The Digital Reconstruction of U.S. Financial Dominance: Challenge and Governance of Non-Sovereign Digital Assets

Richard Yifan Zhou*

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Abstract

This paper studies whether dollar-backed digital liquidity reinforces U.S. financial dominance. Using monthly data from July 2015 to December 2024, I estimate a seven-variable BSVAR with a Minnesota prior and Bayesian MCMC inference, and identify digital-asset liquidity shocks with post-estimation sign and zero restrictions following Arias et al. (2018). The results show that the DXY response follows a two-stage pattern: under an inflow shock, both Yield 3M and DXY fall on impact, then DXY inverts to a statistically positive response over the next horizons; the outflow shock mirrors this pattern with opposite signs after impact. Counterfactual channel decompositions indicate that the transmission to DXY is primarily stablecoin-led, whereas the Bitcoin channel is quantitatively smaller and less persistent. The evidence supports a digital dollar cycle in which stablecoin liquidity operates as an on-chain extension of the broader dollar system.

Keywords: Bretton Woods, International Monetary Order, U.S. Financial Dominance, Digital Asset Liquidity, Stablecoin, Bitcoin, Bayesian SVAR

*Queen Mary University of London and Imperial College London, richardmkit@gmail.com.

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1 Introduction

The post-Bretton Woods order is usually narrated through institutions, reserve holdings, and the macroeconomics of U.S. deficits. Yet the current phase of international monetary change also runs through digital balance sheets. Stablecoins now intermediate a large and growing share of on-chain transactions, and digital-asset markets have become large enough that their liquidity conditions can no longer be treated as a side issue for international political economy. The central question is therefore no longer whether digital assets exist outside the dollar system, but whether dollar-backed digital assets are creating a new feedback channel that can reinforce, rather than merely challenge, U.S. financial dominance.

This paper argues that the relevant disturbance is not a narrow Bitcoin price shock, but a broader digital-asset liquidity shock led by dollar-backed stablecoins. Because on-chain transactions require a unit of account inside the digital system, expansions and contractions in stablecoin balances should affect the pricing of major digital assets and potentially feed back into dollar strength. In that sense, the contemporary digital dollar cycle runs from fiat dollar claims to stablecoin balances, from stablecoin balances into digital-asset markets, and from those markets back into dollar demand. The mechanism is especially important because it links technological change to the governance of international monetary power: if stablecoins operate as offshore dollar liquidity inside digital markets, then their regulation becomes part of dollar-system management rather than a niche issue in fintech policy.

To test this argument, I estimate a seven-variable BSVAR on a monthly panel running from July 2015 to December 2024. The state vector includes the 3-month Treasury yield, log(VIX), the SOFR-EFFR spread, log(USDT market capitalization), log(USDT price), log(BTC price), and log(DXY). I place a Minnesota prior on the system, draw posterior samples with Bayesian MCMC, and then impose post-estimation sign and zero restrictions following Arias et al. (2018). This ordering matters. The identification step turns a flexible seven-variable BSVAR into economically interpretable digital-asset liquidity inflow and outflow shocks without conflating them with contemporaneous broad-risk or funding-spread disturbances.

The empirical results point to three main findings. First, a digital-asset liquidity inflow shock is associated with a short-run appreciation of DXY after impact, whereas the outflow shock produces the opposite post-impact pattern. Second, the DXY response displays an impact reversal: inflow shocks initially weaken DXY before turning positive over the next few horizons, while outflow shocks initially strengthen DXY before turning negative. Third, counterfactual channel decompositions show that the transmission to DXY is primarily carried by the stablecoin channel, while the Bitcoin channel is quantitatively smaller and less persistent. The paper therefore shifts the interpretation of the digital reconstruction of U.S. financial dominance away from a Bitcoin-only story and toward a stablecoin-led digital-liquidity story.

The paper contributes to the literature in three ways. First, it connects international political economy and digital finance through a directly estimated structural framework rather than through narrative analogy alone. Second, it replaces a narrow asset-pricing interpretation with a macro-financial interpretation centered on digital-asset liquidity and dollar transmission. Third, it shows that post-estimation sign and zero restrictions can recover policy-relevant digital shocks while explicitly separating them from contemporaneous risk and funding-spread disturbances. The following sections review the theoretical literature, present the empirical design, and discuss the implications of the new structural evidence.

2 Theory

2.1 Monetary Power and Infrastructural Order

International monetary power is not exhausted by reserve holdings or exchange-rate status. In the IPE literature, it is also the capacity to shape adjustment burdens, preserve autonomy, and organize the institutions through which liquidity circulates across borders (Cohen 2017, Cohen 2005, 2013). Structural power in this sense is exercised not only through formal rule-making, but through the ability to define the operating environment in which other actors borrow, settle, hedge, and store value (Norrlof 2014, Strange 1987). That shift in emphasis matters for this paper because it moves the analysis away from a narrow reserve-currency story and toward the infrastructures that sustain dollar centrality in practice.

Recent accounts of U.S. financial dominance push this argument further by treating the dollar order as an infrastructural order. Schwartz (2019) shows how dollar centrality persists through global credit creation, routinized invoicing, and balance-sheet dependence on U.S. financial markets, while Binder (2024) demonstrates that offshore finance allows foreign institutions to create and circulate dollar claims beyond U.S. territory without escaping U.S.-centered monetary hierarchy. The post-Bretton Woods order therefore should not be understood simply as a legacy of past hegemony or as a static set of institutional rules. It is better understood as an evolving monetary architecture in which public authority, private intermediation, and market infrastructures jointly reproduce dollar liquidity at global scale.

This view also narrows the role of historical narrative in the argument. Bretton Woods, the collapse of gold convertibility, and the Washington Consensus matter because they help explain how the United States shifted from a gold-anchored monetary system to a more flexible order organized around credit creation, liberalized capital mobility, and institutional influence (Eichengreen 2021, Vernengo 2021, Wade 2002). But for the present paper, the theoretical point is not that neoliberal ideas mechanically caused today's digital markets. It is that dollar dominance has repeatedly adapted by extending itself through new channels of liquidity provision and rule-setting. The digital question is whether privately issued dollar claims on blockchains should be understood as one more such channel.

That question connects IPE to governance. If the dollar order is reproduced through infrastructures rather than through sovereign fiat alone, then changes in those infrastructures are simultaneously changes in international order and in the objects that states must govern. The rise of stablecoins therefore belongs inside the theory of U.S. financial dominance, not outside it. They are important not because they abolish state power, but because they may reorganize how state-backed monetary authority is extended, delegated, and contested in digital markets.

2.2 Financial Governance, State Capacity, and Hybrid Digital Infrastructure

From a governance perspective, stablecoins are difficult to classify as either fully public or fully private. They are privately issued liabilities, yet they perform quasi-public functions inside digital markets by supplying units of account for settlement, collateral transfer, and liquidity management. This ambiguity is not incidental. As Ciepley (2013) argues in a broader context, corporate actors can exercise government-like powers without becoming public institutions in a formal legal sense. Stablecoins are similar: they are issued by firms, but their operational role gives them infrastructural significance that quickly spills over into public concerns about financial stability, monetary sovereignty, and supervisory control.

This is why the governance problem cannot be reduced to whether crypto-assets are innovative or speculative. Governance, in the sense emphasized by Fukuyama (2013), concerns the capacity of institutions to make and implement collectively binding decisions through competent and sufficiently autonomous organizations. In public-administration terms, the relevant issue is not only whether regulators have legal authority over digital finance, but whether they possess the analytical, operational, and coordinating capacity to monitor reserve quality, redemption arrangements, platform dependencies, and cross-border exposures (Wu et al. 2015). Stablecoins raise precisely these questions because they sit at the boundary of payments, securities, money markets, and digital-platform governance.

The recent digital-finance literature reinforces this move toward a governance lens. Donnelly et al. (2024) show that digital-finance regulation is also a problem of sovereignty and institutional control, as regulators adapt existing frameworks while building new narratives around security, resilience, and monetary authority. More generally, new-governance approaches emphasize that complex infrastructures are often governed through hybrid combinations of public rule-setting, delegated oversight, and intermediary compliance rather than through direct command alone (Lobel 2012). This is especially relevant for stablecoins because their reserve assets, custody chains, trading platforms, and redemption channels often cross multiple regulatory domains at once.

The governance stakes are heightened by their macro-financial effects. Stablecoins are not only denominational devices for crypto trading; they can transmit stress into safe-asset markets, influence funding conditions, and alter the timing and composition of dollar demand (Ahmed and Aldasoro 2025, Farag et al. 2025). In that sense, monetary capacity is one dimension of state capacity. A state that can stabilize, supervise, and coordinate around strategically important payment and liquidity infrastructures is better positioned to preserve resilience under fragmentation than a state that merely declares legal authority over them. For this reason, stablecoins should be theorized as hybrid digital infrastructures whose significance lies as much in governance and administrative capacity as in market valuation.

