For EM and non-reserve G10 currencies, both a tariff decrease and a risk-on shock like April 9 push the exchange rate in the same direction: as expected, these currencies appreciate against the dollar. For the EUR, JPY, and CHF, the two forces can work in opposite

[10]China's exchange rate responses do not contaminate these results, despite the April 9 announcement that increased tariffs on China. On April 2, the renminbi depreciated slightly and significantly, consistent with standard predictions. On April 9, tariffs on China were tightened further rather than suspended, but the renminbi is essentially unchanged, likely reflecting a policy response within the managed floating regime and a largely closed capital account.

directions. The tariff reversal should depreciate the dollar against all trading partners. But if these currencies carry a higher safety discount (lower risk premium) than the dollar, a risk-on shock can pull more capital out of them and into riskier assets than from the dollar, appreciating the dollar against them. Our results suggest that, on April 9, the risk-on effect on these three currencies dominates: the euro, the franc, and the yen depreciate against the dollar despite the tariff reversal. The April 9 responses at 40 minutes are therefore explicable within standard frameworks if the risk-on effect on these three currencies is stronger than the tariff-reversal effect.

The puzzle remains on April 2, where the dollar fails to appreciate despite both the tariff shock and the risk-off environment pointing in that direction—and, as we show next, at the 24-hour horizon on both dates, where the dollar depreciates markedly.

3.2.2 24 Hours

Unlike monetary policy announcements, which occur at a predictable, scheduled time, Liberation Day tariffs were announced during a press conference after market close. It is therefore useful to examine daily changes to assess whether the identified exchange rate movements persist.

Within the 24 hour window, on April 2, the dollar depreciates against the other three reserve currencies, all other G10 currencies in our sample, as well as against some major EM currencies (Table 2, Panel E). The depreciation is large and significant in the CHF (-2.67%, $Z = -6.64$), JPY (-2.57%, $Z = -4.87$), and EUR (-1.61%, $Z = -3.12$), with a G10 average of -2.29% ($Z = -6.13$). Among EM currencies, the MXN appreciates strongly (-2.60%, $Z = -4.34$), while BRL, ZAR, THB, INR, and TRY show small and mostly insignificant responses (Panel F). The EM currency average is -0.67% ($Z = -1.87$). As a result, as Figure 1 shows, the broad dollar index depreciates, while other asset markets continue to behave as driven by the risk-off episode. The dollar's transition on April 2 from a muted response on impact to broad-based depreciation provides additional evidence that

a factor distinct from the tariff shock came into play as the announcement diffused through global markets.

On April 9, there is no reversal. The dollar depreciates against all currencies: not only the non-reserve currencies, as in the 40 minutes window, but also against the EUR, the CHF, and the JPY which on impact depreciated. Remarkably, on April 9, within the 24 hour window, the dollar also depreciates against the renminbi, which faced higher tariffs on that day. On both dates, the dollar's depreciation against reserve currencies emerges between the 40-minute and 24-hour windows rather than on impact. This timing is inconsistent with an instantaneous collapse of the dollar's reserve-currency status triggered by the tariff announcement. We now turn to government bond prices and derivative-markets to further discriminate among possible explanations.

3.3 Government Bond Markets

U.S. Treasury prices' responses help narrow the dollar puzzle. Within 40 minutes of the April 2 announcement, the 10-year Treasury cash price increases by 0.53% ($Z = 7.58$), a seemingly standard flight-to-safety response to the risk-off shock in other markets (Table 1, Panel C). But on April 9, the 10-year cash price also rises, by 0.59% ($Z = 8.38$). If the tariff suspension simply unwound the April 2 risk-off shock, this price should fall. It does not. Instead, the 10Y Treasury cash price rises alongside equities and oil. The pattern persists at 24 hours: the 10-year cash price rises 1.17% ($Z = 2.52$) on April 2 and 0.68% ($Z = 1.47$) on April 9 (Table 2, Panel C). Long-duration Treasuries thus behave as a safe asset on April 2, and as a risky asset on April 9. The 10-year Treasury thus joins the dollar as the only asset in our sample whose April 2 response does not reverse on April 9, suggesting that the two anomalies may share a common source.

3.3.1 Future Markets

Treasury futures reveal that the anomaly is maturity-specific. The 10-year futures price rises on both dates: 0.39% ($Z = 6.23$) on April 2 and 0.24% ($Z = 3.83$) on April 9. Over 24 hours, the increase is 1.10% ($Z = 3.26$) and 0.41% ($Z = 1.22$), respectively (Table 2, Panel C). The 2-year futures, by contrast, reverse cleanly on April 9. On April 2, the 2-year price rises 0.12% ($Z = 8.93$), consistent with safe-asset demand. On April 9, it falls -0.17% ($Z = -12.83$), more consistent with a risk-on reversal response. In the 24 hours window, the 2-year futures rises 0.41% ($Z = 4.63$) on April 2 and declines -0.12% ($Z = -1.40$) on April 9 (Table 2, Panel C). The short end of the yield curve thus retains safe-asset behavior on both dates; the long end did not. This differential response across maturity is consistent with Acharya and Laarits [2025], who argue that the tariff shock eroded the hedging value of long-duration Treasuries while short-end instruments retained their safe-asset character.

In contrast, German and Japanese 10-year government bond futures display clean safe-asset dynamics. On April 2, both rise: Germany by 0.59% ($Z = 9.76$) and Japan by 0.23% ($Z = 4.52$). On April 9, both fall: Germany by -0.64% ($Z = -10.48$) and Japan by -0.51% ($Z = -10.19$) (Table 1, Panel C). At 24 hours, the directional patterns persist, although statistical significance weakens for Germany (Table 2, Panel D). The contrast isolates the non-reversal as U.S.-specific: German and Japanese sovereign bonds retain safe-asset dynamics on both dates, just as the euro, the yen, and the franc retain safe-haven behavior in currency markets (Section 3.2). If the non-reversal reflected a global shift in safe-asset demand, foreign government bonds should also fail to reverse. They do not. The anomaly is specific to U.S. long-duration assets—both the dollar and the 10-year Treasury.

3.3.2 OIS-Treasury Swap Spreads

OIS–Treasury swap spreads clarify the picture. On April 2, there is no significant increase in Treasury specialness at either maturity: the 10-year spread narrows by -0.44 basis points ($Z = -1.75$) and the 2-year spread by -0.25 basis points ($Z = -1.31$), both statistically

insignificant (Table 1, Panel C). On April 9, by contrast, spreads widen by 6.63 basis points at 10 years ($Z = 26.49$) and 6.06 basis points at 2 years ($Z = 31.70$)—movements more than an order of magnitude larger than the April 2 changes. Over 24 hours, the same asymmetry persists: OIS–Treasury spreads narrow on April 2 (-2.75 at 10Y, -1.50 at 2Y, both significant) and widen on April 9 ($+4.94$ at 10Y, $+2.38$ at 2Y, both significant) (Table 2, Panel G). The asymmetry—negligible increase in OIS-Treasury spreads on April 2, and large movement in opposite direction on April 9—is very pronounced and suggests weak relative demand for Treasuries on April 2 and strong demand on April 9 relative to the risk-free rate.

This decomposition connects the Treasury evidence to the dollar puzzle. On April 2, Treasury prices rise but specialness does not increase: the US bond price increases come about through lower expected policy rates rather than through increased demand for Treasuries as a uniquely safe asset. The absence of a specialness response is consistent with the dollar's failure to appreciate—the convenience yield channel that would pull capital into dollar assets is not active. On April 9, specialness rises sharply, yet the dollar still depreciates at 24 hours. This implies that whatever force is driving the dollar lower is strong enough to overwhelm even an active convenience yield channel.

3.3.3 The Treasury Basis Trade Unwind Hypothesis

One popular candidate explanation for the U.S. Treasury dislocations between in April 2025 is the unwinding of leveraged positions, particularly the cash-futures basis trade. Within our event windows, however, the Treasury cash price outperforms the futures price on both dates and at both horizons: by 14 and 7 basis points on April 2, and by 35 and 27 basis points on April 9, at the 40-minute and 24-hour horizons respectively. In a basis trade unwind, forced selling of cash Treasuries should cause cash to *underperform* futures. The opposite pattern rules out basis trade unwind as the driver of the Treasury market within these windows. Indeed, Figure 1 shows that the Treasury yield increase started on April 4, peaking on April 10–11, after both our event windows close. Figure YY in the appendix

shows the intra-day reprieve on April 9 following the tariff suspension.

To summarize, the evidence from bond markets narrows the dollar puzzle in three ways. First, the April 9 anomaly is U.S.-specific: German and Japanese sovereign bonds retain clean safe-asset dynamics: no shift in global safety demand. Second, it is maturity-specific: the 2-year reverses on April 9 while the 10-year does not. Third, it is not driven by leveraged-position unwinds within our event windows. What remains is a U.S.-specific factor affecting long-duration assets—both the dollar and the 10-year Treasury—whose source is distinct from both the tariff shock and the deleveraging that gripped the Treasury market from April 4 to April 11. We now turn to cross-currency bases of reserve currencies seeking further clues on the mechanism possibly at work.

3.4 Offshore Funding, Hedging, and Dollar Convenience

Cross-currency bases (CCBY in Table 1 and 2) provide derivative-market indicators of offshore dollar funding conditions. Some analyses interpret the April 2025 episode through this lens [Jiang et al., 2026; Shin et al., 2025]. Intra-day data allow us to evaluate these hypotheses in ways that daily data cannot and to identify gaps in the solution of the dollar puzzle.

In a typical flight-to-safety episode, offshore dollar funding stress typically increases on impact, reflected in widening cross-currency bases. On April 2, within the 40-minute window, one-year CCBY movements are in the opposite direction and increase (positive values indicate a *reduction* of dollar funding stress): JPY=+0.09 ($Z = 7.70$), EUR=+0.10 ($Z = 10.34$) (Table 1, Panel G). On April 9, movements are similarly small and in the opposite direction: JPY=−0.15; EUR=−0.08. However, although highly statistically significant, these basis-point changes are negligible relative to the large CCBY dislocations observed in 2008 or March 2020. In the 40 minutes, therefore, neither tariff announcement generates offshore dollar material funding changes typical of risk-off and risk-on episodes.

The picture changes at the 24-hour horizon. Dollar funding stress increases on April 2

and decreases on April 9: JPY CCBY= -1.66 ($Z = -3.37$) and EUR CCBY= -0.32 ($Z = -0.37$) on April 2; JPY= $+3.81$ ($Z = 7.75$) and EUR= $+3.14$ ($Z = 3.65$) on April 9 (Table 2, Panel G). The absence of immediate CCBY movements in the 40 minute windows, followed by larger movements over the next 24 hours, particularly for the JPY, suggests that dollar funding stress was not part of the initial market reaction but built up gradually and then reverted on April 9—a timing profile that lines up well with that of the dollar puzzle.