2.3 An Integrated IPE-Governance Framework

The paper's core theoretical claim follows from combining these two perspectives. From IPE, the relevant insight is that U.S. financial dominance is reproduced through infrastructures that organize global liquidity rather than through reserve status alone. From governance theory, the relevant insight is that infrastructures with system-wide consequences become objects of state capacity, regulatory coordination, and institutional design. Stablecoins sit at the intersection of both logics. They are privately issued, but they are dollar-anchored; they emerge from digital markets, but they remain linked to safe assets, payment systems, and supervisory regimes; and they appear innovative, yet they may deepen existing monetary hierarchies rather than displace them.

This integrated framework implies that stablecoins should not be treated either as pure market challengers to the dollar or as neutral technical instruments. They are better understood as hybrid channels through which dollar liquidity may be reconstructed in digital form. That possibility becomes stronger when the underlying stablecoin is dollar-backed, widely used for settlement, and embedded in cross-border trading networks. In those conditions, the expansion of stablecoin balances can simultaneously enlarge activity inside digital markets and reinforce the broader dollar-centered order to which those markets remain tied. The governance consequence is that regulatory capacity becomes part of the story of monetary power rather than a secondary policy afterthought.

Following Farrell and Newman (2019), networked infrastructures can amplify state power not only through direct control, but also through asymmetric dependence created by central nodes of interconnection. Stablecoins should therefore be analyzed as potential nodes in a broader dollar-centered network of dependence. Their importance lies not simply in the existence of a peg, but in the combination of denomination, circulation, and regulatory embedding. If stablecoins become the standard interface through which digital-asset markets access dollar liquidity, then the digital layer of finance may reproduce monetary hierarchy even while appearing institutionally decentralized.

This framework yields three propositions that guide the empirical analysis. **Proposition 1.** Dollar-backed stablecoins are more plausibly channels for the extension of U.S. financial dominance than straightforward substitutes for it. **Proposition 2.** Because stablecoins are hybrid infrastructures rather than ordinary assets, their systemic importance is also a problem of governance and state capacity, especially under fragmented cross-border regulation. **Proposition 3.** If digital-asset liquidity feeds back into dollar strength, the dominant transmission channel should run through stablecoin balances rather than Bitcoin prices alone. The BSVAR is designed to evaluate these propositions by identifying digital-asset liquidity shocks, tracing their effects on DXY, and separating the stablecoin channel from the Bitcoin channel.

3 Empirical Strategy and Results

3.1 Stylized Facts and Research Paradigm

Before turning to the BSVAR, six stylized facts motivate the empirical design. Figure 1 summarizes the baseline political-economy logic used throughout the paper. A stronger dollar raises demand for dollars in cross-border payments and in global capital markets, enlarges the use of the dollar clearing system, and thereby consolidates U.S. financial hegemony. The digital question is whether dollar-backed on-chain liquidity now enters that same loop rather than operating outside it.

Figure 1: U.S. Financial Dominance Cycle

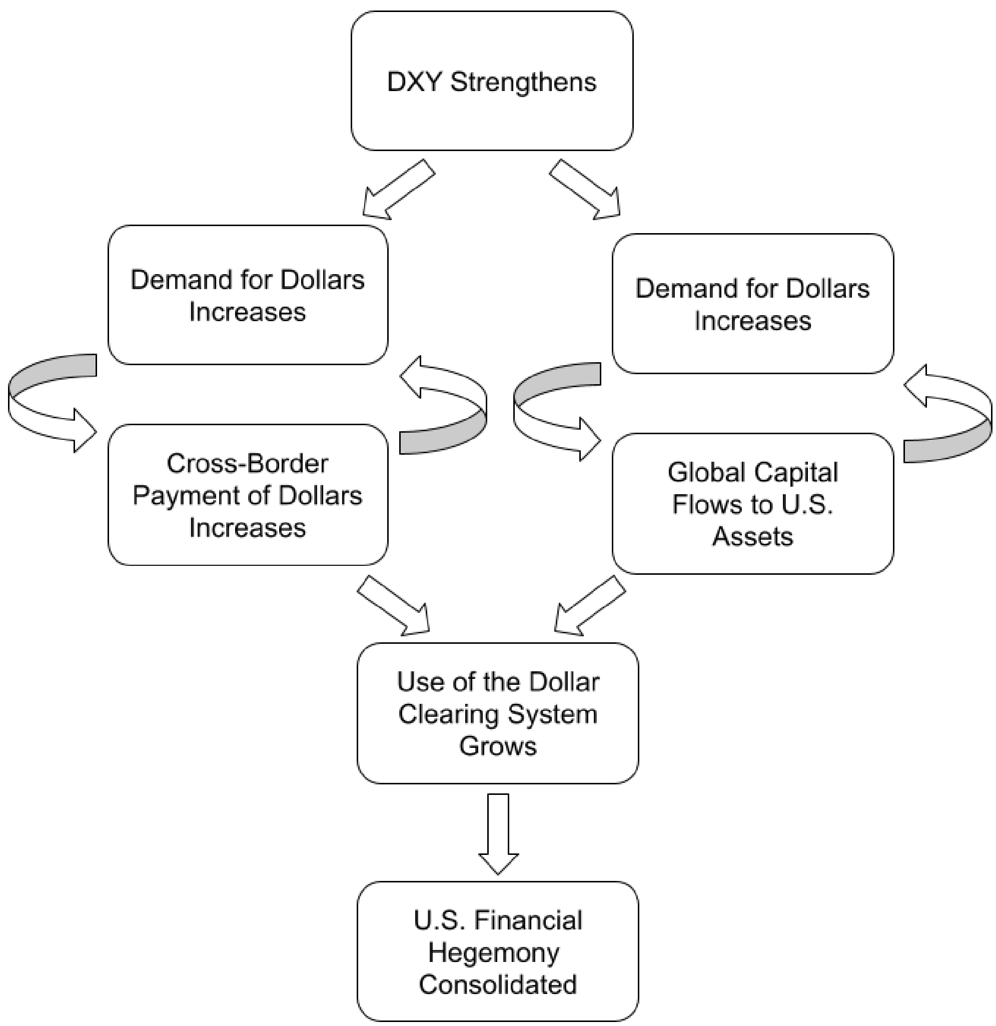


Figure 2 consolidates four background patterns. The upper-left panel shows that the long-run evolution of dollar strength and the rise of digital assets overlap in time rather than occurring in separate regimes. DXY and the dollar real effective exchange rate remain elevated by historical standards even as Bitcoin grows from a niche asset into a major market. This comovement does not prove a reinforcing mechanism by itself, but it does suggest that digital-asset expansion has taken place inside an already dominant dollar-centered system.

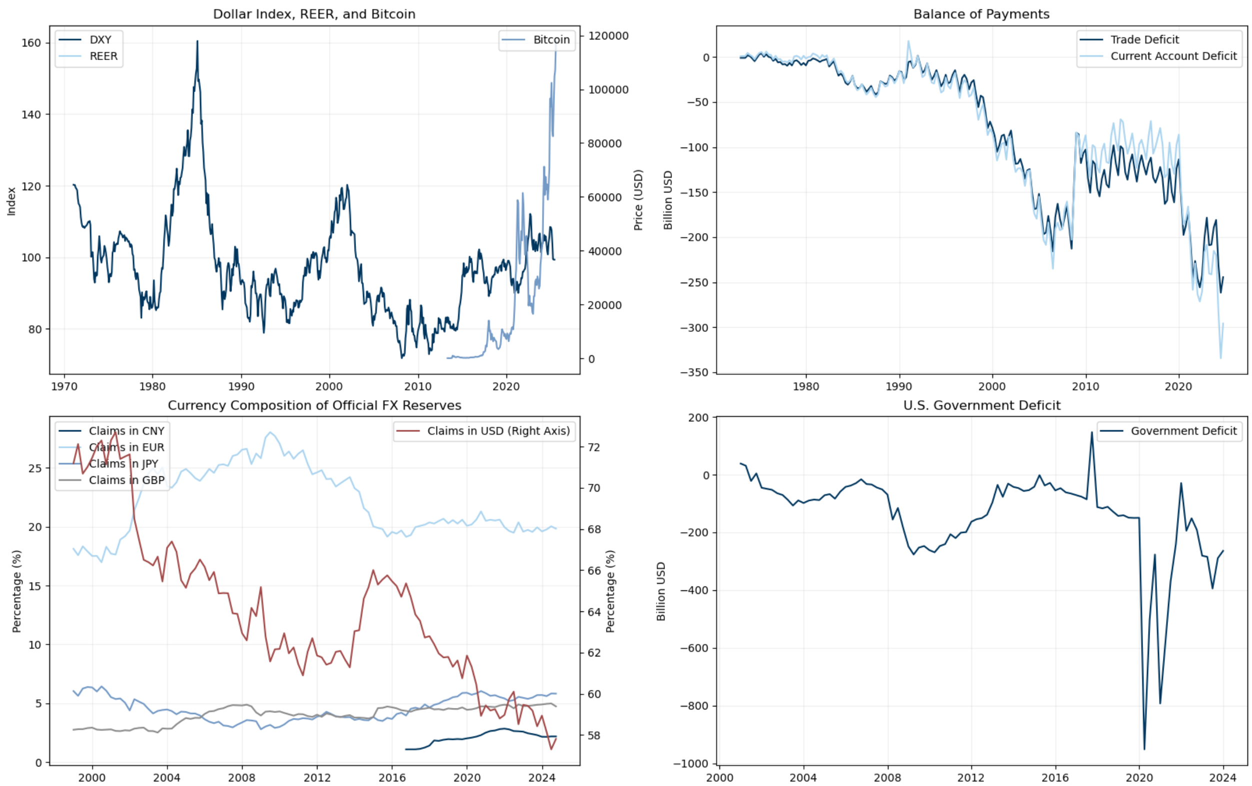
The upper-right and lower-right panels describe the macro-financial background of U.S. financial dominance. Persistent trade and current-account deficits, together with large fiscal deficits that become especially pronounced after the pandemic, show that the dollar system is sustained not only by reserve demand but also by the large-scale supply of dollar liabilities and dollar assets to the rest of the world.

The lower-left panel adds an important contrast. The share of global reserve claims denominated in U.S. dollars has trended lower, yet the dollar has not lost its broader macro-financial centrality. This divergence suggests that U.S. financial dominance cannot be read from reserve shares alone. It is increasingly maintained through market liquidity, invoicing, funding, and settlement channels. That observation is exactly what opens conceptual space for stablecoins to matter: they may reinforce dollar centrality through digital-liquidity channels even if official reserve composition becomes more diversified.

3.2 Data Selection and System Design

The empirical analysis uses a monthly panel from July 2015 to December 2024. End-of-month observations are used for market variables, and all series are brought to a common monthly frequency before entering the BSVAR. Financial and digital-asset prices, market capitalizations, VIX, and DXY are log-transformed and scaled by 100, while Yield 3M and the SOFR-EFFR spread remain in levels. The BSVAR, therefore, focuses on a joint monthly system rather than on mixed-frequency short-run return regressions.

Figure 2: Stylized Facts



The seven-variable state vector is

$$Y_t = (\text{Yield 3M}_t,\ \log(VIX)_t,\ SOFR{-}EFFR_t,\ \log(\text{USDT Market Cap})_t,$$
$$\log(\text{USDT Price})_t,\ \log(\text{BTC Price})_t,\ \log(DXY)_t)'. \quad (1)$$

This design keeps three conventional controls inside the system: the short Treasury rate as the most direct price of dollar liquidity, the VIX as a measure of broad risk sentiment, and the SOFR-EFFR spread as a funding-friction proxy. The digital side is represented by USDT market capitalization, the USDT price deviation, and Bitcoin prices, while DXY remains the benchmark measure of short-run dollar strength. In the impulse-response figures, I report only the five economically central responses: Yield 3M, log(USDT Market Cap), log(USDT Price), log(BTC Price), and log(DXY). The omitted control variables still enter estimation and identification.

3.3 Seven-Variable BSVAR

The BSVAR is defined as follows, where Y_t is a $n \times 1$ vector at period t including all variables of interest in the system, X_t represents the vector of the lags of Y up to period $t-p$, and $\epsilon_t \sim \mathcal{N}(0, I_n)$,

$$Y_t = \nu + \Psi X_t + \Sigma \epsilon_t, \tag{2}$$

$$Y_t = \begin{pmatrix} Y_{1t} & Y_{2t} & \cdots & Y_{nt} \end{pmatrix}', \tag{3}$$

$$X_t = \begin{pmatrix} Y'_{t-1} & Y'_{t-2} & \cdots & Y'_{t-p} \end{pmatrix}'. \tag{4}$$

In the empirical implementation, $n = 7$ and $p = 12$ monthly lags. The coefficient matrix Ψ encodes the transition matrices Φ_i of corresponding lags in a row vector,

$$\Psi = \begin{pmatrix} \Phi_1 & \Phi_2 & \cdots & \Phi_p \end{pmatrix}, \tag{5}$$

$$\Phi_i = \begin{pmatrix} \phi_{i,11} & \cdots & \phi_{i,1n} \\ \vdots & \ddots & \vdots \\ \phi_{i,n1} & \cdots & \phi_{i,nn} \end{pmatrix}, \quad i = 1, 2, \cdots, p. \tag{6}$$

The priors of the parameters are set by the Minnesota prior. It assumes that the mean of the prior distribution is a random walk and shrinks coefficients on lags to maintain the stability and smoothness of the system. The means of ν and Φ_i are as follows:

$$E(\nu) = \begin{pmatrix} 0 & 0 & \cdots & 0 \end{pmatrix}, \tag{7}$$

$$E(\Phi_i) = \begin{pmatrix} 1 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & 1 \end{pmatrix}, \quad i = 1, \tag{8}$$

$$E(\Phi_i) = \begin{pmatrix} 0 & \cdots & 0 \\ \vdots & \ddots & \vdots \\ 0 & \cdots & 0 \end{pmatrix}, \quad i = 2, 3, \cdots, p. \tag{9}$$

The variances of ν_i are specified by

$$(\sigma_i \lambda_4)^2, \tag{10}$$

and the variances and covariances of Φ_{ij} are specified as follows:

$$\left(\frac{\lambda_1}{I^{\lambda_3}}\right)^2, \quad \text{if } i = j, \tag{11}$$

$$\left(\frac{\sigma_i \lambda_1 \lambda_2}{\sigma_j I^{\lambda_3}}\right)^2, \quad \text{if } i \neq j. \tag{12}$$

where I denotes the lag order. Specifically, λ_1 controls the standard deviations on own lags, λ_2 controls the standard deviations of the priors on the lagged dependent variables other than the corresponding variable itself, λ_3 controls the degree to which coefficients on higher-order lags shrink to 0, and λ_4 defines the shrinkage degree on the constant vector. In the current seven-variable specification, I set the hyperparameters as

$$\lambda_1 = 0.2,$$
$$\lambda_2 = 0.5,$$
$$\lambda_3 = 2,$$
$$\lambda_4 = 10,$$

and estimate the scale terms σ_i from univariate autoregressions. This prior keeps the system locally persistent while shrinking noisy cross-lag feedback.

3.4 MCMC Estimation and Post-Estimation Identification

Posterior inference is implemented with Bayesian MCMC. To separate the covariance block from the Minnesota shrinkage on the coefficients, write the reduced-form impact matrix as

$$D = \mathrm{diag}(s_1, \dots, s_n), \tag{13}$$
$$\Sigma = DL, \tag{14}$$

where $s_i > 0$ are marginal scale terms and L is a lower-triangular Cholesky factor for the contemporaneous correlation matrix. Conditional on (ν, Φ, D, L), the monthly panel obeys

$$Y_t \mid \nu, \Phi, D, L \sim \mathcal{N}(\nu + \Psi X_t,\ \Sigma\Sigma')\,. \tag{15}$$

The prior blocks are

$$\nu \sim \mathcal{N}(0,\ V_\nu)\,, \qquad V_\nu = \operatorname{diag}\big((\sigma_1\lambda_4)^2, \ldots, (\sigma_n\lambda_4)^2\big)\,, \tag{16}$$

$$\phi_{\ell,ij} \sim \mathcal{N}\big(\bar{\phi}_{\ell,ij},\ v_{\ell,ij}\big)\,, \tag{17}$$

$$s_i \sim \mathcal{N}^+\big(0,\ \sigma_i^2\big)\,, \tag{18}$$

$$L \sim \mathcal{LKJ}\text{-}\rfloor\langle\wr\updownarrow_n(1). \tag{19}$$

Here $\bar{\phi}_{\ell,ij}$ and $v_{\ell,ij}$ are the Minnesota prior means and variances defined in the previous subsection, σ_i denotes the residual scale estimated from the univariate autoregression for variable i, and $\mathcal{N}^+$ denotes the half-normal distribution. The resulting posterior is therefore proportional to

$$p(\nu, \Phi, D, L \mid Y_{1:T}) \propto \left[\prod_{t=1}^{T} f(Y_t \mid \nu, \Phi, D, L)\right] p(\nu)\, p(\Phi)\, p(D)\, p(L). \tag{20}$$

This posterior is not conditionally conjugate because the covariance block enters through the multivariate Gaussian likelihood together with the half-normal and LKJ priors. For that reason, the estimation is written most accurately as a blockwise Bayesian MCMC scheme that targets the joint posterior by updating each parameter block conditional on the current state of the chain. The estimation uses four chains, 500 warm-up draws, and 500 retained draws per chain. Table 1 summarizes that simulation loop.

The identification is then imposed *after* Bayesian estimation, following Arias et al. (2018). In practice, each retained posterior draw of Σ is paired with candidate orthogonal rotations until the implied impact matrix satisfies the required sign and zero restrictions. This sequencing is important because it separates posterior uncertainty about the BSVAR from the additional economic information used to interpret specific shocks.