3.4.1 Hedging Channel Hypothesis

One possible interpretation of this evidence is that hedging demand from non-U.S. investors kicked in after the shock, as emphasized by Shin et al. [2025]. This can in principle distinguish the April 2025 risk-off episode from the 2008 and March 2020 dollar funding crises, in which CCBY dislocations appeared on impact. However, this interpretation fits April 2, but not April 9 when dollar funding eased but the dollar depreciated. At the 24-hour horizon, CCBY reverses on April 9—funding stress decreases—but the dollar does not reverse. It depreciates further. The hedging channel may have contributed to the dollar's weakness on April 2, but it cannot be the primary driver of the dollar's persistent depreciation across both dates.

3.4.2 Convenience Yield and Dollar Erosion

Jiang et al. [2025] and Jiang et al. [2026] argue that the joint occurrence of a weaker dollar and rising long yields signals a decline in the convenience yield on dollar safe assets and an erosion of the dollar's reserve-currency status. Our OIS–Treasury spreads and cross-currency basis data jointly discipline the direction of change in their focal variable, which we label the cross-border Treasury basis (CBTB): the yield on FX-hedged foreign bonds minus the U.S. Treasury yield.[11]

[11] Jiang et al. [2026] label this spread the "Treasury basis." We use "cross-border Treasury basis" to avoid confusion with the cash-futures Treasury basis trade discussed above. By construction, the CBTB decomposes as $\tau = s^{\text{UST}} - s^{\text{Foreign}} - \text{CCBY}$, where s^{UST} is the OIS–Treasury spread (Treasury specialness), s^{Foreign} is the OIS–foreign bond spread (foreign-bond specialness), and CCBY is the cross-currency basis. A decline in τ indicates reduced Treasury specialness relative to hedged foreign bonds. To see why, note that an increase in foreign-bond specialness (s^{Foreign} rises) pushes τ down mechanically: hedged foreign bonds

We observe s^{UST} and CCBY directly in our intraday data. We do not observe s^{Foreign} at intraday frequency. As a first approximation, we set $\Delta s^{\text{Foreign}} = 0$ on both dates and compute $\Delta\tau \approx \Delta s^{\text{UST}} - \Delta\text{CCBY}$.[12] Under this assumption, the EUR-based CBTB is essentially flat at 40 minutes on April 2 (≈ -0.5 bp), declines modestly at 24 hours (≈ -2.4 bp), improves sharply at 40 minutes on April 9 ($\approx +6.7$ bp), and partially gives back that improvement at 24 hours ($\approx +1.8$ bp).

Three implications follow. First, the CBTB does not deteriorate on impact on April 2. The erosion of the convenience yield on dollar assets that Jiang et al. [2026] document at daily and weekly frequency emerges between the 40-minute and 24-hour windows—gradually, not instantaneously. This is consistent with their finding that the April 2 announcement punctuated a pre-existing trend rather than causing an abrupt break.

Second, the 24-hour CBTB decline on April 2 is driven almost entirely by the OIS–Treasury spread rather than by the cross-currency basis. The OIS–Treasury spread is a domestic U.S. measure—it captures the pricing of Treasuries relative to the dollar risk-free rate. The cross-currency basis, by contrast, reflects cross-border funding conditions. The dominance of the domestic component suggests that the repricing of U.S. assets relative to dollar benchmarks, rather than a shift in cross-border funding costs, is the proximate driver of the convenience yield decline within our windows. This distinction between domestic and foreign drivers will be central to the flow evidence in Section 4.

Third, the tariff suspension produces a relief rally in Treasury specialness on impact (+6.7 bp) that partially erodes within 24 hours (+1.8 bp). The erosion comes primarily from the cross-currency basis: as offshore dollar funding stress normalizes, hedged foreign bonds become relatively more attractive, partially unwinding part the initial CBTB improvement. The relief is driven by domestic Treasury specialness; its partial reversal is driven by cross-border funding forces. As we will ses in Section 4, foreign-domiciled funds accelerated their

become more attractive relative to Treasuries, all else equal.

[12] Daily data suggest that changes in EUR and JPY sovereign specialness are small on both dates, making this term second-order in the decomposition. [VERIFY: specific values to be confirmed.] The JPY-based calculations yield qualitatively identical results to the EUR-based estimates reported in the text.

asset rotation on April 9.

The timing and direction of these CBTB movements are consistent with the convenience yield hypothesis of Jiang et al. [2026]. We cannot rule it out, and our intraday evidence supports their gradual-erosion framing. However, two observations suggest it is not the whole story. First, the magnitude of the equity market repricing on April 2—with index declines of 2–6 percent within 24 hours—dwarfs the basis-point movements in the CBTB by two orders of magnitude. The convenience yield channel is present, but the scale of the financial market reaction points to a quantitatively larger force. Second, the CBTB decline is dominated by its domestic component (OIS–Treasury specialness) rather than its cross-border component (cross-currency basis). A decline in the dollar's reserve-currency convenience yield, as Jiang et al. [2025] propose, would predict foreign-led outflows from dollar-denominated assets and widening of cross-border funding spreads—the international component. Our price evidence points instead toward domestic repricing as the proximate channel, a finding we corroborate with quantity data in the next section.

3.5 Summary of Price Evidence

The Liberation Day tariff announcement triggered a textbook risk-off response in equities, commodities, and volatility. The dollar and the 10-year Treasury are the two assets that do not fit the pattern: the dollar fails to appreciate on impact and depreciates persistently on both April 2 and April 9; the 10-year Treasury fails to reverse on April 9. The price evidence in this section narrows the set of explanations for this joint anomaly in three ways.

First, whatever force is driving the dollar lower is slow-moving, not instantaneous. The dollar is flat at 40 minutes, OIS–Treasury specialness does not change, the cross-currency basis does not widen, and the cross-border Treasury basis does not deteriorate. Across all markets, the anomalous behavior emerges between the 40-minute and 24-hour windows. This rules out an abrupt shock to the dollar's reserve-currency status triggered by the tariff announcement itself.

Second, the hedging channel of Shin et al. [2025] and the convenience yield erosion of Jiang et al. [2026] are both consistent with parts of the evidence but neither accounts for the full pattern. The hedging channel fits April 2 but not April 9, where funding stress normalizes while the dollar continues to depreciate. The convenience yield channel is directionally present but quantitatively small relative to the equity market repricing, and it is dominated by its domestic component (OIS–Treasury specialness) rather than its cross-border component (cross-currency basis).

Third, on April 9, both standard channels that support the dollar are active—offshore funding stress normalizes and Treasury specialness increases—yet the dollar depreciates at 24 hours. Whatever force is driving the dollar lower is strong enough to overwhelm both channels. A broader decline in the dollar convenience yield would predict foreign-led outflows from dollar-denominated assets. The domestic dominance of the OIS–Treasury component in our price decomposition points in a different direction.

Prices alone have helped rule out some explanations but have not identified the source of the persistent depreciations that gradually materialized on April 2 and 9. In Section 4, we use daily EPFR fund flows to show that the dollar's weakness coincides with a large portfolio rotation from U.S. to foreign equity markets—not sovereign bonds—which started before April 2 and accelerated after April 9, concentrated in Western Europe and Asia-Pacific, and driven by domestic U.S. investors. This domicile decomposition points to domestic portfolio rebalancing as the proximate mechanism, consistent with the portfolio-balance channel of Hau and Rey [2006], operating alongside—but quantitatively dominating—the convenience yield erosion that Jiang et al. [2026] document at lower frequencies.

4 A Global Equity Rotation and the Dollar

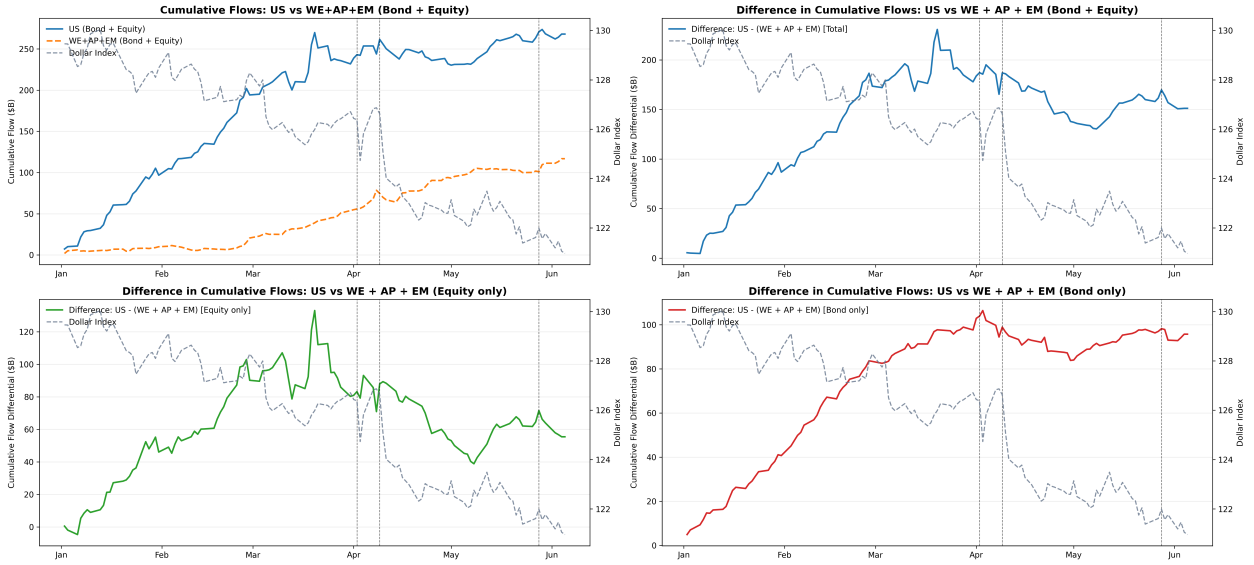
Section 3 established that the dollar does not depreciate within a conventional 40-minute announcement window, but depreciates persistently at 24 hours on both April 2 and April 9;

the sole asset class that fails to reverse together with long-duration U.S. Treasuries. The price evidence narrowed the set of explanations in several wayy: the force driving the dollar lower is slow-moving, not instantaneous; it is U.S.-specific, since German and Japanese safe assets retain normal dynamics; the hedging channel of Shin et al. [2025] fits April 2 but not April 9; the convenience yield erosion of Jiang et al. [2025] is directionally consistent but quantitatively small relative to the equity repricing, and the CBTB decline is dominated by its domestic component rather than its cross-border component. What remains unidentified is the proximate mechanism: which portfolio reallocation generated the persistent dollar depreciation, through which asset class did it operate, and which investors drove it? This section uses daily EPFR fund-flow data to answer these questions.