To express the Arias et al. argument in the notation of this paper, first rewrite the

Table 1: Posterior Simulation Scheme for the BSVAR

Step	Operation
1	Initialize four chains and starting values for $\theta^{(0)} = (\nu^{(0)}, \Phi^{(0)}, D^{(0)}, L^{(0)})$, then discard the first 500 draws of each chain as warm-up.
2	At iteration m, construct the current impact matrix $\Sigma^{(m-1)} = D^{(m-1)} L^{(m-1)}$ and the current conditional mean $\mu_t^{(m-1)} = \nu^{(m-1)} + \Psi^{(m-1)} X_t$.
3	Update the intercept vector ν with an MCMC transition kernel targeting $p(\nu \mid Y_{1:T}, \Phi^{(m-1)}, D^{(m-1)}, L^{(m-1)})$.
4	Update the lag-coefficient block $\Phi = \{\Phi_\ell\}_{\ell=1}^{12}$ with a transition kernel targeting $p(\Phi \mid Y_{1:T}, \nu^{(m)}, D^{(m-1)}, L^{(m-1)})$.
5	Update the positive scale block D with a transition kernel targeting $p(D \mid Y_{1:T}, \nu^{(m)}, \Phi^{(m)}, L^{(m-1)})$.
6	Update the correlation-Cholesky block L with a transition kernel targeting $p(L \mid Y_{1:T}, \nu^{(m)}, \Phi^{(m)}, D^{(m)})$.
7	Form $\theta^{(m)} = (\nu^{(m)}, \Phi^{(m)}, D^{(m)}, L^{(m)})$, reconstruct $\Sigma^{(m)} = D^{(m)} L^{(m)}$, and evaluate the joint posterior kernel at the updated state.
8	Retain the post-warm-up draws from all four chains and combine them into the posterior sample used for structural identification and impulse-response analysis.

estimated system as

$$Y_t = \nu + \Psi X_t + u_t, \tag{21}$$

$$\Omega = \mathbb{E}(u_t u_t') = \Sigma\Sigma'. \tag{22}$$

Here Σ is the reduced-form impact factor recovered from Bayesian estimation, so it pins down the covariance matrix Ω but does not yet assign an economic interpretation to individual shocks. Structural identification amounts to replacing the reduced-form disturbance u_t with

$$u_t = B(Q)\eta_t, \tag{23}$$

where $\eta_t \sim \mathcal{N}(0, I_n)$ are orthonormal structural shocks and

$$\Omega = B(Q)B(Q)', \tag{24}$$

$$B(Q) = \Sigma Q. \tag{25}$$

The matrix Q is orthogonal, so it rotates the columns of Σ without changing the covariance matrix implied by the data. Write

$$Q = \begin{pmatrix} q_1 & q_2 & \cdots & q_n \end{pmatrix}, \tag{26}$$

$$q_i' q_j = \mathbf{1}\{i = j\}, \tag{27}$$

so each column q_j is a unit vector in the reduced-form innovation space and the collection $\{q_j\}_{j=1}^n$ is mutually orthogonal. This is the key theoretical role of Q: it parameterizes all structural decompositions that are observationally equivalent to the same estimated reduced-form BSVAR.

Given the transition law already written in the notation of this paper, define the moving-average coefficients Θ_h through

$$Y_t = \mu + \sum_{h=0}^{\infty} \Theta_h u_{t-h}. \tag{28}$$

Substituting $u_t = \Sigma Q \eta_t$ yields

$$Y_t = \mu + \sum_{h=0}^{\infty} \Theta_h \Sigma Q \eta_{t-h}. \tag{29}$$

Hence the impulse response of the system to structural shock j at horizon h is

$$r_{j,h}(Q) = \Theta_h \Sigma q_j. \tag{30}$$

This expression shows why the entire identification problem can be stated in terms of the columns of Q: once Σ and Θ_h are estimated, choosing q_j chooses the structural shock and all of its impulse responses.

Following Arias et al. (2018), sign and zero restrictions are imposed jointly as linear conditions on q_j. Let $Q_{j-1} = (q_1, \ldots, q_{j-1})$ collect the columns that have already been assigned to earlier shocks. Let Z_j collect the zero restrictions for shock j and let $S_{j,h}$ collect the sign restrictions at horizon h. Then the admissible direction for shock j must satisfy

$$F_j q_j = 0, \tag{31}$$

$$G_j q_j \geq 0, \tag{32}$$

with

$$F_j = \begin{pmatrix} Q'_{j-1} \\ Z_j \Theta_0 \Sigma \end{pmatrix}, \tag{33}$$

$$G_j = \begin{pmatrix} S_{j,0}\Theta_0\Sigma \\ S_{j,1}\Theta_1\Sigma \\ \vdots \\ S_{j,H}\Theta_H\Sigma \end{pmatrix}. \tag{34}$$

The first block in F_j enforces orthogonality with previously identified shocks, while the second block imposes the required zero responses. The matrix G_j collects all sign restrictions across horizons. In the present application, the explicit identifying restrictions are imposed on impact, so the empirical table below corresponds to the case $H = 0$ and the sign restrictions are summarized directly on $\Theta_0 \Sigma q_j$. The theoretical gain from the Arias et al. framework is exactly that zero and sign restrictions enter the same orthogonal-rotation problem rather than being imposed sequentially in separate steps.

The identifying restrictions are summarized in Table 2. A digital-asset liquidity inflow shock lowers the short rate on impact, expands USDT balances, keeps the USDT price pinned at parity on impact, and raises Bitcoin prices, while leaving contemporaneous VIX and SOFR-EFFR at zero by construction. The outflow shock mirrors those signs. These zero restrictions are not incidental: they ensure that the two identified digital shocks are not simply contemporaneous broad-risk shocks or funding-spread shocks.

Table 2: Post-Estimation Sign and Zero Restrictions

Shock	Yield 3M	VIX	SOFR-EFFR	USDT MCap	USDT Px	BTC Px
Digital-Asset Liquidity Inflow	−	0	0	+	0	+
Digital-Asset Liquidity Outflow	+	0	0	−	0	−

Note: + and − denote sign restrictions on impact; 0 denotes a zero-impact restriction. The table reports imposed impact restrictions only.

3.5 Impulse Responses: Digital-Asset Liquidity Inflow and Outflow

Figure 3 reports the impulse responses to the digital-asset liquidity inflow shock. The pattern is economically coherent. USDT market capitalization rises sharply on impact, by roughly 15 percent at the posterior median, and then mean-reverts over the next year. USDT price deviations are small and short-lived, which is consistent with a liquidity shock that operates mainly through quantities rather than through a persistent break in the peg. Bitcoin prices rise strongly on impact as well, with a median response of similar magnitude to the market-cap response. The yield response is initially negative and then turns briefly positive, which is consistent with an inflow episode that first relaxes funding conditions and only later encounters portfolio rebalancing back into dollar assets.

The DXY response is the key object and follows a clear two-stage pattern. In the first stage, the inflow shock lowers both Yield 3M and DXY on impact, which is consistent with an initial liquidity-easing leg inside digital-asset markets. In the second stage, DXY inverts and turns positive over the next few horizons, with the credible bands above zero for multiple horizons, peaks at roughly 0.4 percent, and then fades back toward zero within about a year. This second-stage appreciation is consistent with stronger digital risk preference and a reallocation toward dollar-settled positions as crypto activity expands.

Figure 3: Impulse Responses: Digital-Asset Liquidity Inflow Shock

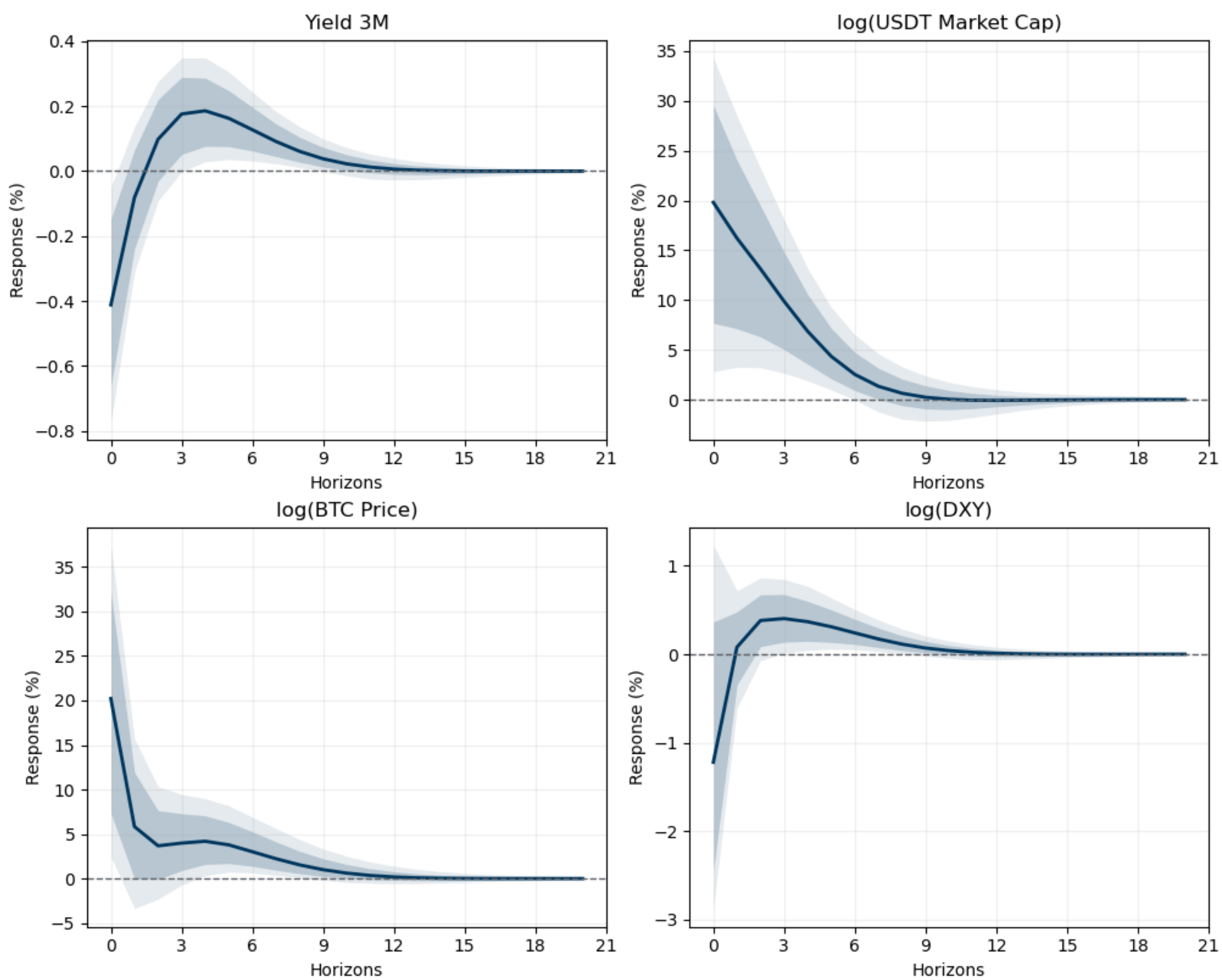
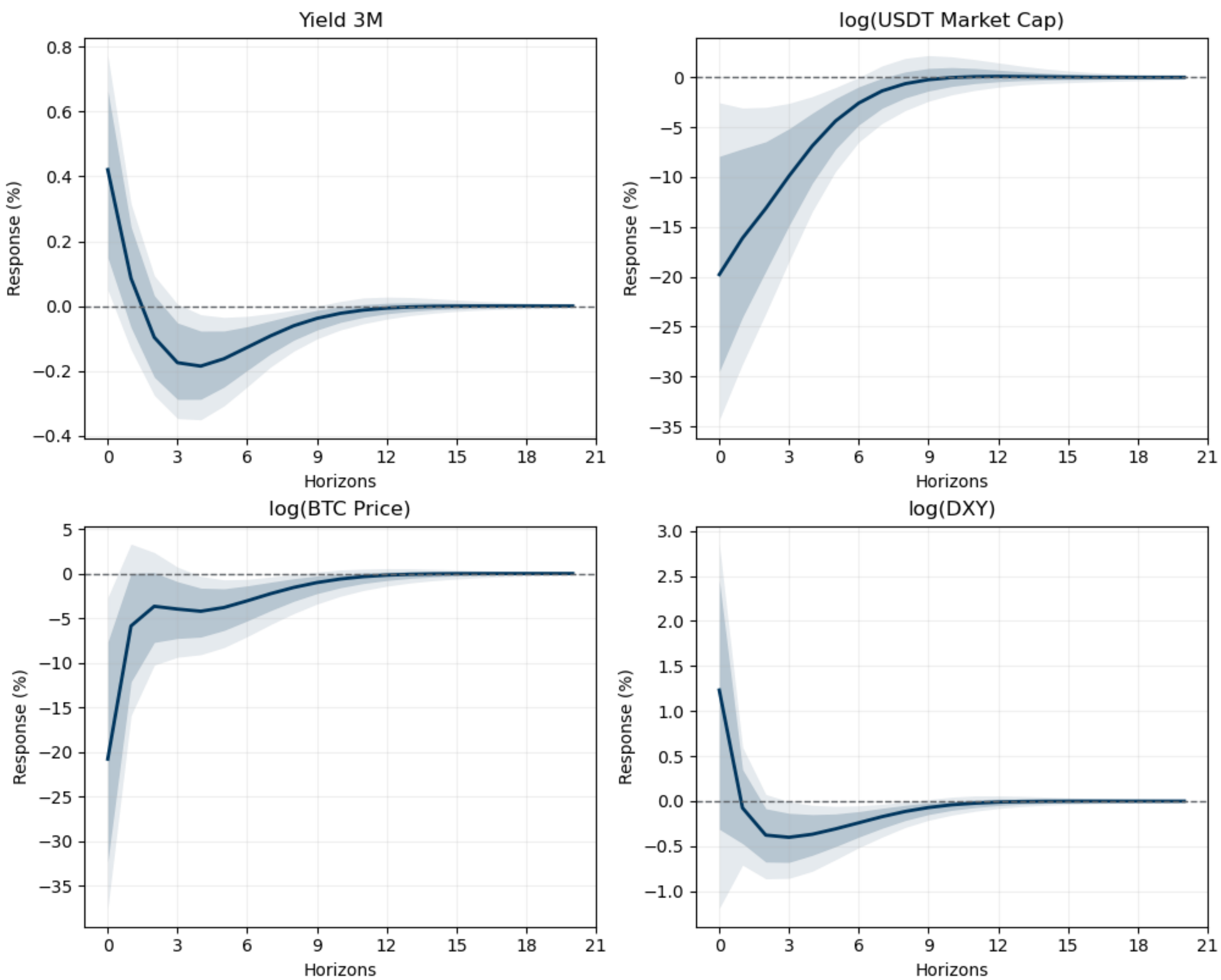


Figure 4 shows the corresponding outflow shock. The responses are broadly symmetric. USDT market capitalization contracts sharply, Bitcoin prices fall, and the short rate spikes on impact before normalizing. The DXY response also exhibits an impact reversal: it jumps positive on impact, turns negative after the first horizon, bottoms out at around −0.4 percent, and then gradually returns to zero. This symmetry strengthens the interpretation that the identified shocks capture a liquidity dimension of digital-asset markets rather than a one-sided narrative specific to bull-market episodes.

Figure 4: Impulse Responses: Digital-Asset Liquidity Outflow Shock



Taken together, Figures 3 and 4 imply that digital-asset liquidity shocks are associated with temporary, not permanent, movements in the dollar. The central message is therefore not that digital assets mechanically determine DXY, but that dollar-backed digital liquidity has become large enough to matter for the short-run dynamics of dollar strength.

3.6 Channel Decomposition

To decompose the dollar response, I construct counterfactual transition systems that retain only one propagation route at a time. The first retains only lagged transmission through log(USDT Market Cap), which I label the *stablecoin channel*. The second retains only lagged transmission through log(BTC Price), which I label the *Bitcoin channel*. This is not a variance-decomposition exercise; it is a counterfactual propagation exercise that asks how the DXY response changes when the dynamic feedback of one state variable is isolated.

Figure 5 shows that the post-impact positive DXY response to the digital-asset liquidity inflow shock is clearly stablecoin-led. Both channels display an initial impact dip and then turn positive, but the stablecoin channel generates the dominant share of the positive dollar response, peaking around 0.25 percent and decaying gradually over subsequent horizons. The Bitcoin channel is materially smaller and fades out faster. The relevant ranking is therefore large and persistent stablecoin transmission versus small and transitory Bitcoin transmission. This is the most important substantive result in the decomposition exercise: the digital transmission into dollar strength operates primarily because dollar-backed stablecoin balances expand and then propagate through the broader digital-asset system, not because Bitcoin itself becomes the main driver of dollar demand.

Figure 6 leaves the same qualitative ranking in place for the outflow episode. Both channels show a short positive impact and then turn negative, with the stablecoin channel markedly deeper and more persistent while the Bitcoin channel is more modest and reverts toward zero much faster. The broader implication is clear: even when digital-asset liquidity contracts, the dominant route through which those conditions transmit to the dollar remains the stablecoin balance-sheet channel rather than the Bitcoin price channel.

This decomposition materially changes the interpretation of the digital-dollar nexus. The evidence is more consistent with a dollar-backed balance-sheet channel than with a pure