We document four facts that are directly observable in the data and do not depend on any model assumption: (1) the dollar is closely associated with a portfolio reallocation from the U.S. to the rest of the world assets; (2) in this rotation, equity flows are much bigger than bond flows; (3) the rotation started before April 2 and accelerated after the tariff suspension on April 9; and (4) it was led by U.S.-domiciled funds rather than by foreign domiciles.

One important difference between the price evidence in Section 3 and the flow evidence in this section is the frequency. EPFR reports daily net fund flows, but the mapping from announcement to flow realization is not as sharp as in the price data. The April 2 announcement occurred after U.S. market close. The April 2 flow observation, therefore, reflects trading decisions made *before* the announcement; the first observation that should reflect investor reactions is April 3. In the daily bar charts that follow, the April 2 bar is pre-treatment, and the April 3 bar is the first post-treatment observation. The April 9 suspension was posted at 1:18 p.m. ET, during trading hours. Here, the mapping is less clean. Depending on fund domicile and fund cut-off policies, the reaction may appear in the April 9 or April 10 flow observation, or both. We therefore interpret the daily flow evidence as informative about the direction and timing of portfolio reallocation rather than about within-day dynamics, for which the intraday price evidence in Section 3 is a more appropriate tool.

Figure 2: The Dollar and U.S. vs. Rest-of-World Cumulative Fund Flow Differential (Bonds and Equities)



Notes: Daily EPFR/EFPR fund flows from January 1 to June 5, 2025. The top-left panel shows cumulative flows (USD billions) into U.S. and Rest-of-World (Western Europe + Asia-Pacific + Emerging Markets) bond and equity funds. Remaining panels plot the cumulative differential (U.S. minus Rest-of-World) for total flows, equity flows, and bond flows. Vertical dashed lines mark April 2 and April 9. A declining differential indicates a relative reallocation away from U.S. assets. Top-left: absolute cumulative flows for the US and the WE+AP+EM aggregate. Remaining panels: flow differential (US minus WE+AP+EM) for total, equity only, and bond only.

4.1 The Portfolio Reallocation in Three Phases

The upper left panel of Figure 2 plots cumulative EPFR flows from January 1 to June 5, 2025, into funds with U.S. mandates and aggregated funds with mandates on Western Europe, Asia-Pacific, and Emerging Markets mandates, together with the U.S. dollar broad index. The upper right panel plots the flow differential (U.S. minus rest-of-world) alongside the same dollar index. The differential peaks in mid-March and declines steadily through end-March, well before the April 2 announcement. It fluctuates without a clear trend during the April 2–10 period.[13] After April 10, the differential resumes a steady decline that continues through the second week of May. The depreciation started even earlier, with the dollar peaking right before Inauguration Day. The Liberation Day saga accelerates the equity rotation.

These three phases are clearly visible. First, the rotation was already underway before April 2. Portfolio flows into U.S. mandates slowed at the end of February 2025, starting

[13]The differential increases from $80.3 billion (March 31) to $93.1 billion (April 4), driven by a large U.S. equity inflow of $14.3 billion on April 4. It then drops sharply to $70.9 billion on April 8, before jumping back to $87.9 billion on April 9 (the tariff suspension day, with a U.S. equity inflow of $16.9 billion).

to decline at the end of March, fluctuating around zero through the beginning of May. Fund flows into the 'rest of the world' mandates turned positive at the end of February, continued through April 8, briefly turned negative between April 9 and April [20; check], and then stayed positive and stable through the beginning of May. This is direct evidence that investors were reallocating portfolios from U.S. assets to foreign assets, depreciating the US dollar through the standard portfolio channel mechanism.

Second, if anything, Liberation Day temporarily halted the rotation and accelerated it sharply afterward. The rotation paused on some days during April 3–8. U.S. flows stabilized and the rest of the world inflows slowed right before April 9. This pause coincides with the period in which the broad dollar index temporarily appreciates.[14] The pause resolved the near-term risk-off shock but confirmed the broader policy regime shift.

Third, the rotation resumed and accelerated sharply after April 9. Cumulative non-U.S. portfolio flows rose substantially through May and June, particularly into Western Europe and Emerging Markets (Figure 2). This acceleration occurred *despite* the tariff suspension.

4.2 Equities, Not Treasuries

The lower panels of Figure 2 plot the same differentials for equity flows (left hand side) and bond flows (right hand side). From peak to trough, the equity flow differential drops by more than 90 billion dollars, while the bond differential, which starts to decline only after April 2, drops by about 20 billion. The equity swing is more than four times the bond swing. The dominant reallocation driver is the equity market. The phases from bond and equities seem the same.

The country and regional decomposition in Figures **??** and **??** reveal that the rotation is not geographically uniform across phases. During the April 3–9 pause, the $23.5 billion inflow into rest-of-world equity mandates is almost entirely driven by China-mandated funds ($25.5 billion, 97 percent of the EM equity total). Western European equity mandates

[14] The broad dollar index returned to [126.87] by April 8 after falling to [124.73] on April 3, over a period when daily flows had not yet resumed.

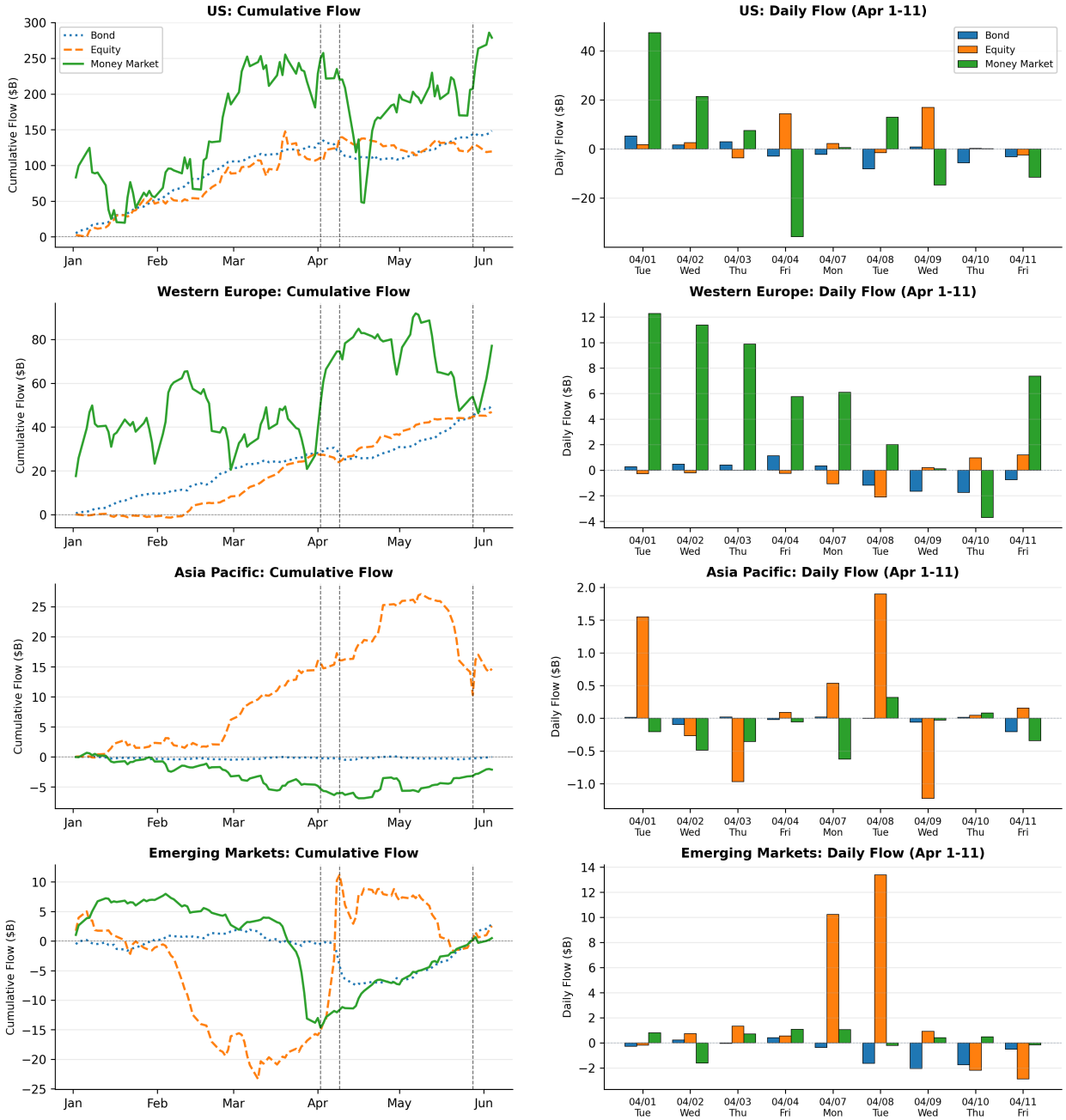
Figure 3: **Fund Flows by Asset Class — US, Germany, Japan, and China.**



Notes: Daily EPFR/EFPR flows into bond, equity, and money market funds for the United States, Germany, Japan, and China. Cumulative flows cover January–June 2025; daily flows focus on April 1–11. Vertical dashed lines mark April 2 and April 9. Cumulative (Jan–Jun 2025) and daily (Apr 1–11) flows into Bond, Equity, and Money Market funds.

actually decline by $3.2 billion. Funds with Japan mandates also decline by $1.2 billion. The Phase 2 "pause" in the U.S.-to-rest-of-world rotation is therefore a pause in the *Western* rotation, masked in the aggregate by a China-specific equity spike that coincides with

Figure 4: **Fund Flows by Asset Class — US, Western Europe, Asia Pacific, and Emerging Markets.**



Notes: Daily EPFR/EFPR flows into bond, equity, and money market funds for the United States, Western Europe, Asia-Pacific, and Emerging Markets. Cumulative flows cover January–June 2025; daily flows focus on April 1–11. Vertical dashed lines mark April 2 and April 9. Cumulative (Jan–Jun 2025) and daily (Apr 1–11) flows into Bond, Equity, and Money Market funds.

the April 9 tightening of tariffs on China. This spike reverses almost entirely in Phase 3 (−$16.2 billion)

In Phase 3 (April 10 through June 4), the equity rotation is overwhelmingly driven by

Western Europe, which receives $22.7 billion in equity inflows while U.S. equity mandates lose $19.8 billion. Germany accounts for only $2.3 billion of the Western European total, indicating a broad-based reallocation. Japan equity mandates present a contrasting pattern: cumulative flows rise from $9.1 billion at end-March to a peak of $17.0 billion by late April, declining sharply in May.

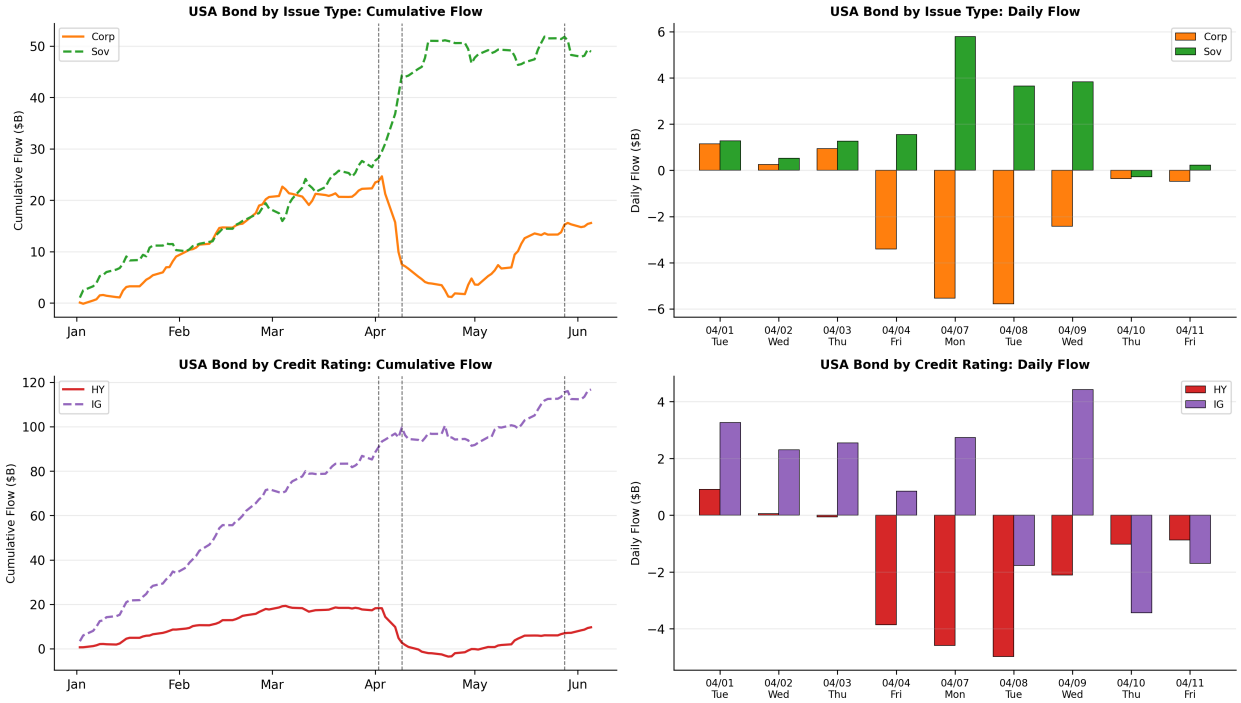
The daily flow data provide a direct quantity-side confirmation of the risk-off price dynamics documented in Section 3. On April 3, the first trading day on which investors could act on the Liberation Day announcement, U.S. equity funds lose $3.6 billion while money market funds gain $7.5 billion and bond funds gain $2.9 billion - a textbook risk-off reallocation in quantities, matching the flight-to-safety pattern that the 40-minute price windows identify on April 2 in equities and Treasuries. The timing correspondence between the intraday price response and the next-day flow response provides joint evidence that the same shock drives both.

The risk-off flow pattern reverses sharply on April 4, when $14.3 billion flows into U.S. equity funds while $35.8 billion flows out of money markets. A near-identical pattern recurs on April 9: $16.9 billion in equity inflows funded by $14.8 billion in money market outflows, a clear rotation from cash to equities. These paired daily movements indicate that domestic investors used cash positions as the marginal funding source for equity reallocation, consistent with the domicile evidence in Section 4.4.

Stepping back from the event window, U.S. money market dynamics display a broader shift from risky to safe assets during the sample period, visible in Figures **??** and **??**. Cumulative inflows build steadily from Inauguration Day through early-March, reaching approximately $253 billion by March 11. They steady from mid-March to mid-April, then resume to increase through June. By mid-April money market flows resume their upward trajectory, reaching $279 billion by June 4. The large money market outflows on April 14–15 ($65.6 and $24.7 billion) coincide with the U.S. tax filing deadline and is accompanied by outflows from all U.S. fund categories rather than by offsetting equity inflows; we attribute

these to seasonal tax-related withdrawals. In this broader picture, the April 3–11 oscillations documented above may reflect U.S. policy uncertainty.

Figure 5: **US Bond Flows Decomposed by Issue Type and Credit Rating.**



Notes: Daily EPFR/EFPR flows into U.S. bond funds, January 1–June 5, 2025. Top panels separate corporate (Corp) and sovereign (Sov) bond funds; bottom panels separate high-yield (HY) and investment-grade (IG) funds. Cumulative flows are in USD billions; daily flows are in USD billions per day. Vertical dashed lines mark April 2 and April 9. The figure shows that post-April 2 bond outflows are concentrated in corporate and high-yield funds rather than sovereign bond funds. Top panels: cumulative and daily flows into Corporate (Corp) vs. Sovereign (Sov) bond funds. Bottom panels: cumulative and daily flows into High Yield (HY) vs. Investment Grade (IG) bond funds.

4.3 Bond Flows

Figure 5 plots subcomponents of total U.S. bond flows: sovereign and corporate bonds, and HY and IG. Post-April 2, U.S. bond outflows are concentrated in corporate and high-yield funds. Post-April 2, total outflows visible in Figure 3 and 4, are concentrated in corporate and high-yield funds: corporate bond funds lose approximately $8 billion in cumulative flows, and high-yield funds lose approximately $9 billion. Sovereign bond funds, by contrast, gain more than $21 billion. Investment-grade funds continue to attract inflows (+$25 billion), showing no sign of broad withdrawal. The right hand side of Figure 5 illustrates the daily dynamic highlighting the sharp contrast: The post-April 2 bond reallocation is a rotation

within the U.S. fixed-income market, out of credit risk and into safety, rather than a flight from U.S. fixed income as a whole.[15]

The sovereign bond fund inflows are particularly informative when read alongside the Treasury price evidence in Section 3.3. On April 3, the first post-announcement trading day, sovereign funds gain $1.3 billion, and inflows continue through the event window: $1.5 billion on April 4, $5.8 billion on April 7, $3.7 billion on April 8, and $3.8 billion on April 9. Cumulative sovereign inflows over the April 3–9 window total $16.1 billion. This flow pattern matches the 40-minute and 24-hour price evidence: cash and future Treasury prices rise on both April 2 and April 9, and the 10-year cash price outperforms the futures price on both dates. Price and flow evidence jointly point toward increased demand for sovereign debt during the event window.

From April 4 through April 11, however, the 10-year Treasury yield rises even as EPFR-tracked sovereign bond funds continue to receive inflows. If mutual funds and ETFs were net buyers of sovereign debt during this window, the selling pressure that pushed yields higher must have originated elsewhere, possibly among leveraged intermediaries unwinding basis-trade positions (which EPFR does not capture) or foreign buyers not captured in the EPFR data. However, the anomaly is U.S.-specific: German and Japanese 10-year government bond futures reverse cleanly on April 9 (Table 1, Panel C), ruling out a global shift in safe-asset demand. This negative result that sovereign fund flows went *toward* Treasuries while yields rose, in a market where foreign sovereign bonds behave normally, provides direct flow-level support for the separate intermediation shock that the price evidence in Section 3.3 identifies through the non-reversal of 10-year prices on April 9 and the maturity-specific behavior of the 2-year versus 10-year futures.

This pattern also directly addresses the "Treasury turmoil" interpretation. Acharya and Laarits [2025], using monthly TIC data, document approximately $47 billion in foreign out-

[15]The corporate and sovereign sub-categories cover approximately 44 percent of total U.S. bond fund flows in our sample; the remainder includes municipal, MBS/ABS, and multi-sector funds. The high-yield and investment-grade decomposition covers approximately 84 percent of the total. Claims about the composition of U.S. bond flows should be interpreted in light of this partial coverages.

flows from long-term U.S. Treasuries in April 2025 (a two-standard-deviation event relative to the February 2023–March 2025 baseline of $47 billion in monthly inflows.) Our daily EPFR evidence complements their finding by showing that, at the fund-flow level, sovereign bond funds received significant inflows when both domestic and foreign investors are included. Moreover, sovereign bond funds did not experience the kind of redemption cascade that characterized March 2020 Vissing-Jorgensen [2021]. That April 2025 saw fund inflows into U.S. Treasuries is different from that earlier episode, and the price signature, of Treasury prices rising on both the tariff shock and reversal days is different as well. The mechanisms behind market movements are therefore likely to be different from previous stress episodes.

One limitation of the EPFR bond data is that they are not disaggregated by maturity. The price evidence in Section 3.3 shows that the 2-year Treasury futures reverse cleanly on April 9 while the 10-year does not, supporting the maturity-dependent interpretation of Acharya and Laarits [2025]. Whether sovereign fund inflows during the event window were concentrated at the short or long end of the curve cannot be determined from our data, and remains an important question for further work.