Figure 5: Channel Decomposition: Digital-Asset Liquidity Inflow Shock

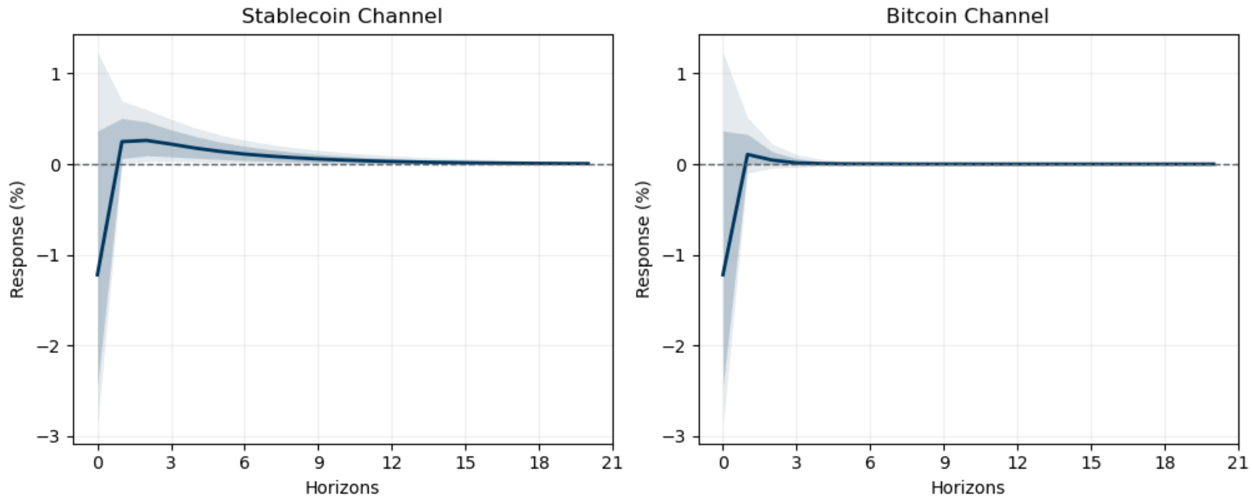
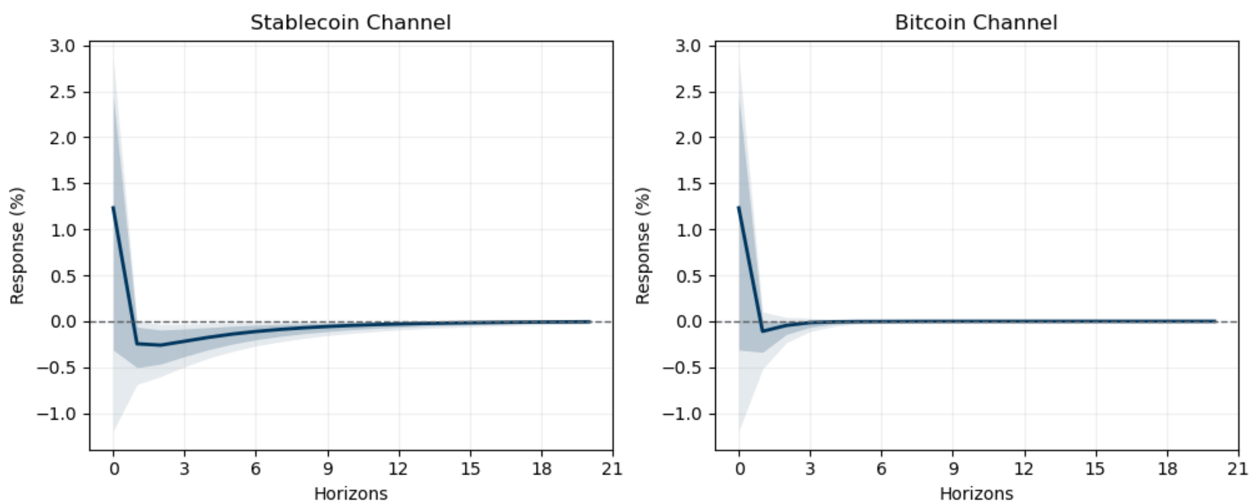


Figure 6: Channel Decomposition: Digital-Asset Liquidity Outflow Shock



Bitcoin-pricing channel. Bitcoin comoves with the identified shocks and does transmit some part of the dollar response, but that transmission is consistently second-order relative to the stablecoin channel. Stablecoins appear to function as the immediate on-chain liquidity interface between digital-asset markets and the broader dollar system, which is precisely why stablecoin regulation belongs inside discussions of international monetary governance.

4 Conclusion

This paper studies the digital reconstruction of U.S. financial dominance through a seven-variable BSVAR rather than through static correlations alone. The empirical strategy combines a Minnesota prior, Bayesian MCMC estimation, and post-estimation sign and zero restrictions in the spirit of Arias et al. (2018). That framework identifies two disturbances of direct substantive interest: digital-asset liquidity inflow and outflow shocks. The main empirical result is not that Bitcoin by itself has become a new reserve anchor, but that dollar-backed digital liquidity now behaves like a meaningful short-run transmission channel for the broader dollar system.

The evidence is consistent with a stablecoin-led digital dollar cycle. A digital-asset liquidity inflow shock expands USDT balances, raises Bitcoin prices, and produces a two-stage dollar response: an impact decline in DXY followed by a statistically positive post-impact phase. The outflow shock mirrors this dynamic. This point matters because it changes the framing of the debate. The relevant question is no longer simply whether digital assets challenge the dollar. The more precise question is whether some digital assets, especially dollar-backed stablecoins, are extending the reach of the dollar through a new balance-sheet technology.

The channel decomposition sharpens this conclusion. The post-impact positive DXY response is transmitted primarily through the stablecoin channel, while the Bitcoin channel remains quantitatively smaller and much less persistent. In other words, the digital transmission into dollar strength is not mainly a story about Bitcoin becoming "digital gold" or a parallel monetary hegemon. It is more plausibly a story in which stablecoins function as on-chain dollar liquidity, intermediate flows inside digital-asset markets, and then feed part of that liquidity back into broader dollar demand. This is exactly why the stablecoin layer has to be treated as infrastructure rather than as a peripheral fintech convenience.

Several implications follow. First, the relationship between digital assets and U.S. financial dominance should not be framed as a binary contest between the dollar and crypto.

Dollar-backed stablecoins can instead deepen the reach of the dollar system by extending settlement, liquidity management, and denomination functions onto blockchains. Second, stablecoin governance is not merely a question of consumer protection or market integrity. It is also a question of international monetary order. If stablecoins are increasingly the balance-sheet hinge between digital markets and the dollar system, then their issuance, reserve management, redemption design, and regulatory perimeter become part of the institutional architecture of contemporary U.S. financial dominance.

Third, the paper speaks to current policy debates on offshore dollar management. Traditional accounts of dollar power focus on trade invoicing, reserve holdings, offshore banking, and the centrality of U.S. capital markets. The results here suggest that a digital layer should be added to that list. Stablecoins can operate as a privately issued, technologically updated interface for offshore dollar liquidity. That does not imply that they are risk free. On the contrary, their growth raises new questions about reserve transparency, run risk, collateral composition, and the interaction between public monetary authority and privately mediated dollar claims. But those risks coexist with, rather than negate, their potential role in reinforcing dollar centrality.

The paper also has limits, and those limits define the next research agenda. The current specification is monthly and intentionally parsimonious, which is appropriate for international political economy but cannot capture every institutional feature of on-chain microstructure. Future work can test the durability of the two-stage DXY response across alternative stablecoin measures, broader dollar indicators, and richer decompositions of market-wide liquidity and risk sentiment. Even so, the present evidence is already sufficient to reject a narrow view in which digital assets only threaten the dollar from the outside.

The broader lesson is that the digital reconstruction of U.S. financial dominance is likely to be hybrid. Public authority, offshore finance, and private digital infrastructure are becoming more tightly linked rather than more separate. Stablecoins sit at that intersection. They are neither a simple substitute for sovereign money nor merely a speculative by-product of crypto markets. They are increasingly part of the operating system through which dollar liquidity is created, transmitted, and governed. In that sense, the future of dollar hegemony may depend not only on the Federal Reserve, Treasury markets, and the traditional offshore dollar network, but also on how the stablecoin layer is institutionalized.