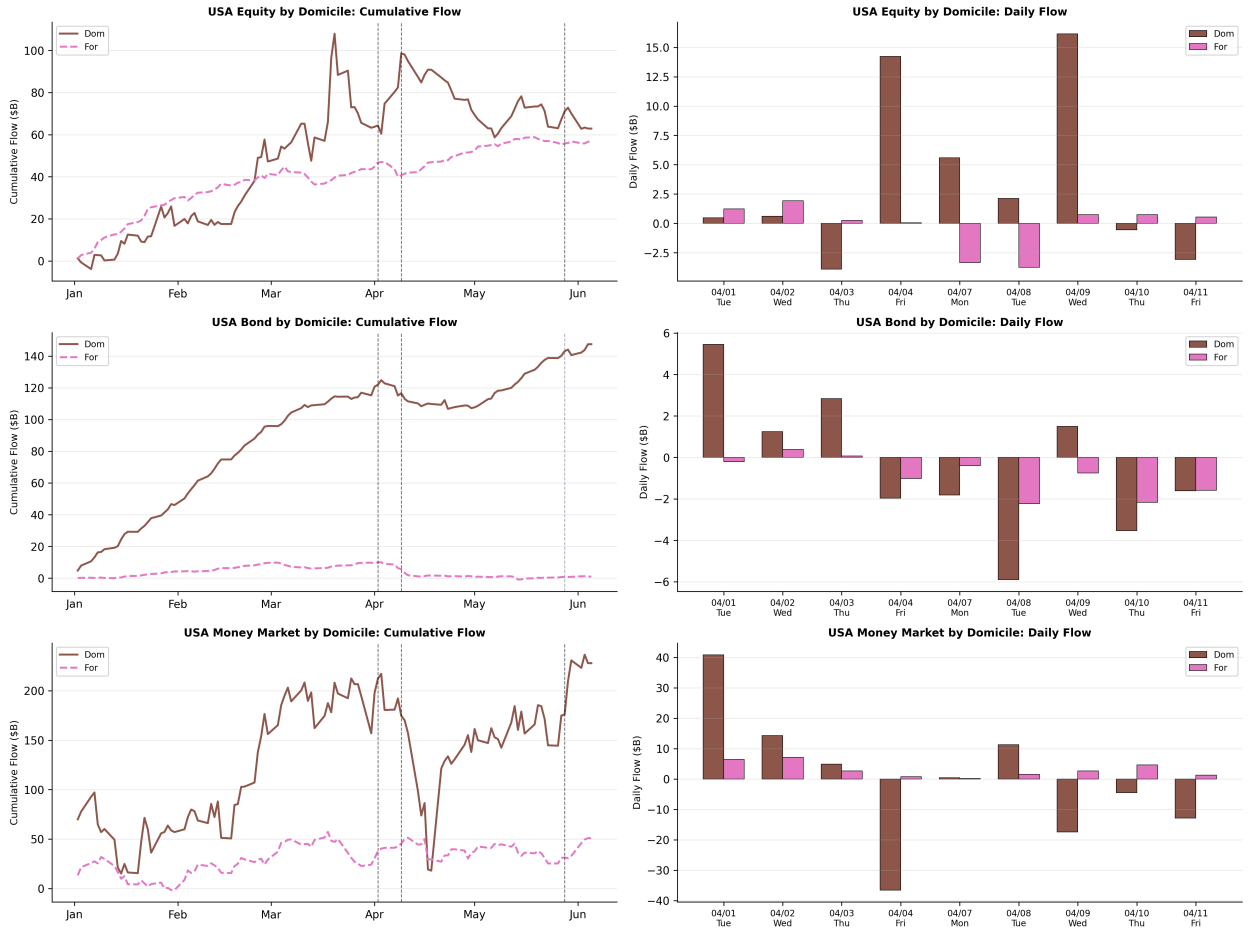
In that earlier episode, Vissing-Jorgensen [2021] showed that a negative demand shock driven by foreign sales, mutual fund redemptions, and leveraged intermediary deleveraging caused Treasury prices to fall, and that Fed intervention was required to stabilize yields. In April 2025, however, Treasury prices *rose* on both announcement days (Section 3.3). The flow signature is different and the price signature is different; the mechanisms are therefore likely to be different.

4.4 The Domicile Decomposition

Figure 6 decomposes U.S. fund flows by investor domicile for equity, bond, and money market funds. Domestic investors dominate both sides of the event-window oscillation. On April 3, domestic equity outflows are −$3.9 billion while foreign equity flows are essentially flat (+$0.3 billion). On the risk-on days of April 4 and April 9, domestic equity inflows

are $14.2 and $16.2 billion, respectively; foreign equity flows on the same days are $0.1 and $0.8 billion. The buy-the-dip response is an almost exclusively domestic phenomenon. In Phase 3 (April 10 through June 4), domestic equity funds experience cumulative outflows of $35.7 billion while foreign equity funds receive inflows of $15.9 billion. The sustained equity rotation away from U.S. markets is driven by domestic investors, not by a foreign exit.

Figure 6: **US Fund Flows Decomposed by Investor Domicile — Equity, Bond, and Money Market.**



Notes:Daily EPFR/EFPR flows into U.S. equity, bond, and money market funds, January 1–June 5, 2025. Flows are decomposed by investor domicile (domestic vs. foreign). Cumulative flows are in USD billions; daily flows are in USD billions per day. Vertical dashed lines mark April 2 and April 9. The figure shows that post-April 2 U.S. equity outflows are driven primarily by domestic investors. Cumulative (Jan–Jun 2025) and daily (Apr 1–11) flows, split between domestic (Dom) and foreign (For) investors.

The money market domicile data reinforce this finding. On April 4, domestic money market outflows are −$36.6 billion while foreign money market flows are +$0.7 billion. On April 9, the split is −$17.5 billion domestic versus +$2.7 billion foreign. Foreign investors are not participating in the risk-on equity re-entry; the cash-to-equity rotation documented

in Section **??** is entirely domestic. However, foreign-domiciled flows seem more important in January, when the dollar turn around.

We interpret this evidence with caution. The EPFR domicile field captures the country of fund registration, not the ultimate beneficial owner, and coverage of foreign-domiciled funds is generally lower than that of domestic funds. With that caveat, the data are consistent with a picture in which domestic investors led the equity rotation and used cash positions as the marginal funding source for reallocation.

This finding has two implications. First, it identifies the proximate source of FX demand pressure: domestic investors reallocating from U.S. to foreign equities must sell dollars and buy foreign currencies, generating direct depreciation pressure through the portfolio-balance channel [e.g., Hau and Rey, 2006; Camanho et al., 2022]. Second, it weakens the narrative that foreign liquidation of U.S. assets was the primary driver of the concurrent dollar weakness. Our portfolio-balance channel and the BIS hedging channel proposed by Shin et al. [2025] are complements, not substitutes: domestic investors rotate equity portfolios, while foreign investors hedge existing dollar positions (generating additional derivative-market pressure). Both weaken the dollar without requiring foreign Treasury sales.

Foreign-domiciled flows, though small, display a sequenced pattern visible in the cumulative panels of Figure 6. Foreign money market outflows begin in January, foreign equity inflows decelerate starting in February, and foreign bond inflows start to decline in March before collapsing after April 2 (from $9.9 billion to $1.0 billion by sample end). This ordering—most liquid assets first, stickiest last—is qualitatively consistent with the gradual convenience yield erosion that **?** document through price data and with the CBTB evidence in Section **??**. However, the magnitudes are modest: foreign-domiciled flows swing by single-digit billions across all three categories. The domestic equity rotation involves flows an order of magnitude larger, making the portfolio-balance channel the quantitatively dominant mechanism in the EPFR data.

4.5 A subsection on what have we learned here or move the below to related literature?

Using the same data source, Shin et al. [2025] report continued international portfolio inflows into U.S. assets at a slower pace in April and May, and attribute the dollar's depreciation primarily to *ex post* FX hedging by non-U.S. investors rather than to asset sales. Our evidence is consistent with this finding: gross flows into U.S. assets did not collapse. What our decomposition adds is the relative dimension. The flow differential between U.S. and non-U.S. equity funds declined sharply, even as gross flows into both regions remained positive. It is this relative rotation that generates the portfolio-balance pressure on the dollar, rather than a unilateral exit from dollar assets. Shin et al. [2025] do not report a U.S. vs rest-of-world flow differential, a bond-versus-equity decomposition, or a domicile decomposition. Our analysis fills these gaps.

Zheng [2025] also uses EPFR fund-level data around the April 2 episode and concludes that the tariff shock reduced demand for dollar-denominated assets relative to non-dollar assets. Our analysis extends this in two directions: we document the three-phase time profile of the rotation and we decompose flows by asset class and investor domicile.

5 External Validity: IEEPA Court Rulings

To Be Completed.

6 Conclusion

The U.S. dollar's depreciation following the April 2, 2025 Liberation Day tariff announcement poses a clear puzzle for standard international macroeconomic models. We combine minute-by-minute asset price data with daily EPFR fund flows disaggregated by region, asset class, and investor domicile to identify the mechanism behind this depreciation. The joint use of

high-frequency prices and daily flows is central to our approach: prices identify the shock but cannot uniquely identify the channel; flows identify the channel but lack the timing precision to isolate the shock. Together, they establish four facts.

First, the dollar does not depreciate within the 40-minute announcement window. Equities fall 2–5 percent, oil drops, gold rises, Treasury prices increase, and the VIX spikes—a textbook risk-off response—yet the G10 dollar average is literally zero. The dollar puzzle is not an announcement-window phenomenon. The depreciation emerges between the 40-minute and 24-hour windows, pointing to a slower-moving mechanism distinct from the tariff shock itself.

Second, the dollar's persistent depreciation is tightly linked to a large portfolio rotation from U.S. to foreign equity markets. The U.S.-minus-rest-of-world equity flow differential declines more than four times as much as the corresponding bond differential. On April 3, the first post-announcement trading day, equity outflows and money market inflows confirm in quantities the risk-off pattern that intraday prices identify on April 2. This correspondence between the price response and the next-day flow response provides joint evidence that the same shock drives both.

Third, the equity rotation is led by domestic U.S. investors, not by foreign selling. Domestic funds drive both sides of the event-window oscillation—the risk-off outflow on April 3 and the risk-on re-entry on April 4 and April 9—with foreign-domiciled flows an order of magnitude smaller. In Phase 3, domestic equity funds experience cumulative outflows of $35.7 billion while foreign equity funds receive inflows. This finding identifies the proximate source of FX demand pressure: domestic investors reallocating from U.S. to foreign equities must sell dollars, generating depreciation through the portfolio-balance channel.

Fourth, the Treasury market is subject to a separate shock. Sovereign bond funds receive inflows throughout the episode even as 10-year yields rise from April 4 onward. If mutual funds and ETFs were net buyers, the selling pressure must have originated among leveraged intermediaries outside EPFR's coverage. German and Japanese government bonds reverse

cleanly on April 9, isolating the anomaly as U.S.-specific. The Treasury turmoil is distinct from the tariff-driven equity rotation.

These findings bear on several interpretations of the April 2025 episode proposed in the recent literature. The convenience yield erosion documented by Jiang et al. [2026] is qualitatively consistent with the sequenced pattern of foreign-domiciled outflows we observe—money markets first, equities second, bonds last. However, the magnitudes of foreign flows are modest relative to the domestic equity rotation, making the portfolio-balance channel the quantitatively dominant mechanism in the EPFR data. The FX hedging channel proposed by Shin et al. [2025] complements rather than substitutes for this finding: domestic investors rotate equity portfolios, generating direct FX demand, while foreign investors hedge existing dollar positions, generating additional derivative-market pressure. Both weaken the dollar without requiring foreign Treasury sales.

More broadly, our evidence suggests that large and uncertain tariff announcements can affect exchange rates primarily through financial markets—through equity reallocation and portfolio-balance channels—rather than through traditional goods-market adjustment, at least in the short to medium run. The speed and magnitude of the financial-market response, relative to the slow-moving goods-market adjustment that standard models emphasize, implies that trade policy shocks transmit to exchange rates through portfolio reallocation well before any change in trade flows materializes. How trade policy interacts with global portfolio allocation is likely to remain a central question in an environment characterized by large, abrupt, and potentially reversible policy interventions.

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Online Appendix

The Appendix is organized as follows: Section A1 provides details on data sources and variable construction. Section A2 provides additional figures and tables.

A1 Data Sources and Summary Statistics

Exchange Rates. Spot exchange rates at the one-minute frequency are sourced from FirstRate Data and include selcted G10 and liquid EM currencies, quoted as foreign currency units per U.S. dollar (e.g., positive changes indicate dollar appreciation). Changes in exchange rates are reported in log-changes (percent). We consider the following USD exchange rates: AUD, CAD, CHF, EUR, GBP, JPY, NZD, BRL, CNH, INR, MXN, THB, TRY, and ZAR.

Cross-Currency Bases. Data for cross-currency bases (CCBY), which measure CIP deviations, are sampled at the one-minute frequency and sourced from LSEG. CCBY measure the US OIS rate minus the synthetic US rate based on currency-hedged foreign currency OIS rates. Negative values and changes in the CCBY indicate greater dollar scarcity or funding stress on offshore markets. CCBY are reported in basis points. We consider the 1-year EUR and 1-year JPY CCBY. Their LSEG tickers are EURCBS1Y and JPYCBS1Y, respectively.

Government Bond Prices and Spreads. The 10-year U.S. Treasury cash price is sourced from Bloomberg. U.S., German, and Japanese 10-year government bond futures prices are sourced from FirstRate Data, as are prices for 2-year U.S. Treasury futures. Changes in government cash and futures prices reported in log-changes (percent). A positive change indicates higher prices, lower yields. The FirstRate Data tickers (exchange) for 10-year bond futures are: ZN (CBOT/CME), FGBL (EUREX), and JB (SGX) for 10-year U.S., German, and Japanese bond futures respectively. The FirstRate Data tickers (exchange) for

the 2-year U.S. Treasury future is ZT (CBOT/CME). Swap spreads at the 2-year and 10-year maturity, measured as the OIS rate minus Treasury yield at corresponding maturities, are sourced from LSEG. Swap spreads are reported in basis points. the 2-year and 10-year swap spread LSEG tickers are US2YSS and US10YSS, respectively.

Equities and Volatility. Front-month futures on the S&P 500, Euro Stoxx 50, FTSE 100, Nikkei 225, DAX futures and VIX are sampled at one-minute frequency and source from FirstRate Data. Changes are reported in log-changes (percent). The respective FirstRate Data tickers (exchange) are: ES (CME), FESX (EUREX), FTUK (ICE), NIY (CME), FDAX (EUREX), VX (CBOE).

Commodities. Front-month WTI crude oil and gold futures prices, traded on CME, are sampled at one-minute frequency and sourced from FirstRate Data. Changes are reported in log-changes (percent). Their respective FirstRate Data tickers (exchange) are CL (NYMEX/CME) and GC (CME).

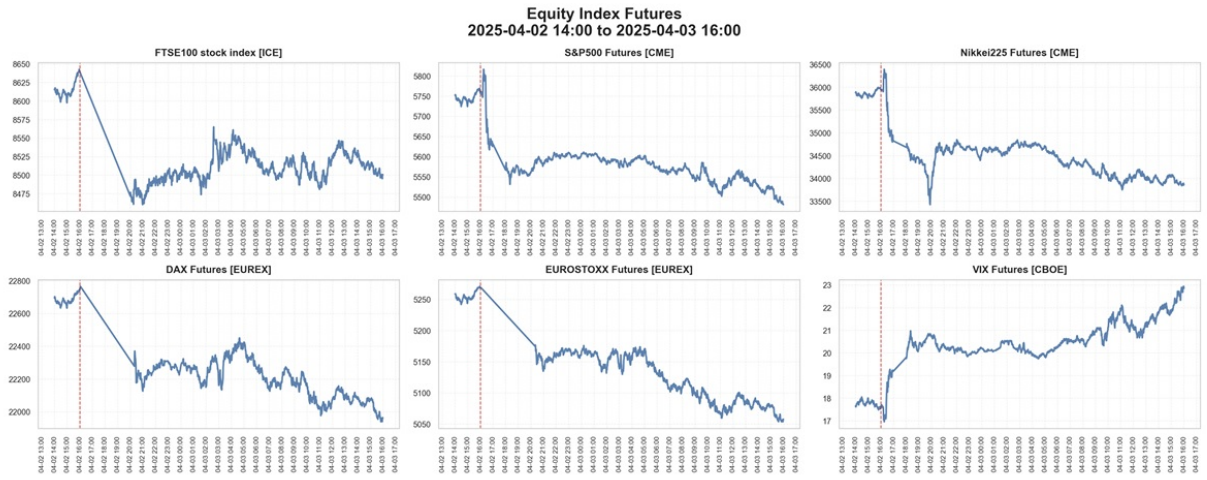
Fund Flows. Daily EPFR/EFPR data, January 1 to June 5, 2025. Nominal US dollar flows as summarized in Table Table A.1 below and discussed in the main text.

A2 Additional Tables and Figures

Table A.1: Fund Flow Data: Summary by Fund Mandate

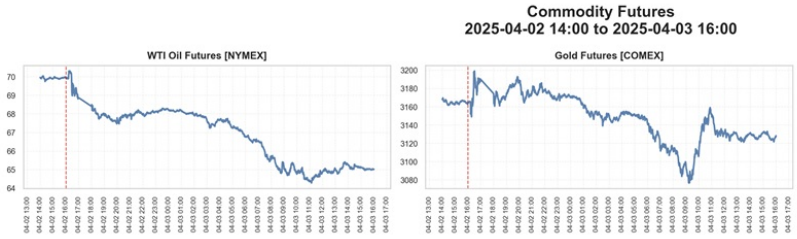
Mandates	**Bonds**	**Equities**	**MMs**
Emerging Markets	EM_Bond	EM_Equity	EM_MM
Asia Pacific	AP_Bond	AP_Equity	AP_MM
China	CN_Bond	CN_Equity	CN_MM
Japan	JP_Bond	JP_Equity	JP_MM
Germany	DE_Bond	DE_Equity	DE_MM
Western Europe	WE_Bond	WE_Equity	WE_MM
USA	US_Bond	US_Equity	US_MM
US Bond Mandate Disaggregation			
By Domicile	US_Bond_Dom	US_Bond_For	
By Issuer	US_Bond_Corp	US_Bond_Sov	
By Credit Rating	US_Bond_HY	US_Bond_IG	
US Equity Mandate Disaggregation			
By Domicile	US_Equity_Dom	US_Equity_For	
US Money Market (MMs) Disaggregaton			
By Domicile	US_MM_Dom	US_MM_For	

Figure A.1: Equity Index Futures from April 2 14:00 to April 3 17:00, 2025



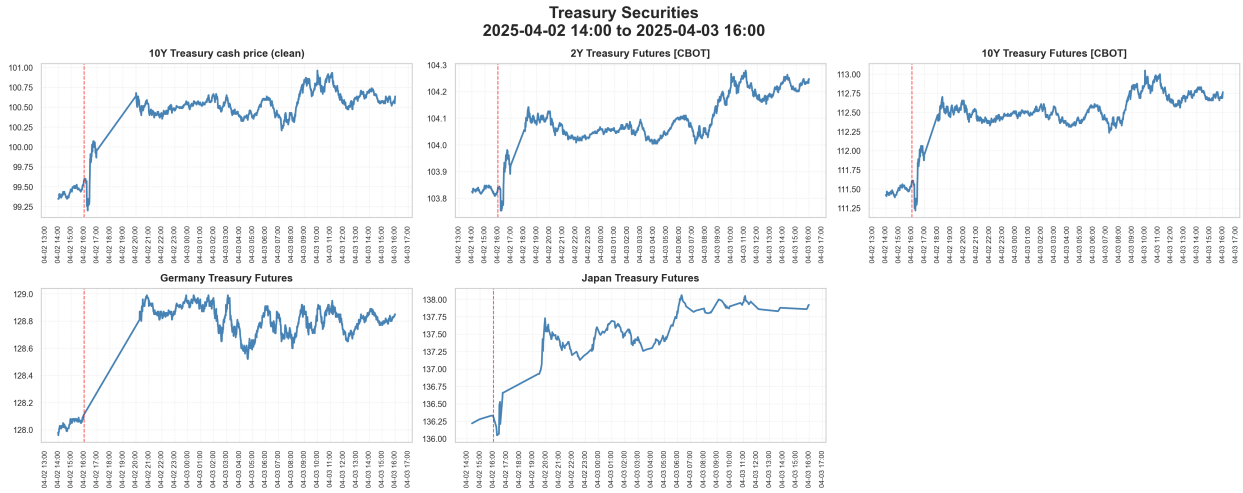
Notes: Minute-by-minute equity index futures and VIX, April 2 14:00 to April 3 17:00, 2025. Equity prices fall sharply across major markets and implied volatility spikes, consistent with a global risk-off shock.

Figure A.2: Commodity Futures from April 2 14:00 to April 3 17:00, 2025



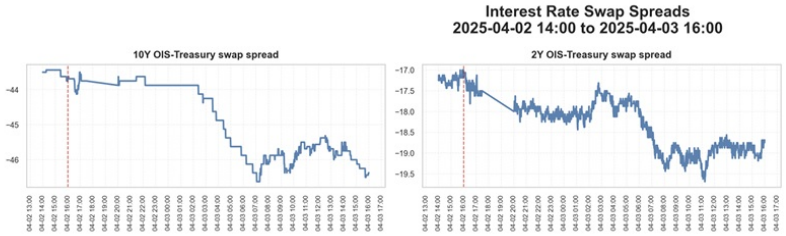
Notes: Minute-by-minute commodity futures (WTI oil and gold), April 2 14:00 to April 3 17:00, 2025. Oil declines sharply; gold rises modestly, consistent with weaker growth expectations and safe-asset demand.