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5 Appendix

Figure 1: U.S. Financial Dominance Cycle

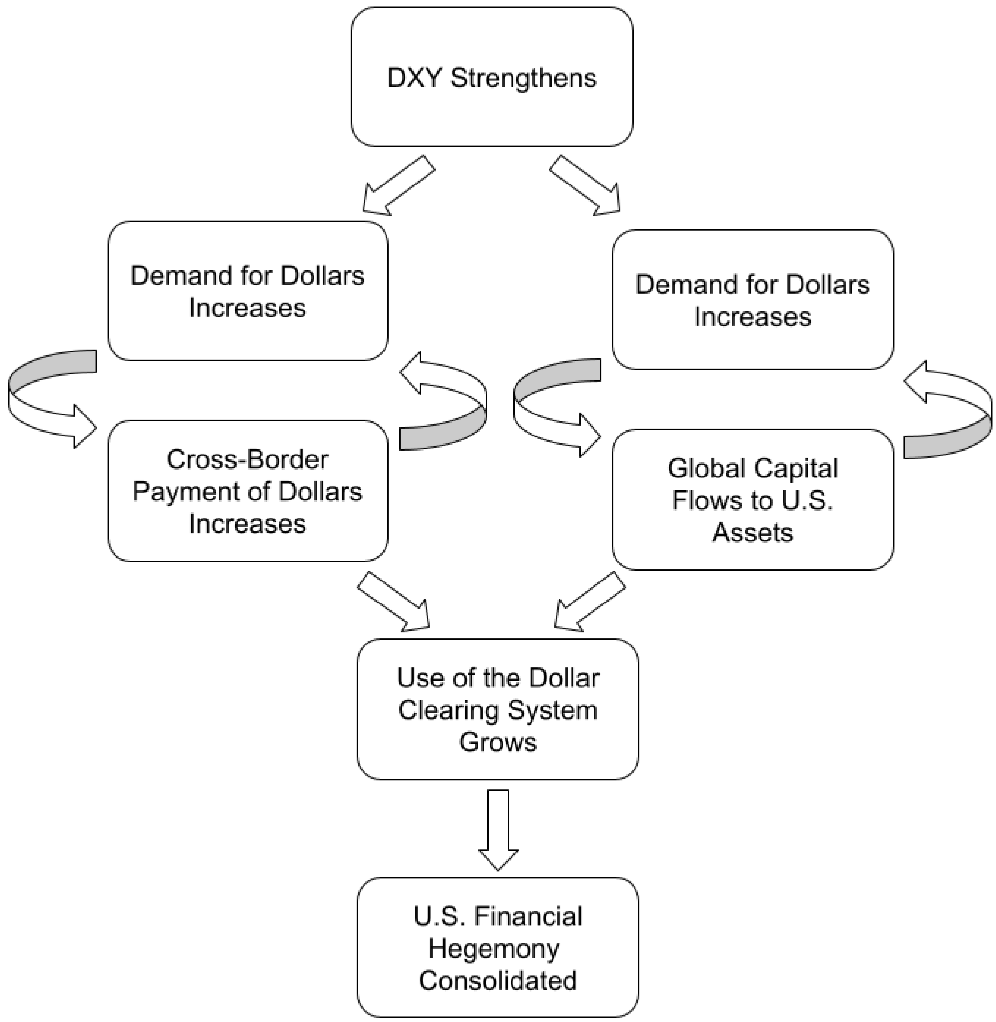


Figure 2: Stylized Facts

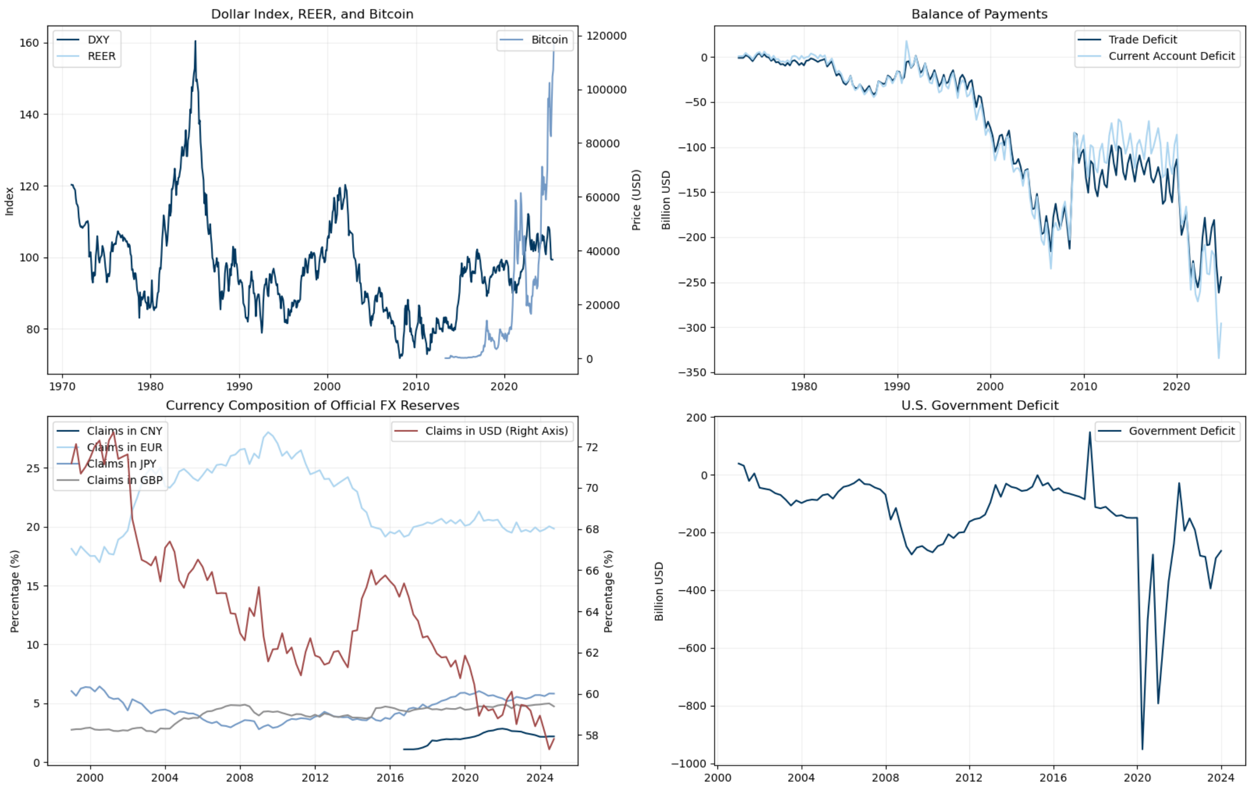


Figure 3: Impulse Responses: Digital-Asset Liquidity Inflow Shock

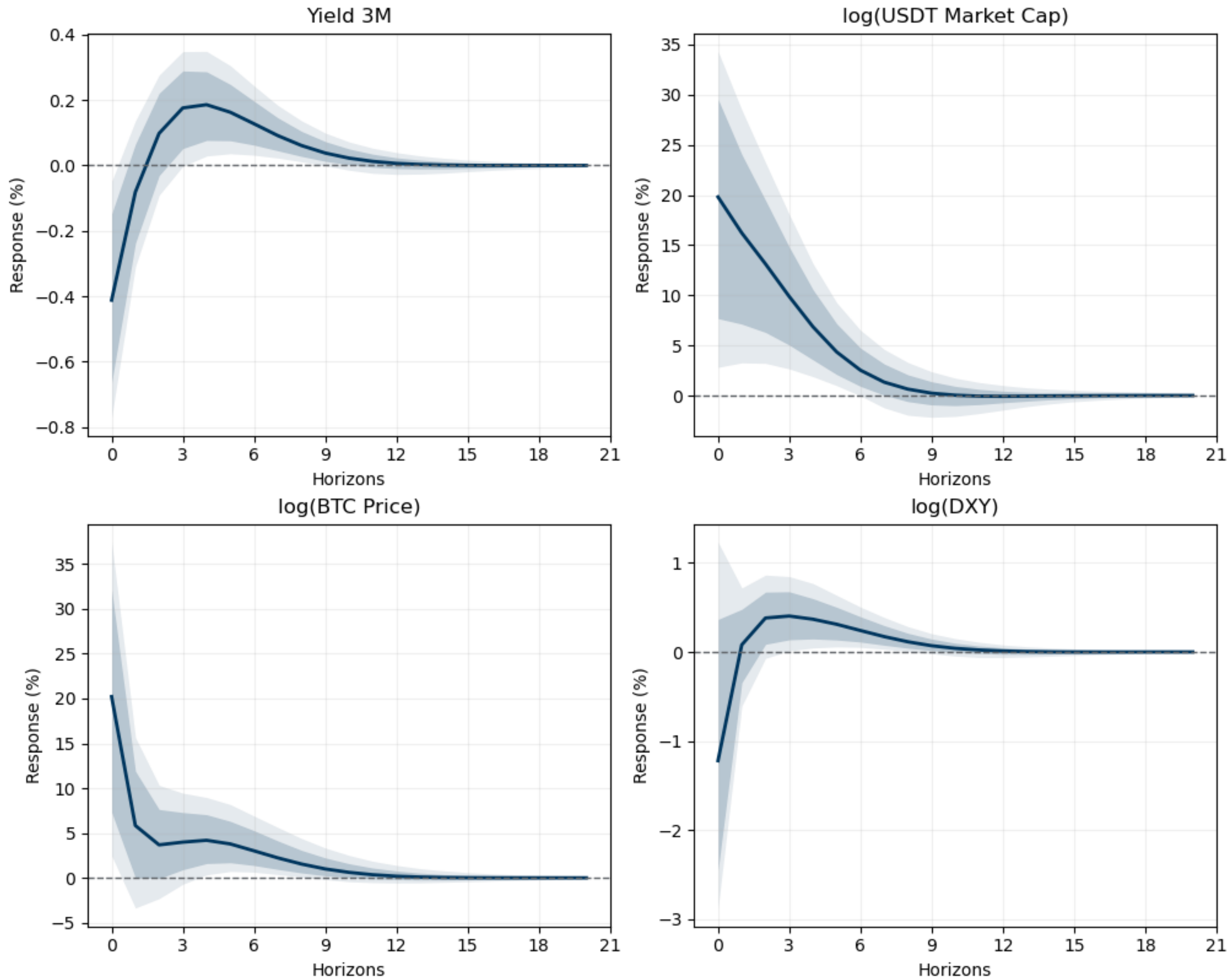


Figure 4: Impulse Responses: Digital-Asset Liquidity Outflow Shock

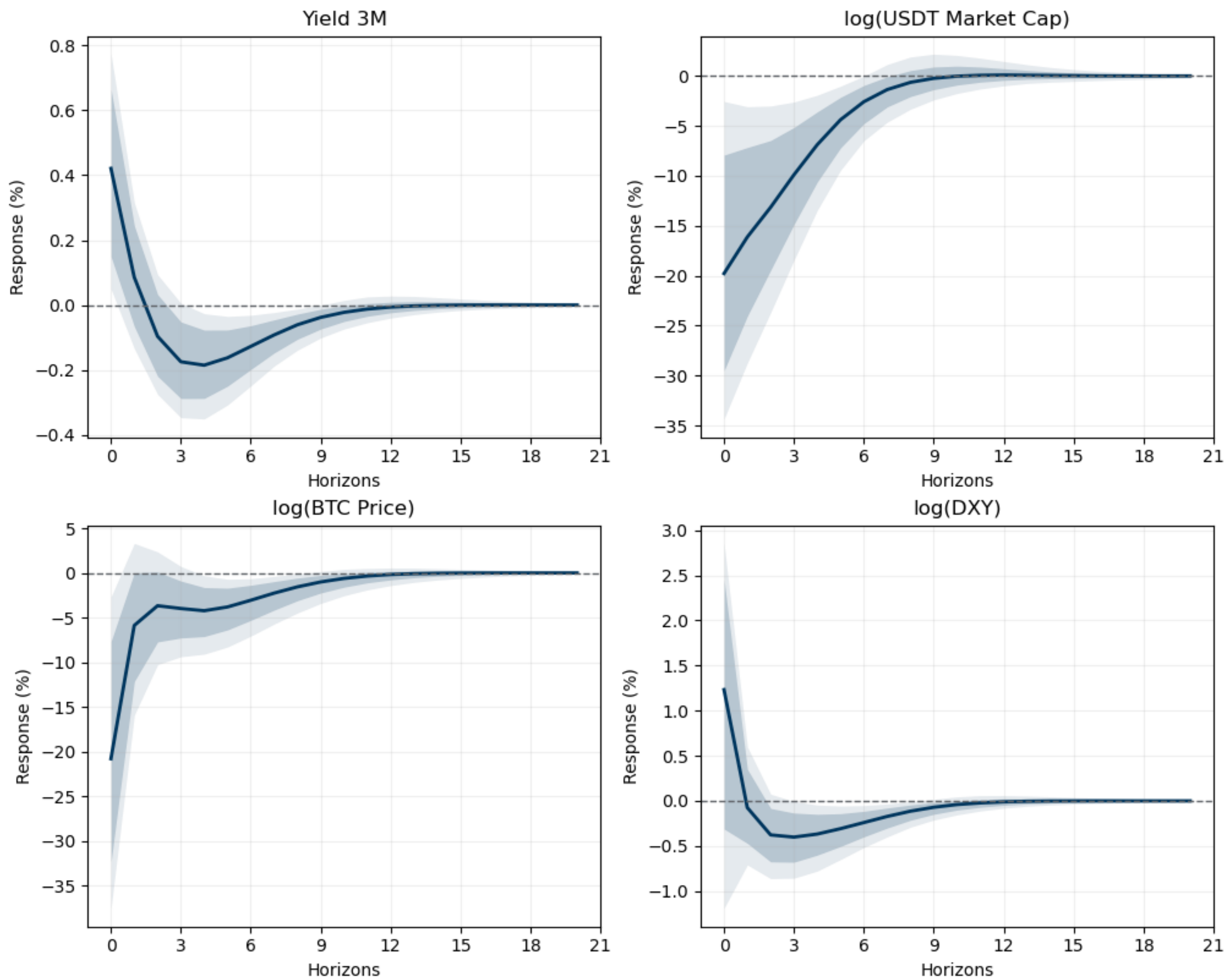
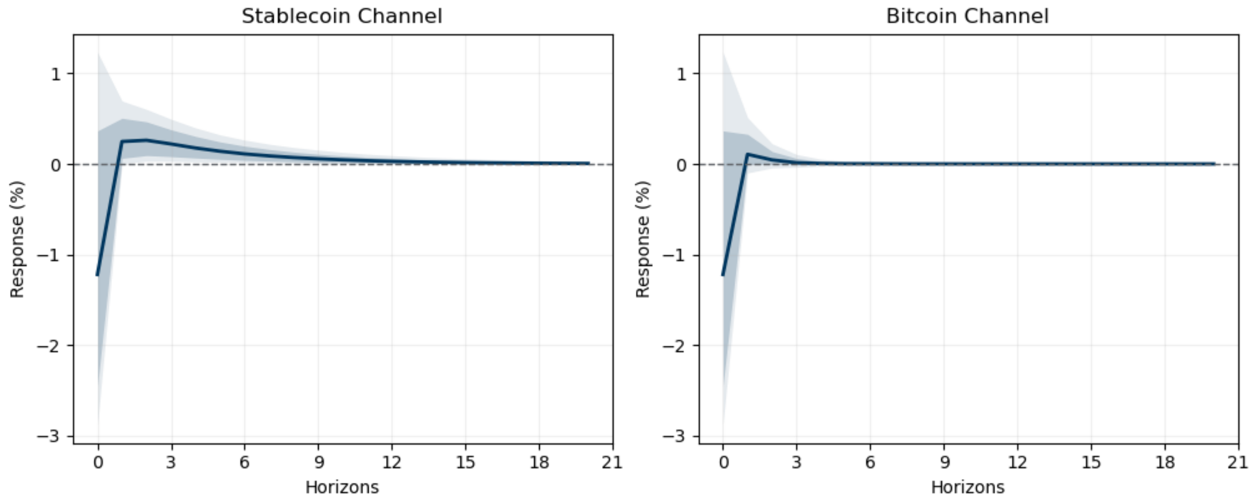


Figure 5: Channel Decomposition: Digital-Asset Liquidity Inflow Shock



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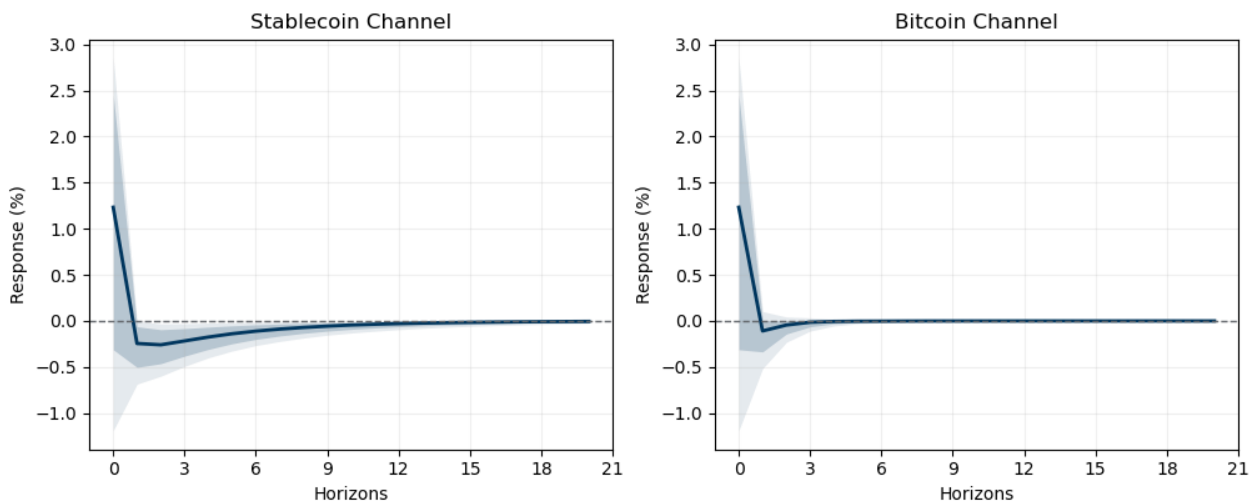

Table 1: Posterior Simulation Scheme for the BSVAR

Step	Operation
1	Initialize four chains and starting values for $\theta^{(0)} = (\nu^{(0)}, \Phi^{(0)}, D^{(0)}, L^{(0)})$, then discard the first 500 draws of each chain as warm-up.
2	At iteration m, construct the current impact matrix $\Sigma^{(m-1)} = D^{(m-1)} L^{(m-1)}$ and the current conditional mean $\mu_t^{(m-1)} = \nu^{(m-1)} + \Psi^{(m-1)} X_t$.