Figure A.3: Treasury Securities from April 2 14:00 to April 3 17:00, 2025



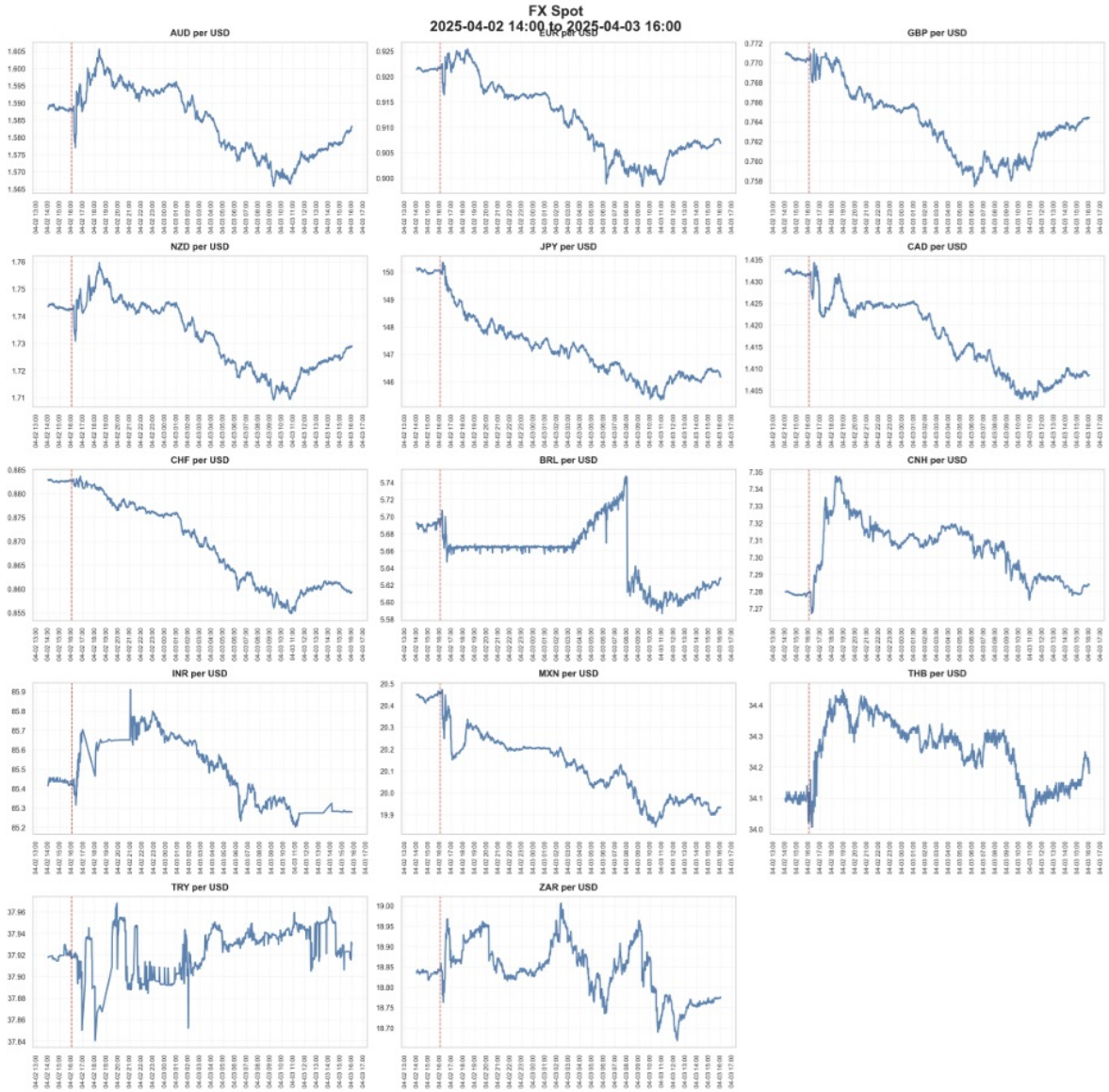
Notes: Minute-by-minute prices of U.S. Treasury securities, April 2 14:00 to April 3 17:00, 2025. Treasury prices rise immediately following the tariff announcement, indicating a flight to safety despite the contemporaneous dollar depreciation.

Figure A.4: Interest Rate Swap Spreads From April 2 14:00 To April 3 17:00, 2025



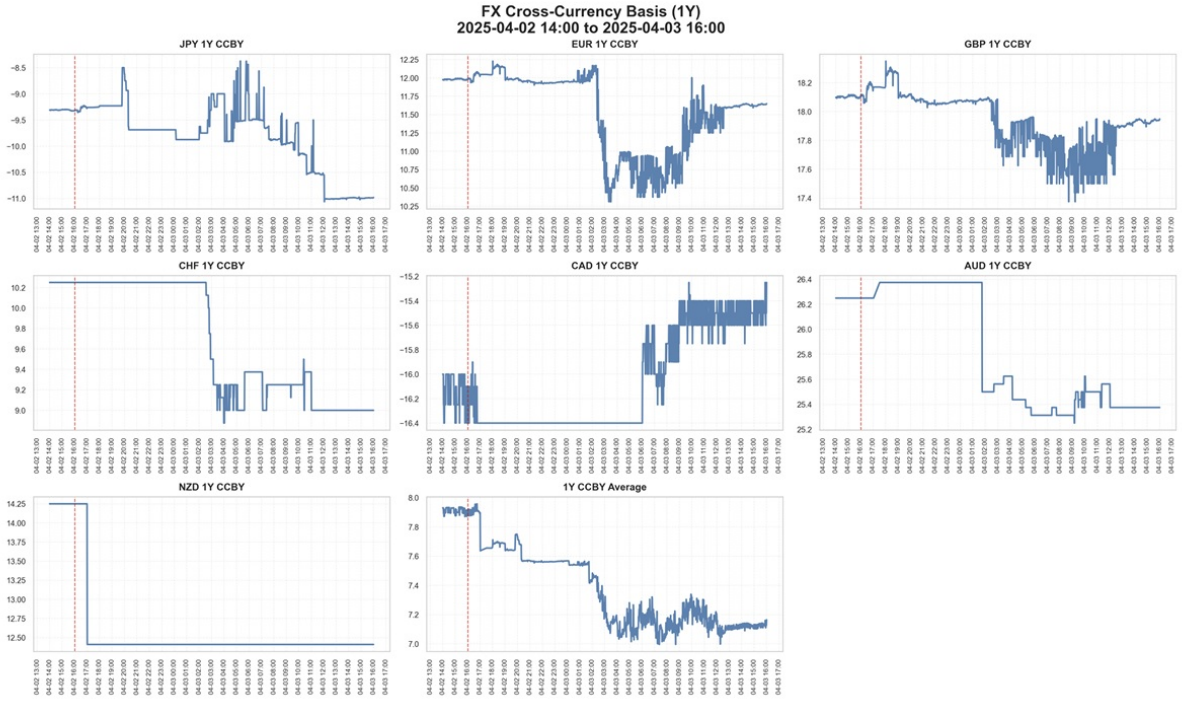
Notes: Minute-by-minute OIS–Treasury swap spreads (2-year and 10-year), April 2 14:00 to April 3 17:00, 2025. Swap spreads narrow following the announcement, consistent with increased relative demand for Treasuries during the risk-off episode.

Figure A.5: FX Spot Rates from April 2 14:00 to April 3 17:00, 2025.



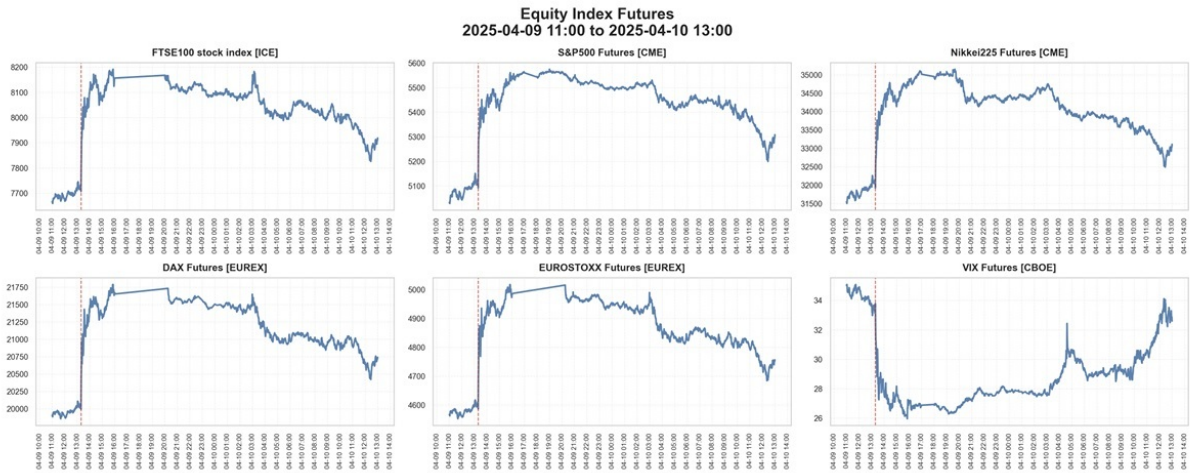
Notes: Minute-by-minute spot exchange rates for G10 and selected EM currencies, April 2 14:00 to April 3 17:00, 2025. Vertical line marks the Liberation Day announcement. G10 currencies appreciate sharply against the dollar following the announcement.

Figure A.6: FX Cross-Currency Basis From April 2 14:00 to April 3 17:00, 2025



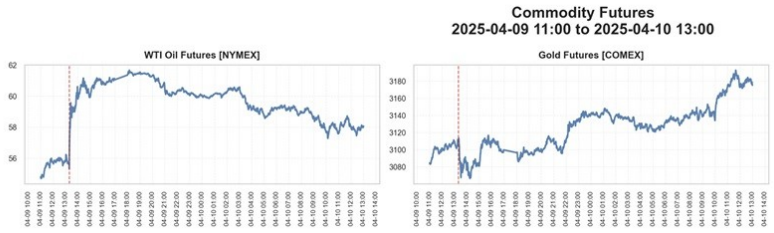
Notes: One-year cross-currency basis spreads at one-minute frequency, April 2 14:00 to April 3 17:00, 2025. More negative values indicate higher dollar funding costs. The Liberation Day announcement is associated with a sharp widening, consistent with heightened dollar funding stress and a global risk-off response.

Figure A.7: Equity Index Futures From April 9 11:00 to April 10 13:00, 2025



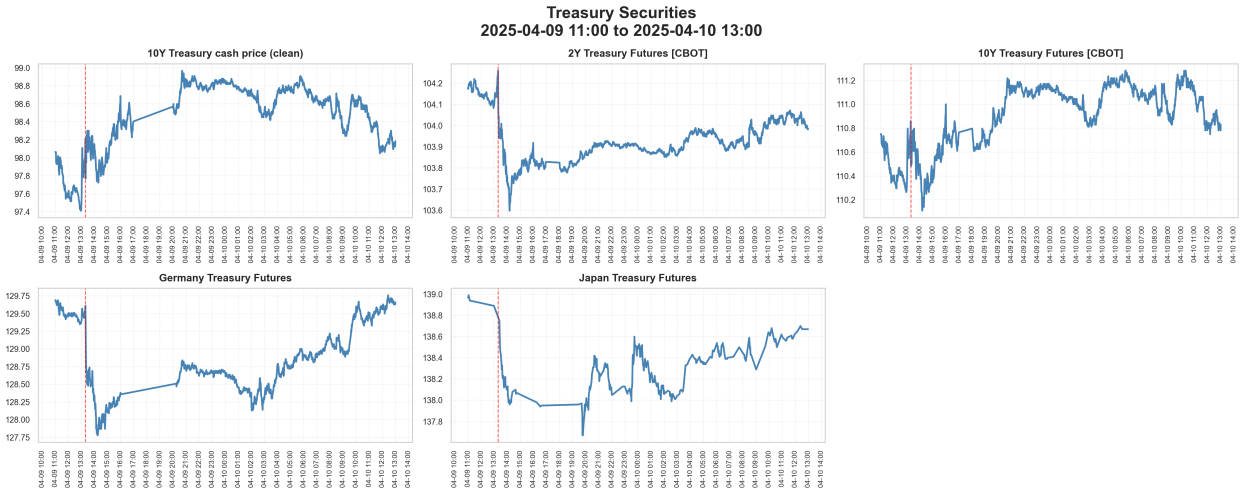
Notes: Minute-by-minute equity index futures and VIX, April 8 23:00 to April 9 17:00, 2025. Equity prices rise sharply and implied volatility falls, closely mirroring the April 2 responses with opposite sign.

Figure A.8: Commodity Futures: WTI Oil (+8.68%) and Gold (+2.75%) from April 9 11:00 to April 10 13:00, 2025



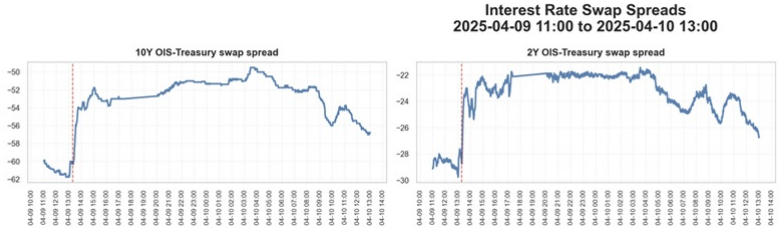
Notes: Minute-by-minute commodity futures, April 8 23:00 to April 9 17:00, 2025. Oil rises sharply; gold increases modestly, consistent with improved growth expectations and reduced risk aversion.

Figure A.9: Treasury Securities from April 9 11:00 to April 10 13:00, 2025.



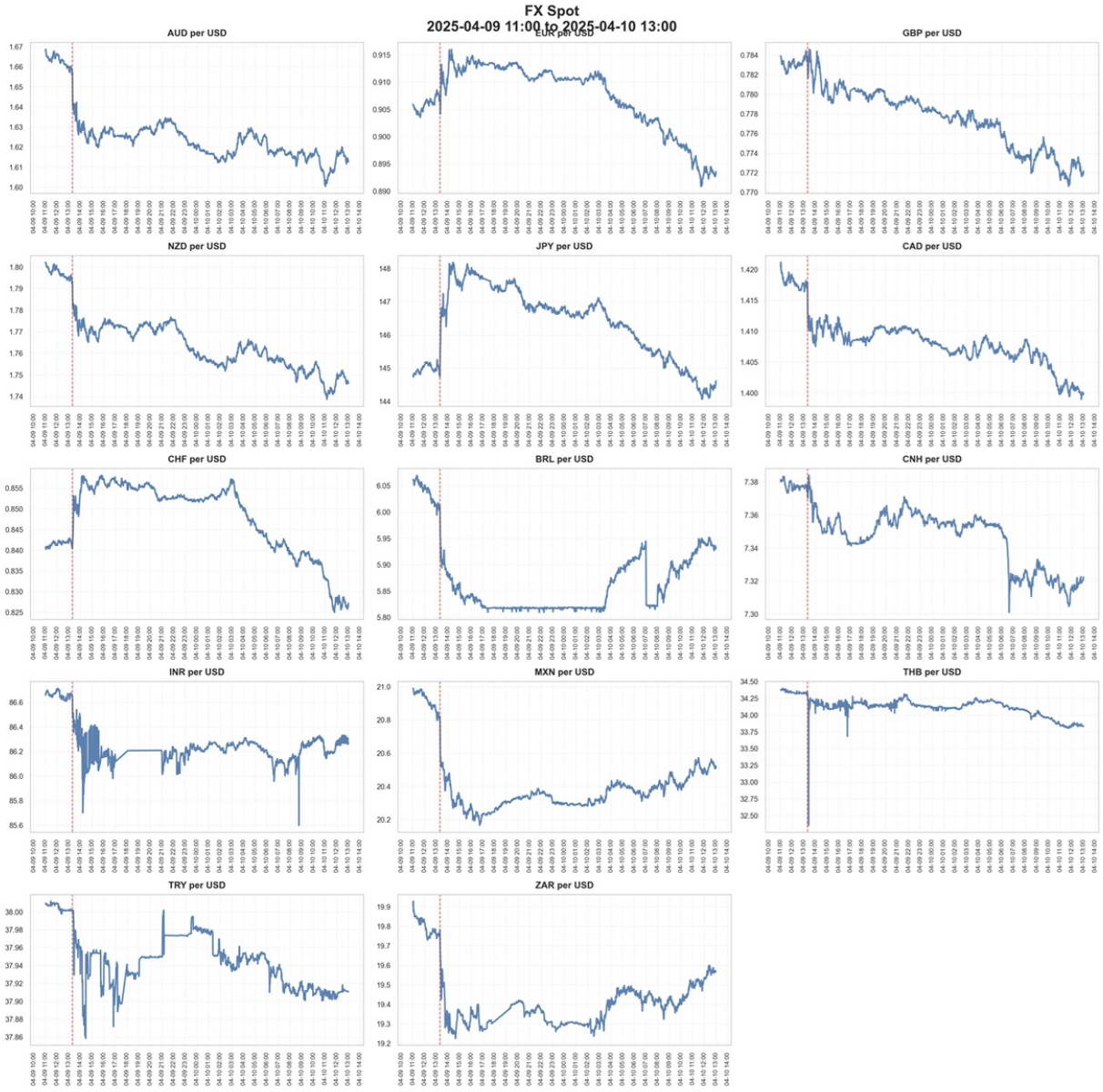
Notes: Minute-by-minute U.S. Treasury prices, April 8 23:00 to April 9 17:00, 2025. Treasuries decline modestly, consistent with a partial reversal of safe-haven demand—but the reversal is incomplete relative to other asset classes, pointing to a separate shock.

Figure A.10: Interest Rate Swap Spreads from April 9 11:00 to April 10 13:00, 2025



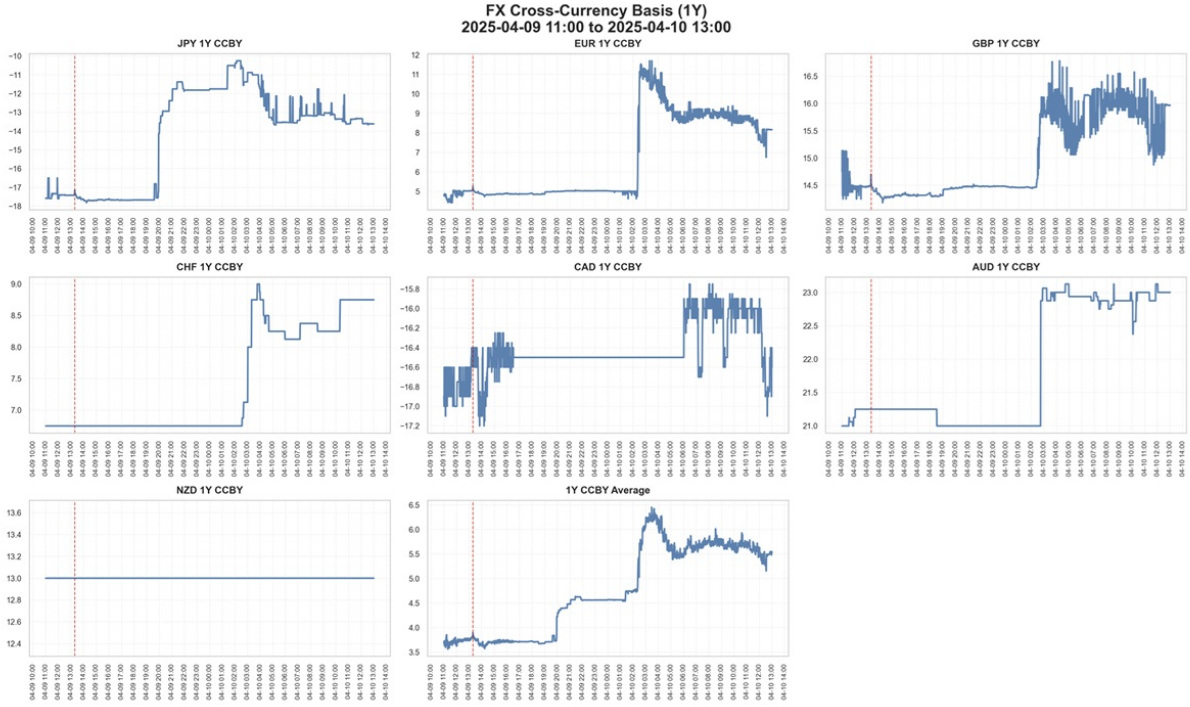
Notes: Minute-by-minute OIS–Treasury swap spreads, April 8 23:00 to April 9 17:00, 2025. Swap spreads widen following the tariff suspension, reversing the April 2 compression.

Figure A.11: FX Spot Rates from April 9 11:00 to April 10 13:00, 2025.



Notes: Minute-by-minute spot exchange rates, April 8 23:00 to April 9 17:00, 2025. The dollar appreciates broadly following the tariff suspension, partially reversing April 2 movements.

Figure A.12: FX Cross-Currency Basis from April 9 11:00 to April 10 13:00, 2025.



Notes: One-year cross-currency basis spreads, April 8 23:00 to April 9 17:00, 2025. Cross-currency bases narrow substantially following the tariff suspension.