3	Update the intercept vector ν with an MCMC transition kernel targeting $p(\nu \mid Y_{1:T}, \Phi^{(m-1)}, D^{(m-1)}, L^{(m-1)})$.
4	Update the lag-coefficient block $\Phi = \{\Phi_\ell\}_{\ell=1}^{12}$ with a transition kernel targeting $p(\Phi \mid Y_{1:T}, \nu^{(m)}, D^{(m-1)}, L^{(m-1)})$.
5	Update the positive scale block D with a transition kernel targeting $p(D \mid Y_{1:T}, \nu^{(m)}, \Phi^{(m)}, L^{(m-1)})$.
6	Update the correlation-Cholesky block L with a transition kernel targeting $p(L \mid Y_{1:T}, \nu^{(m)}, \Phi^{(m)}, D^{(m)})$.
7	Form $\theta^{(m)} = (\nu^{(m)}, \Phi^{(m)}, D^{(m)}, L^{(m)})$, reconstruct $\Sigma^{(m)} = D^{(m)} L^{(m)}$, and evaluate the joint posterior kernel at the updated state.
8	Retain the post-warm-up draws from all four chains and combine them into the posterior sample used for structural identification and impulse-response analysis.

Table 2: Post-Estimation Sign and Zero Restrictions

Shock	Yield 3M	VIX	SOFR-EFFR	USDT MCap	USDT Px	BTC Px
Digital-Asset Liquidity Inflow	−	0	0	+	0	+
Digital-Asset Liquidity Outflow	+	0	0	−	0	−